

PARLIN FIELD

AIRPORT MASTER PLAN



Prepared by
Parlin Field Airport Advisory Board

January 2011



The Town of Newport in conjunction with the Parlin Field Airport Advisory Board have undertaken this Airport Master Plan Update to act as a vehicle which is to provide guidance for the current and future custodians of Parlin Field to aid in reasonable and responsible maintenance and development of the Airport. Parlin Field does not receive federal funding for airport development or planning projects and relies

on maintaining financial self-sufficiency through revenue generated from airport leases, aviation fuel sales, aircraft storage fees, volunteerism and grants from the NH Bureau of Aeronautics. As Parlin Field does not receive federal grants, it is not encumbered by the obligations associated with Federal Aviation Administration (FAA) grant assurances or FAA airport design standards. Although not obligated by FAA grant assurances or design standards, every effort has been made to meet those standards in the planning and development of Parlin Field where reasonable. Safety is paramount at Parlin Field.

The Town of Newport and the Parlin Field Airport Advisory Board formerly adopted the Mission Statement and Goals and Objectives stated below on April 23rd 2010 to serve as the foundation for the development of the airport as outlined in this Master Plan.

Mission Statement

Building on a heritage of strong volunteerism and country ambiance, the Town of Newport endeavors to maintain Parlin Field as an attractive gateway to the Lake Sunapee region. Parlin Field is dedicated in its pursuit to provide safe, reliable, high quality and efficient facilities for light general aviation aircraft, emergency response aircraft, support of small business, and for the enjoyment of aviation and non-aviation individuals alike.

As a general aviation airport, Parlin Field has enjoyed strong community support throughout the years and seeks to continue that beneficial relationship by balancing the needs of the airport with those of the community and through the promotion of aviation education. Parlin Field is committed to being a good neighbor.

Goals and Objectives

- Maintain airport infrastructure and unique character reminiscent of rural airports to ensure continued viability as a gateway to the Lake Sunapee region;
- Actively promote and enhance safety and security on and in the vicinity of Parlin Field;
- Improve the strengths that distinguish Parlin Field from similar airports;
- Provide an organized plan to maximize sustainability for Parlin Field



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Chapter 1 – Inventory

1.1 INTRODUCTION AND BACKGROUND

Albert N. Parlin Field (2B3) named after the late husband of a major supporter of the airport, Susanne Parlin, is a public use general aviation (GA) airport located within Sullivan County in west-central New Hampshire. The airport is owned and operated by the Town of Newport, New Hampshire. The airport lies on approximately 125 acres in the Town of Newport, 2 miles north of the center of town.

The airport began in 1929 as a series of fields which were leased by a corporation of Newport residents for the purposes of operating a landing field. Over the next year, the fields were improved and aircraft began using the airport's two turf runways on a regular basis.



Most significantly, a metal hangar which also still exists today was erected at the airport. The hangar provided a base of operations for the Parlin Flying Service run by Frank Nason and Floyd Miller. Their venture lasted for about a year until the Curtis-Wright Flying Service leased the airport and provided passenger service from Hartford and New York City to Newport and the Lake Sunapee region. Interestingly, Parlin Field still serves visitors to the Lake Sunapee region, many of whom arrive in personal aircraft rather than via commercial carriers.

The Curtis-Wright Flying Service lasted about one year, until Lee Bowman leased the airport and started a flying school. Then, in 1932, Wylie Apte and Lee Bowman formed the New England Air Circus Association.

By 1935, the Bowman/Apte venture had run its course and in 1937, near the end of the original 10 year lease, the Town of Newport explored the possibility of creating a municipal airport. The vote to acquire the airport failed, but a 3 member commission was established to further study the issue.

Finally, in 1939 after the original 10 year lease expired, the Austin Corbin estate offered the airport for sale. The Town of Newport, fearing that it would be at an economic disadvantage without an airport, purchased the airport from the Corbin estate. A series of short-term commercial operators, including Britt Airways and Dartmouth Airways, operated at Parlin Field for the next few years.



From 1948 through 1949 significant improvements occurred at the airport. Additional property to the north was acquired by the Town of Newport and Corbin Road was realigned to accommodate an extension of the north-south runway. An easement was acquired on property under the approach to Runway 18, which permits the removal of obstructions (further described in Section 1.X). Additionally, Runway 18-36 was lengthened from 1,200 feet to 2,000 feet and widened to 400 feet at a cost of \$40,000. Federal funds covered \$20,000 and State funds covered \$10,000 of the total cost. Grading and drainage work was performed as well. These improvements lead to Runway 18-36 becoming the preferred runway.

In 1953, Runway 18-36 and the taxiway to the hangar were paved. In 1958, the runway was further extended to a total length of 2,850 feet and 48 feet wide. Runway 12-30 remained a turf runway at 1,900 feet long by 140 feet wide.

The airport served adequately through the sixties and early seventies, but by 1978 the Town recognized the need to establish a long range plan for the airport with an eye toward possible Federal funding for airport improvements. Later that year, the Town applied for, and received, a federal grant of \$22,000 to develop an airport master plan. The contractor, Hoyle, Tanner & Associates, delivered the final Master Plan in 1981. The plan confirmed that Parlin Field was best suited to serving the greater Lake Sunapee region – a fact first recognized by Curtis-Wright Flying Service in 1930. However, changes in the aviation infrastructure and availability of personal aircraft for ordinary people meant that Parlin Field was becoming better suited to personal travel needs rather than commercial operations. This trend toward personal travel is well documented today, with nearly two-thirds of all summertime airport operations performed by visitors to the region and not by local pilots. The consultant also recommended that the Town plan for non-commercial, light, single-engine and twin-engine aircraft under 12,500 pounds – exactly what we experience today. The consultant further recommended improvements to the runway, taxiways, and aircraft parking areas, including T-hangars for based aircraft. Some of the recommendations were implemented, others not, but in any case, Federal funding never materialized.



Despite the lack of Federal funding, the Town continued to make modest improvements to the airport, some with the help of money from State grants. In 1993, 600 feet of pavement was added to the south end of the north/south runway increasing the total length to 3,450 feet. In 1995, the Town installed a modern, environmentally safe double-walled underground storage tank for aviation fuel. And in 2000, the Town added an automated credit card terminal and fuel pump which provided 24 hour operation. With greatly improved efficiency from the automated system, the Town was able to enjoy a profit from fuel sales.



By 2000, a new era of volunteerism and community involvement was dawning at Parlin Field. In 2002, with funding from charitable donations and a state grant, volunteers razed the old airport office, which was in poor condition, and erected a new operations building. In 2003, State grants provided funding for crack filling on the runway, and in 2004, volunteers installed automated low-intensity runway lighting making night operations possible. In 2005 a new lighted windsock and segmented circle was installed, replacing the old windsock and circle that were dilapidated. In 2006, automated safety lighting was added to the main ramp area, emergency fuel shutoff installed, and more runway cracks repaired. And in 2007, the Town paved taxiways from the ramp to runