CHAPTER 3 Forecasts of Aviation Activity

3.1 FORECASTS IN AN AIRPORT MASTER PLAN

Forecasts are the basic building blocks of an airport master plan. **Passenger forecasts** are used to determine the size and configuration of terminals and ancillary uses, i.e., short-term and long-term parking lots, rental car lots, curb and terminal roadway layouts and so on. **Operations forecasts**, which project the number of aircraft landing and taking off at the airfield, are used to project the total area needed to park these aircraft, the demand for fuel (which translates into the sizing of the fuel farm), the size of hold areas on taxiways and so on.

While forecasts over a 20-year period are made in a master plan, the reliability of these forecasts decreases over the longer time horizons. In the forecast field, only one thing is absolutely certain: the forecasts will differ invariably from the actual event numbers in future years. It is impossible to forecast such events as the Gulf War in 1991, which sent fuel prices soaring and passenger volumes tumbling, or the terrorist attacks of September 11, 2001, whose impacts are still felt in the air transport system. While such shocks are rare, they do wreak havoc with forecasts. Accordingly, forecasts should i) entail a variety of techniques and assessments, ii) encompass a range of values, iii) be reviewed constantly at airports and iv) be adjusted where necessary and appropriate.

RIAC

3.2 SOURCES OF DATA AND DEFINITIONS

The overwhelming bulk of the historical data and projected forecasts of activity are from drafts of the **Rhode Island Aviation System Plan Update** (**ASPU**), a massive undertaking nearing completion. The ASPU contains a wealth of recent data and information on Block Island Airport and this document draws heavily from these materials made available through RIAC. In Section 3.3 below, data from the preceding BID airport master plan are presented as well to relate actual data to projected data for an interesting perspective.

Aviation terms are used throughout this document and a Glossary and a List of Acronyms are contained in this document. An **operation** is defined as a landing or a takeoff. Training flights oftentimes include a practice landing and an immediate takeoff, a so-called **touch-and-go** which

counts for two operations. An **itinerant operation** is one where the landing and takeoff are at different airports or the aircraft leaves a 25-mile radius of the airport. A **local operation** is one where both the takeoff and landing occur at the same airport and the flight does not leave a 25-mile radius of the airport. These are primarily training flights or pleasure flights.

The terms **air carrier** and **air taxi** have FAA definitions as well. At Logan Airport in Boston, for instance, an "air carrier" is one of the several large airline companies flying large jets to numerous destinations, i.e., Delta Air Lines, Continental, United. An "air taxi" operation at Logan is one made by a carrier operating under prescribed FAA regulations in an aircraft of less than 60 passengers. For scheduled passenger operations at BID, given the relatively small size of the aircraft (less than 60 seats) and the regional nature of the operations, all scheduled passenger operations are categorized as Air Taxi operations. By definition, air taxi operations at BID are classified as itinerant operations.

The category **general aviation** is basically a catch-all category for all aircraft that are neither operated by scheduled air carriers nor the military. Counted in this category are the family flying to their summer home on the Island, a business contingent arriving via a chartered aircraft, the so-called "moms-and-pops" – primarily recreational flyers in small single or multi engine aircraft out for enjoyment and so on. Operations by the military are distinguished generally by the military insignia on the aircraft.

Based aircraft are those that are either hangared or tied down at an airport on a permanent or semi-permanent basis. **Fleet mix** refers to the mix of the different aircraft types (i.e., single engine, multi engine, jet and so on) that operate at an airport. An **enplanement** is a departing passenger on a commercial air carrier or air taxi flight; a passenger departing BID in a small general aviation aircraft is not counted as an enplanement.

3.3 FORECASTS FROM PRIOR MASTER PLAN

Prior to presenting the forecasts developed in the ASPU for Block Island Airport, it is interesting to review how well the forecasts from the 1989 master plan reflect actual data.[1] The results below indicate the great difficulty in forecasting aviation activity over long periods of time.

Table 3-1 shows projections of based aircraft for three years – 1990, 1995 and 2005 – and historical data for the period 1990-2003. While the projections indicate a slight growth in year-round based aircraft from 11 in 1990 to 14 in 2005, the actual data portray a decline in based aircraft from a high of 13 in the period 1990-1993 to a low of 6 in 2003.

Historical vs. projected aircraft operations are presented in Table 3-2. Unfortunately, the data presented in the 1989 master plan only permit a comparison of totals. While the forecast data presume continued growth in operations, the actual data reflect a steady decline in operations over the years. Aircraft operations peaked in 1992 at 25,300, of which approximately 16,000 (63 percent) were in general aviation. Only four years later, however, operations were down by more than a third to approximately 16,200 in 1996. In 2003, operations totaled 20,087 at BID.

[1] *Block Island State Airport Master Plan Study*, prepared by Hoyle, Tanner & Associates, Inc. et al for the Rhode Island Department of Transportation Division of Planning, 1989.

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Table 3-1 Forecast vs. Actual Based Aircraft

Year	Actual Based Aircraft	Forecast Based Aircraft	Difference
1990	13	11	-2
1991	13		
1992	13		
1993	13		
1994	7		
1995	6	12	6
1996	6		
1997	8		
1998	8		
1999	7		
2000	7		
2001	7		
2002	11		
2003	11		
2004	12		
2005		14	

Source: Forecast data from *Block Island State Airport Master Plan Study* (Hoyle, Tanner & Assoc., Inc., 1989), Table 2-11. Historical data (1990-2001) from a draft of the Rhode Island Aviation System Plan Update, Figure 640-02(171). 2002-2004 data from Piedmont Hawthorne Aviation, Inc.

RIAC

Table 3-2 Forecast vs. Actual Aircraft Operations

Year	Actual Operations				Forecast Operations	Difference
	Airline Ops	Military	All Others	Total		
1990	10,248	2	12,570	22,820	30,000	7,180
1991	9,101	0	13,658	22,759		
1992	9,282	0	16,020	25,302		
1993	8,126	0	16,562	24,688		
1994	7,809	0	12,908	20,717		
1995	8,075	0	12,504	20,579	32,500	11,921
1996	7,056	13	9,124	16,193		
1997	9,060	NA	12,269	21,329		
1998	8,489	14	12,832	21,335		
1999	8,390	6	11,419	19,815		
2000	7,367	11	10,755	18,133		
2001	8,081	NA	9,674	17,755		
2002	7,417	18	10,753	18,188		
2003	8,209	102	11,776	20,087		
2004	5,125	80	11,018	16,223		
2005					38,000	-

Source: Forecast data from *Block Island State Airport Master Plan Study* (Hoyle, Tanner & Assoc., Inc., 1989), Table 2-11. Historical data (1990-2001) from a draft of the Rhode Island Aviation System Plan Update, Figure 640-02(172). 2002 and 2004 data from Piedmont Hawthorne Aviation, Inc. 2003 data from on-line Airport Master Record (FAA Form 5010-1).

Passenger enplanements at BID are compared in Table 3-3 and again illustrate a more robust forecast than what actually occurred at BID over the forecast period. The difficulties in preparing accurate forecasts well into the future are well-illustrated in the preceding three tables.

Table 3-3 Forecast vs. Actual Enplanements

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Year	Actual Enplanements			Forecast Enplanements	Difference
	Air Carrier	Air Taxi	Total		
1990	0	14,362	14,362	23,000	8,638
1991	0	13,801	13,801		
1992	0	10,994	10,994		
1993	0	10,984	10,984		
1994	0	10,906	10,906		
1995	0	11,717	11,717	27,000	15,283
1996	0	10,628	10,628		
1997	0	14,253	14,253		
1998	0	13,432	13,432		
1999	0	13,245	13,245		
2000	0	10,691	10,691		
2001	0	10,947	10,947		
2002	0	10,101	10,101		
2003	0	7,754	7,754		
2004	0	7,091	7,091		
2005			-	35,000	

Source: Forecast data from *Block Island State Airport Master Plan Study* (Hoyle, Tanner & Assoc., Inc., 1989), Table 2-11. Historical data (1990-2001) from a draft of the Rhode Island Aviation System Plan Update, Figure 640-02(173). 2002 and 2004 data from Piedmont Hawthorne Aviation, Inc. 2003 data from on-line Airport Master Record (FAA Form 5010-1).

3.4 HISTORICAL AVIATION ACTIVITY AT BID VS. STATE

3.4.1 Introduction

RIAC

As noted in the Rhode Island ASPU, reliable historical general aviation data for each airport in the system, including BID, are not readily available for all activity indicators. With the exception of Quonset, the general aviation airports in Rhode Island do not have Air Traffic Control Towers (ATCT). At airports manned by ATCT personnel, aircraft operations are tabulated and reported to the FAA using prescribed definitions and procedures.[2] For airports without a control tower, annual operations are the "best estimates" of airport management. Typically, greater confidence can be placed in the historic based aircraft data: based aircraft can be more easily counted than operations. However, in Rhode Island, due to the seasonal influx of residents and visitors during the summer months, based aircraft counts also can vary at each airport, depending on what time of the year they are taken.

[2] There are exceptions to the rule, however. The tower at the Quonset airport is contracted and paid for by a military authority. As such, the operational counts at this tower are not published by the FAA. Accordingly, annual operations for Quonset are the "best estimates" by airport management of the takeoffs and landings occurring at Quonset within the stated calendar year.

Other reasons for the inconsistencies in based aircraft and operations reported historically for the six state-owned airports in Rhode Island include the change in airport management in the1990's and counting methods used by RIDOT versus those used by RIAC. In 2001, RIAC, together with Hawthorne Aviation, outlined appropriate counting procedures for the publicly-owned airports in Rhode Island. However, because of the historic counting inconsistencies, it is difficult to derive statistically valid trends at Rhode Island airports from which to project general aviation activity.

3.4.2 Historical Based Aircraft

Historic statewide based aircraft figures are presented in Table 3-4. In 2001, 326 aircraft were based at Rhode Island's publicly-owned airports. This does not include military aircraft nor does this number include aircraft based at privately-owned airports. As indicated in the table, based aircraft in Rhode Island have fluctuated, although this must be weighed against the possibility of reporting errors or inconsistencies noted above. It also is possible that based aircraft at one or more of the airports may have been over-reported prior to RIAC's management of the airports. The greatest confidence can be placed in the 2001 based aircraft counts undertaken as part of the ASPU.

Table 3-4 Actual Based Aircraft (Excluding Military), 1991-2001

Year	Block Island	State Total	Block Island as Percent of State Total
1991	13	376	3.5
1992	13	387	3.4
1993	13	387	3.4
1994	7	396	1.8
1995	6	377	1.6
1996	6	349	1.7
1997	8	349	2.3
1998	8	354	2.3
1999	7	315	2.2
2000	7	312	2.2
2001	7	326	2.1

Sources: *FAA Terminal Area Forecasts* and Hawthorne Aviation as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(4).

Based aircraft at BID are a very small percentage of statewide totals, ranging from a low of 1.6 percent in 1995 to a high of 3.5 percent in 1991. The 7 based aircraft at BID in 2001 constitute 2.1 percent of the Rhode Island total.

3.4.3 Historical General Aviation Operations

Historic annual general aviation operations are presented in Table 3-5. Similar to based aircraft, general aviation operations "reportedly" experienced an overall decline between 1991 and 2001, including those at BID. In 2001, nearly 147,000 general aviation operations occurred at all publicly-

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owned airports in Rhode Island; BID contributed approximately 9,700 operations or 6.6 percent of the state total. Subject to the data inconsistencies and errors noted above, BID operations in 1997 represent 9.4 percent of the statewide general aviation operations in that calendar year.

Table 3-5 Actual General Aviation Operations, 1991-2001

Year	Block Island	State Total	Block Island as Percent of State Total
1991	13,658	247,628	5.5
1992	16,020	221,043	7.2
1993	16,562	193,748	8.5
1994	12,908	201,967	6.4
1995	12,504	174,030	7.2
1996	9,124	126,964	7.2
1997	12,269	130,204	9.4
1998	12,832	153,905	8.3
1999	11,419	154,199	7.4
2000	10,755	139,480	7.7
2001	9,674	146,766	6.6

Sources: *FAA Terminal Area Forecasts* and Hawthorne Aviation as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(7).

3.5 FORECASTS OF BASELINE AVIATION ACTIVITY AT BID

3.5.1 Based Aircraft

RIAC

The ASPU consultants considered several methodologies to project based aircraft at the five study airports (Block Island, Newport, North Central, Quonset and Westerly; T.F. Green data in the ASPU are drawn from a concurrent master planning effort at that airport) through 2021. These methodologies included trend analysis, market share and methodologies based on socioeconomic factors. Based on the lack of confidence placed in the historic based aircraft counts, projections using trend analyses or traditional regression analysis techniques were not prepared. Due to the "reported" downward trend in based aircraft, it also was difficult to develop projections of based aircraft using socioeconomic factors such as population, employment and income. Given that Rhode Island experienced positive socioeconomic and demographic growth throughout the 1990's, a viable assumption would be that this growth would translate directly into positive growth in general aviation. However, this positive growth did not correlate with based aircraft trends for the same period. In fact, reported trends in Rhode Island general aviation activity reveal an *inverse* relationship with the state's socioeconomic and demographic indicators.

Considering the inconsistency of these factors and the limitations of the available data, viable methodologies available to project based aircraft are limited. After review of available activity data for the five airports and after consideration of methodologies that could be used to project based

aircraft, the ASPU consultants, in consultation with RIAC managers, selected a **market share methodology** as the sole projection technique for this demand factor.

The FAA's most recent projection of U.S. active general aviation aircraft at the time the forecasts were prepared was used to project based aircraft for Rhode Island's airports.[3] The selected methodology used a **top down approach**: Rhode Island's share of total U.S. active general aviation aircraft in 2001 was assumed to remain constant throughout the forecast period. Based on this assumption and using the FAA forecasts, a statewide projection of based aircraft for Rhode Island was developed.

Statewide based aircraft are projected to increase from 251 in 2001 to 269 in 2021, an average annual growth rate of 0.36 percent. By applying each airport's 2001 market share of statewide based aircraft, individual airport projections of based aircraft were produced. The based aircraft projections for BID are presented in Table 3-6.

Table 3-6 Forecasts of Based Aircraft at BID

Airport	2001	2001 Market Share (%)	Forecasts of Based Aircraft		
			2006	2011	2021
Block Island	7	2.8	7	7	8
State Total	251	100.0	250	258	269
FAA U.S. Active Aircraft	216,150		215,690	222,410	232,053
RI % of U.S.	0.12		0.12	0.12	0.12

Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(10).

These baseline projections of based aircraft reflect a continuation of historic conditions. Accordingly, these projections do not consider additional demand that could be realized potentially through either, or a combination of, improved facilities and services at BID or a repeal/reduction of the state tax on general aviation aircraft sales and services. These considerations are addressed elsewhere in this chapter.

Table 3-7 presents the 2001 based aircraft fleet mix for the BID and the total of the five small Rhode Island airports (excluding T.F. Green). In projecting the statewide based aircraft fleet mix, the ASPU consultants gave consideration to the continually changing national active general aviation aircraft fleet and the existing fleet mix in Rhode Island. In 2001, single-engine aircraft accounted for 82.7 percent of the based aircraft fleet at all public airports in Rhode Island (including T.F. Green), compared to 77.9 percent of the total U.S. fleet. The share of multi-engine and jet aircraft in the statewide fleet was higher than the share for the U.S. fleet. Other aircraft, which includes helicopters, gliders, ultralights and other experimental aircraft, composed over 6 percent of the national active aircraft fleet but only one aircraft in this category was located in Rhode Island (at Westerly).

The FAA asserts in the *FAA Aerospace Forecasts - FY 2002-2013* that there will be 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

[3] *FAA Aerospace Forecasts – Fiscal Years 2002-2013*, FAA-APO-02-1, U.S. Department of Transportation Federal Aviation Administration Office of Aviation Policy & Plans, March 2002.

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required at those airports. While the FAA projects that the percentage increase in jet aircraft will significantly outpace growth in other components of the general aviation aircraft fleet, this has little relevance to BID. Given the short length of the runway, few jet aircraft can land at BID and those that do face severe weight restrictions.[4] Single-engine and multi-engine aircraft in the national fleet are projected to experience an average annual growth rate of less than 0.5 percent per year over the forecast period.

Table 3-7 Based Aircraft Fleet Mix at BID and Other Rhode Island Airports, 2001

Airport	Single Engine	Multi Engine	Jet	Other [1]	Total
Block Island	7	0	0	0	7
State Total (excl. T.F. Green)	214	34	2	1	251
BID % of State	3.3	0.0	0.0	0.0	2.8

Note: 1. Other includes helicopters, gliders, ultralights, and other experimental aircraft.

Source: Hawthorne Aviation as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(11).

The ASPU consultants developed a based aircraft fleet mix for each airport and the state as a whole through 2021. Table 3-8 presents the based aircraft fleet mix for BID and the Rhode Island airports excluding T.F. Green. It is projected that, in 2021, single-engine aircraft will account for 80.7 percent of the total based aircraft in Rhode Island. Jet aircraft will experience the largest increase, comprising 5.4 percent of Rhode Island's total based aircraft in 2021, compared to 3.7 percent in 2001.

Table 3-8 Forecast of Based Aircraft Fleet Mix at BID and Other Rhode Island Airports, 2021

Airport	Single Engine	Multi Engine	Jet	Other [1]	Total
Block Island	8	0	0	0	8
State Total (excl. T.F. Green)	228	35	5	1	269
BID % of State	3.3	0.0	0.0	0.0	2.8

Note: 1. Other includes helicopters, gliders, ultralights, and other experimental aircraft.

RIAC

Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(13).

[4] "Weight restrictions" reduce the weight of the aircraft and permit it to takeoff and land in a shorter distance. The weight restriction can be met by carrying less fuel (thus reducing the potential distance flown) and/or fewer passengers.

3.5.2 General Aviation Operations

Operational demand at an airport is a key factor considered in analyzing 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, and the presence and activity levels of each of these require facilities of a certain nature and size. For example, the presence of air carrier service (as at BID) generally requires a passenger terminal for ticket purchases, baggage handling, holding areas for passengers waiting to board, waiting areas for those greeting a flight and so on. The total number and type of aircraft through an airport dictate the dimensions of the runway and taxiways and their locations, the size of the fueling facilities, the area allotted for aircraft parking and even the size of the airport parking lots.

For the Block Island and Westerly airports – the only two airports outside of T.F. Green with scheduled commercial air service – the ASPU consultants projected air carrier activity separately (see Section 3.5.3 below). 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.

The ASPU consultants investigated several methodologies to project general aviation operations for 2006, 2011 and 2021 at BID and other RI airports. As discussed previously, the inherent limitations in the historic data for general aviation operations makes it impossible to develop projections based on historic operational growth. The "reported" decline in general aviation operations prevents development of forecasts using traditional techniques such as trend analysis or regression. A model using socioeconomic factors, such as population, would also generate unreasonable forecasts, particularly for Block Island where aviation activity is so seasonal.

The average annual growth rate of general aviation aircraft hours flown, projected by FAA, was used to project general aviation operations at BID and Rhode Island's RIAC airports. According to forecasts in the *FAA Aerospace Forecasts - FY 2002-2013*, hours flown by general aviation aircraft are projected to increase 1.1 percent per year on average over the forecast period. It is assumed that general aviation operations in Rhode Island will increase at this same rate.

Table 3-9 presents the baseline forecasts of general aviation operations at BID and the five small RIAC airports. Operations at the airports (excluding T.F. Green) are projected to grow slowly at 0.6 percent per year on average between 2001 and 2006. Over the next 15 years (2006 to 2021), growth in general aviation operations at Rhode Island's airports is projected to grow at a higher average annual r ate (1.3 percent). General aviation operations at the RIAC airports are projected to reach 128,000 by 2021, up from nearly 102,000 in 2001. This represents an average annual growth rate of 1.1 percent over the entire forecast period, a rate consistent with the stated FAA forecasts.

Table 3-9 Forecasts of General Aviation Operations at BID and Other Rhode Island Airports

		Forecasts of General Aviation Operations		
Airport	**2001**	**2006**	**2011**	**2021**
Block Island	9,674	10,000	10,800	12,300
State Total (excl. T.F. Green)	101,671	104,700	112,700	128,000
BID % of State	9.5	9.6	9.6	9.6

Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(14).

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Combined with the general aviation operations for T.F. Green, as projected in that airport's Master Plan Update, statewide general aviation operational activity is forecasted to reach 189,400 by 2021. The baseline general aviation operations forecasts assume that historic conditions will continue to suppress future demand.

The split between local and itinerant general aviation operations was projected in the ASPU for BID and the remaining Rhode Island system airports. Table 3-10 presents the 2001 local/itinerant splits for BID and the remaining system airports. Overall, 36 percent of state's general aviation operations were local operations in 2001. Block Island had the fewest local operations, with only 5 percent of its total general aviation operations in 2001. Contrast this with Newport, North Central and Westerly where each had approximately half local operations and half itinerant operations in 2001.

Table 3-10 Local/Itinerant Split of General Aviation Operations at BID and Other Rhode Island Airports, 2001

Airport	Local Operations	Percent Local	Itinerant Operations	Percent Itinerant	Total General Aviation Operations
Block Island	521	5	9,153	95	9,674
State Total (excl. T.F. Green)	43,198	42	58,475	58	101,671
BID % of State	1.2		15.7		9.5

Source: FAA Form-5010 as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(15).

Table 3-11 reflects how BID's split between local/itinerant general aviation operations is expected to change by 2021. According to the T.F. Green Master Plan, it was assumed that local general aviation operations at T. F. Green would remain constant throughout the forecasting period. However, it is likely that T. F. Green will experience continued growth in use by itinerant corporate and business aircraft. The local/itinerant split at the five general aviation airports in the state is projected to remain unchanged throughout the forecast period.

Table 3-11 Forecast of Local/Itinerant Split of General Aviation Operations at BID and Other Rhode Island Airports, 2021

RIAC

Airport	Local Operations	Percent Local	Itinerant Operations	Percent Itinerant	Total General Aviation Operations
Block Island	700	5	11,600	95	12,300
State Total (excl. T.F. Green)	54,300	42	73,700	58	128,000
BID % of State	1.3		15.7		9.6

Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(14).

3.5.3 Commercial Service

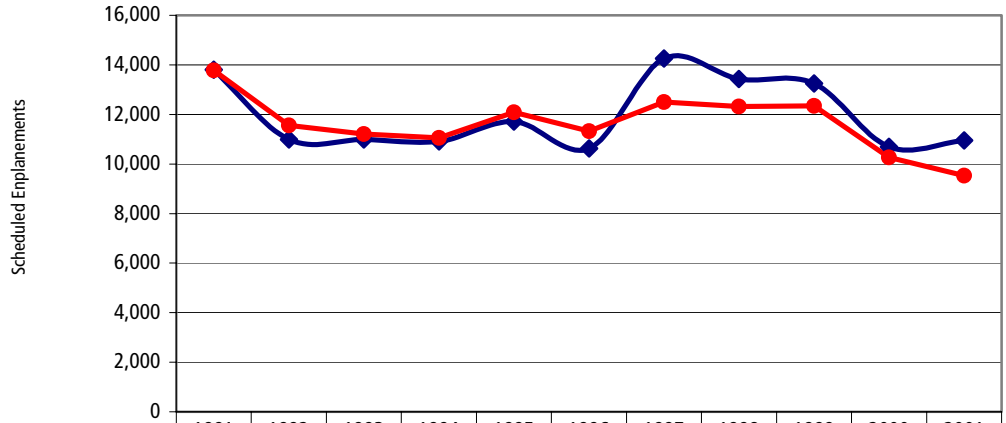
New England Airlines operates the only scheduled nonstop service at the Block Island Airport, running single- and multi-engine piston aircraft between Westerly and Block Island. Between Memorial Day and Labor Day, the airline schedules hourly service between Westerly and Block Island in a twin-engine Britten-Norman Islander. In the off-season, the carrier operates nonstop service every other hour between the two. Given the highly seasonal and shuttle nature of this service, many national commercial service trends do not have the same impact on Westerly and Block Island as on larger airports like T.F. Green and Logan Airport in Boston served by more traditional commercial carriers.

In the ASPU, commercial service activity projections were developed for both passenger enplanements and annual airline operations at Block Island and Westerly airports. Calendar year 2001 was used as the base year for these projections. Given the intertwined nature of the air carrier service between Block Island and Westerly, data for both airports are provided in this document.

3.5.3.1 Enplanements

Figure 3-1 provides a summary of historic enplanements at Westerly and Block Island for the period 1991-2001. Enplanements at each airport tend to mirror each other. After a drop in enplanements in 1992, enplanements remained relatively unchanged through 1996. In 1997, enplanements rose significantly (34 percent) but fell in 2000 back to 1996 levels. In 2001, 20,400 passengers enplaned scheduled flights at Block Island and Westerly airports, down from 27,600 ten years earlier. This represents an average annual decline of 2.9 percent between 1991 and 2001.

Figure 3-1 Historic Enplanements at Block Island and Westerly Airports, 1991-2001



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Block Island	13,801	10,994	10,984	10,906	11,717	10,628	14,253	13,432	13,245	10,691	10,947
Westerly	13,785	11,556	11,204	11,048	12,089	11,327	12,502	12,316	12,342	10,263	9,534

Sources: FAA Terminal Area Forecast; Hawthorne Aviation as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(17).

Commercial service enplanement projections are prepared to provide a basis for determining the general adequacy of the airports to meet the Rhode Island's unique needs for air travel to Block Island. For the ASPU, two forecast scenarios were developed for commercial service enplanements at Block Island and Westerly. The preferred baseline projections were developed using a **market share approach** in which airport specific trends and conditions in aviation were compared to national trends and conditions in aviation during the same historical period. This approach allows

the use of the approved national forecasts published by the FAA but also takes into account historical trends in activity.

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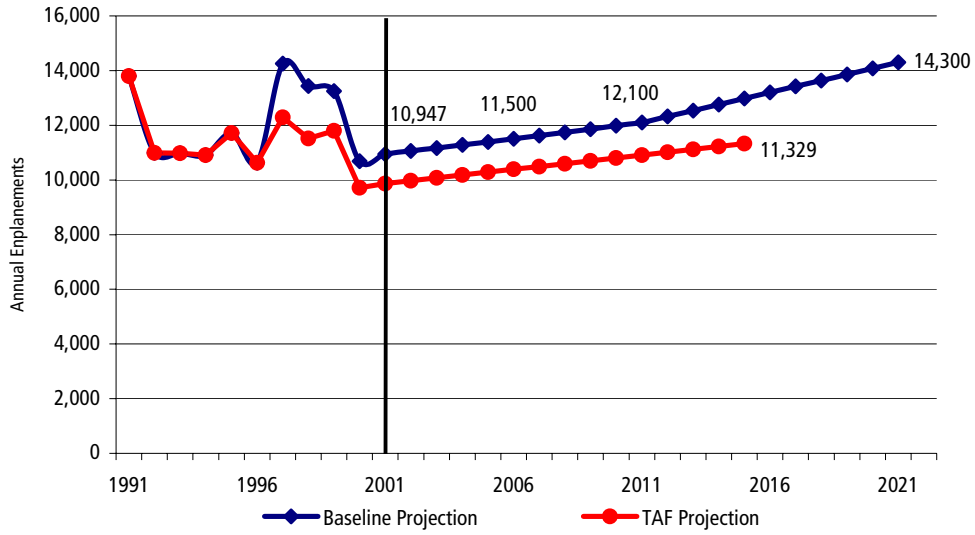
Block Island. As reported in the ASPU, management of New England Airlines does not have any plans to increase the fleet or scheduled operations throughout the forecast period. Based on this, enplanements at Westerly and Block Island are projected to experience minimal growth over through 2021. Combined 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, enplanements at Block Island are projected to reach 14,300 by 2021, an average annual growth rate of 1.3 percent between 2001 and 2021 (see Figure 3-2). 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 at BID. The FAA TAF projects 11,300 enplanements by 2015; the corresponding baseline projection is 13,000 enplanements. The TAF projection uses 2000 data and represents an average annual growth rate of 1.0 percent over the 15-year forecast period. The enplanements reported to Hawthorne Aviation in 2000 were slightly higher than what was reported to the FAA TAF and may explain some of the discrepancy between the two forecasts.

Figure 3-2 Enplanement Projections for Block Island Airport, 2002-2021



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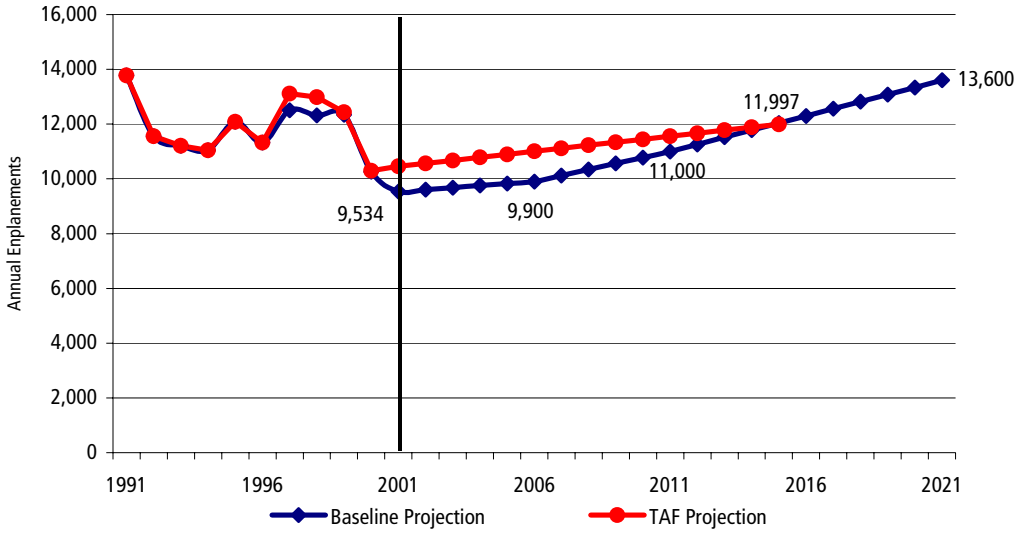
Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(18).

Westerly. The projections of enplanements for Westerly in the ASPU are based on the same assumptions as the enplanement projections for Block Island. Based on historic enplanements trends and discussions with management of 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 enplanements are expected to increase 1.8 percent per year on average over the planning period, reaching 13,600 annual enplanements in 2021. The baseline projection is presented in Figure 3-3. The projected baseline growth in enplanements is slightly lower than that projected for Westerly Airport in the FAA TAF, converging to approximately the same figure in 2015. The TAF projects enplanements at Westerly to increase 1.0 percent per year on average between 2000 and 2015, reaching 12,000 passengers annually by 2015; the corresponding baseline projection for 2015 is 12,040.

Figure 3-3 Enplanement Projections for Westerly Airport, 2002-2021

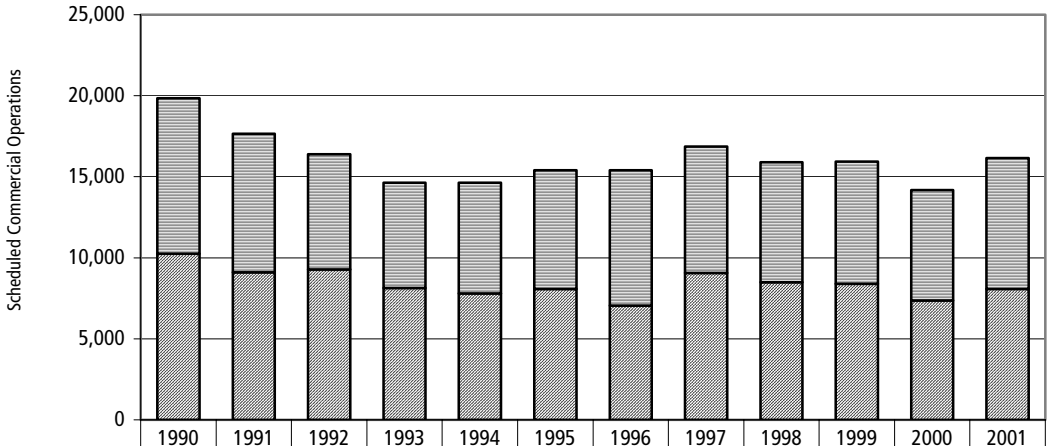


Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(19).

3.5.3.2 Commercial Service Operations

Historic trends in commercial service operations Block Island and Westerly are provided in Figure 3-4. In 2001, over 16,100 commercial service operations were scheduled at the two airports. Scheduled commercial service operations fell in the early 1990's and have remained relatively unchanged since 1992. The baseline scenario reflects the preferred methodology for projecting commercial service operations through 2021.

Figure 3-4 Historic Commercial Service Operations at Block Island and Westerly Airports, 1990-2001



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Westerly	9,591	8,545	7,104	6,500	6,815	7,334	8,356	7,803	7,416	7,539	6,815	8,081
Block Island	10,248	9,101	9,282	8,126	7,809	8,075	7,056	9,060	8,489	8,390	7,367	8,081

Sources: FAA Terminal Area Forecast; Hawthorne Aviation as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(20).

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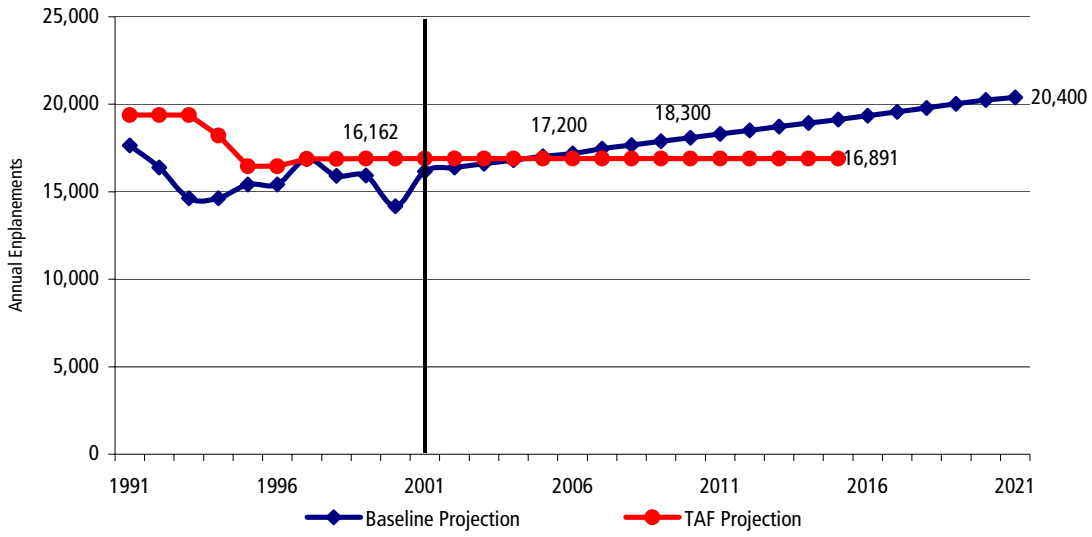
Figure 3-5 presents projected commercial service operations for Westerly and Block Island airports under the baseline forecast scenario. The baseline scenario applies a market share methodology using each airport's share of commercial service operations in New England, as projected by the FAA in the Terminal Area Forecasts. Based on a decreasing share of New England's commercial operations over the last decade, it is projected that this trend will continue. Using this approach, 20,400 commercial service operations are projected to occur at Block Island and Westerly airports combined by 2021, up from 16,200 annual operations in 2001. The FAA TAF projects no growth in commercial service operations at Block Island and Westerly over the TAF forecast period (2000-2015).

Figure 3-5 Commercial Service Operations Projections at Block Island and Westerly Airports, 2002-2021



Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(21).

3.5.4 Summary

RIAC

Table 3-12 presents a summary of the forecasts presented in the preceding sections.

Table 3-12 Summary of Aviation Activity Forecasts for Block Island Airport, Baseline Scenario

Airport	Year	Based Aircraft	Operations				Baseline Enplanements
			General Aviation	Baseline Commercial	Military	Total	
Block Island							
	2001	**7**	**9,674**	**8,081**	**0**	**17,755**	**10,947**
	2006	**7**	**10,000**	**8,600**	**0**	**18,600**	**11,500**
	2011	**7**	**10,800**	**9,100**	**0**	**19,900**	**12,100**
	2021	**8**	**12,300**	**10,200**	**0**	**22,500**	**14,300**
Westerly							
	2001	84	6,585	8,081	0	14,666	9,534
	2006	84	6,800	8,600	0	15,400	9,900
	2011	86	7,300	9,100	0	16,400	11,000
	2021	90	8,300	10,200	0	18,500	13,600
Total [1]							
	2001	251	101,671	16,162	6,952	124,785	20,481
	2006	251	104,700	17,200	7,000	128,900	21,400
	2011	258	112,700	18,200	7,000	137,900	23,100
	2021	269	128,000	20,400	7,000	155,400	27,900

Note: 1. Total reflects data for the Block Island, Newport, North Central, Quonset and Westerly airports. Data for T.F. Green Airport are not included in these totals.

Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-03(24).

3.6 FORECASTS OF ENHANCED AVIATION ACTIVITY AT BID

BLOCK ISLAND AIRPORT

3.6.1 Background

The projections in the preceding sections are based on a "business as usual" scenario and drawn heavily from RIAC's on-going Aviation System Plan Update (ASPU). The ASPU postulates that i) Rhode Island's tax on aircraft sales, parts and services has depressed aviation activity at general aviation airports within Rhode Island, and ii) the lack of adequate facilities and services at the general aviation airports has depressed general aviation activity growth in Rhode Island also.

The ASPU assumes that if the state's tax issues are addressed and its airports improved, aviation demand at Rhode Island's general aviation airports will behave more like the aviation demand at general aviation airports in the rest of the U.S. There is a 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 have increased over the last 10 years, reported general aviation demand has decreased. Rhode Island's inability to record positive growth in general aviation demand is linked to the state's aircraft tax and the condition of the general aviation airports. The ASPU examined the growth potential that may result from changed conditions in the state and at the five GA airports.

Key data for this effort were gathered from three surveys distributed to Rhode Island's airport users. In targeting all types of users of Rhode Island's airports, an Aircraft Owner Survey, a Registered Pilot Survey and a Transient Pilot Survey were developed. Each survey posed similar questions, asking pilots and aircraft owners to identify the services and facilities they would like to see in place at the Rhode Island airports that they frequent.

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

1. **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.

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2. **Terminal Facilities/Pilot Lounge**
   Many of the airport users indicated the need for a new terminal building and pilot lounge.
3. **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.
4. **Paved Tie-downs**
   The lack of paved tie-downs to park airplanes at Block Island was noted also as a hindrance to additional operations at the airport.
5. **Additional Aircraft Parking**
   Many survey respondents noted that they do not necessarily need paved tie-downs at Block Island. Respondents generally noted that they would like to see additional aircraft parking (paved or unpaved) at the airport.

6. **Precision Approach/ILS**
   A number of respondents noted that they would like Block Island to have a precision approach, such as an ILS.

7. **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 tie-down charge and the elimination of landing fees. Based aircraft owners noted that hangars also would be a beneficial addition at the airport. **According to the survey 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.**

3.6.2 Enhanced (ASPU) Projections at BID

3.6.2.1 Based Aircraft

Based on the population growth in the Block Island market area projected by Rhode Island Statewide Planning, based aircraft in the enhanced demand scenario are projected to reach 12 by 2021, up from eight in the baseline growth scenario. Based aircraft at Block Island are projected to grow at an average annual rate of 2.7 percent over the forecast period.

This master plan adopts the enhanced demand scenario and presumes 12 based aircraft in the year 2021.

3.6.2.2 General Aviation Operations

Enhanced projections of general aviation operations were also developed for BID by using a variation of the operations per based aircraft (OPBA) methodology. The 2001 OPBA for BID is as follows:

Airport	Based Aircraft	GA Ops, 2001	2001 OPBA	Avg Addtl Ops Based on Surveys	Projected OPBA
Block Island	7	9,674	1,382	30	1,412
Statewide	251	101,671	405	-	-

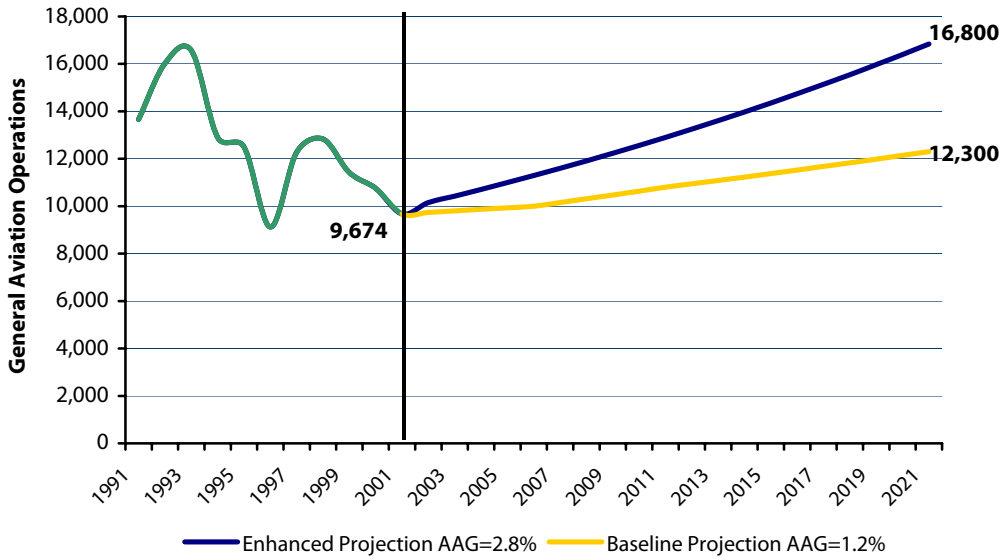
Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-04(37)

In 2001, the statewide OPBA was 405. Block Island had the highest OPBA because of the high levels transient activity that occurs at that airport.

Through the survey effort, based aircraft owners at BID projected 30 additional annual operations per based aircraft if facilities were upgraded at BID. This increase yields a projected OPBA of 1,412. The projected number of enhanced based aircraft (12) was then multiplied by the enhanced OPBA ratio (1,412) to yield an enhanced projection of 16,800 for BID. This represents an average annual growth rate of 2.8 percent between 2001 and 2021. Under the enhanced growth scenario in the ASPU, an additional 4,500 annual operations could occur at Block Island in 2021 if facilities and services are upgraded. This increase is captured graphically in Figure 3-6.

Figure 3-6 Enhanced Projection of Block Island Airport General Aviation Operations

BLOCK ISLAND AIRPORT



Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-04(39)

Given that the increase GA operations activity is predicated on upgraded facilities at BID – presumably the list of seven items presented in Section 3.6.1 above – it is appropriate to examine whether any of the items are likely to be included in the BID Capital Improvement Plan (CIP) being developed in conjunction with this master plan. Of the seven items four are likely to be included in the CIP in some form or another: Terminal Facilities/Pilot Lounge, Paved Tie-downs, Additional Aircraft Parking and Parallel Taxiway. While a subset of the desired list of improvements/upgrades, it is assumed in this master plan that these facilities will yield the additional 30 operations per based aircraft assumed in the ASPU. Therefore, projected GA operations of 16,800 in the year 2021 (and its annual average growth rate of 2.8 percent) – the enhanced growth projection – are adopted in this master plan.

3.6.2.3 Commercial Service Enplanements

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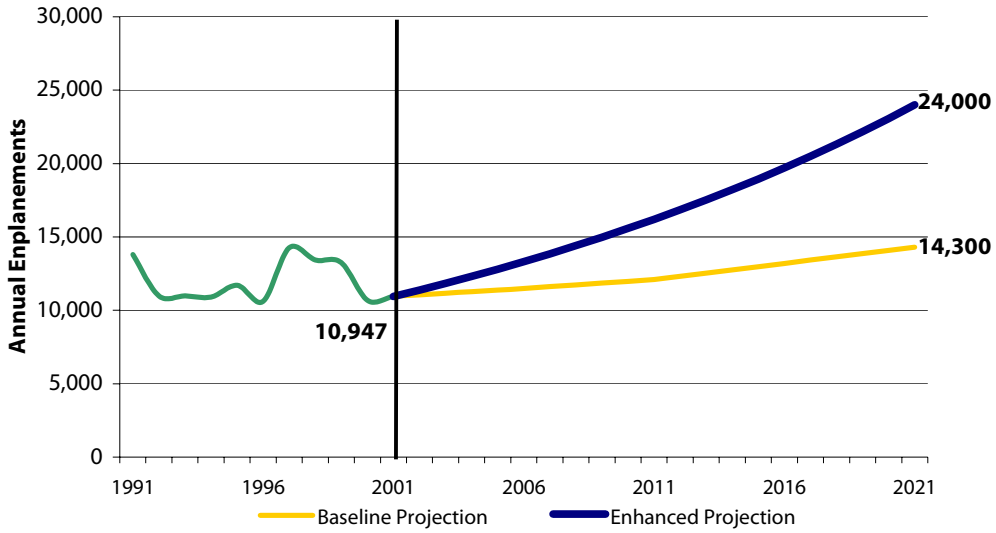
At present, one FAR Part 135 carrier, New England Airlines, serves Block Island and Westerly with single engine and multi-engine aircraft. The enhanced growth projections in the ASPU are dependent upon increased commercial service. The ASPU postulates that if facilities were put in place to support larger commercial service aircraft at both Block Island and Westerly, the airports could experience rates of growth similar to that of other New England islands with commercial service, such as Nantucket and Martha's Vineyard.

Under the enhanced growth scenario in the ASPU, enplanements at Block Island are projected to reach 24,000 passengers annually by 2021. This assumes an average annual growth rate of 4.0 percent over the 20 year forecast period. Under the baseline projections presented in Section 3.5.3.2, enplanements at Block Island were projected to reach 14,300 by 2021. Figure 3-7 presents a comparison of the baseline and enhanced growth projections.

Figure 3-7 Enhanced Projection of Enplanements at Block Island Airport



Source: Wilbur Smith Associates as reported in a draft of the Rhode Island Aviation System Plan Update, Figure 640-04(44)

The significant increase in enplanements in the enhanced growth scenario is predicated upon facilities "put in place to support larger commercial service aircraft at both Block Island and Westerly." Given its short length of 2,501 feet (and no plans to extend it), Runway 10-28 limits the type of commercial service aircraft that can utilize BID. The present aircraft used by New England Airlines, the B-N Islander, is a 9-seat aircraft specifically designed for use on short runways. The next size commercial aircraft generally fall in the 19-seat range, and one such aircraft is the Beech 1900. This aircraft, however, requires takeoff field length of approximately 3,800 feet (at maximum gross takeoff weight) vs. the 2,501 feet of runway available. Even with severe weight penalties, i.e., reducing fuel and/or the numbers of passengers and baggage to lighten the aircraft and thus reduce the amount of pavement necessary for a takeoff, it is unlikely that the Beech 1900 could takeoff at BID or, more importantly, could operate profitably as a commercial service aircraft at BID.

Thus, for purposes of this master plan, the enhanced growth projection for commercial enplanements at BID is rejected as not feasible or likely. The baseline growth projection of 14,300 enplanements will remain the projected enplanement figure for the year 2021.

3.6.2.4 Commercial Service Operations

Given a projected increase in enplanements, the ASPU also projects an increase in commercial service operations to a combined Block Island-Westerly total of 27,000 operations in the year 2021, vs. the 20,400 operations in the baseline projection. Consistent with the rejection of the increase in enplanements, this master plan adopts the baseline projection of 20,400 commercial service operations in 2021.

3.6.2.5 Summary

The projections adopted for consideration in this master plan are tabulated and summarized in Table 3-13.

Table 3-13 Final Aviation Activity Forecasts for Block Island Airport

BLOCK ISLAND AIRPORT

Year	Based Aircraft	Operations				Baseline Enplanements
		General Aviation	Baseline Commercial	Military	Total	
2001	7	9,674	8,081	0	17,755	10,947
2006	8	11,300	8,600	0	19,900	11,500
2011	9	12,900	9,100	0	22,000	12,100
2021	12	16,800	10,200	0	27,000	14,300

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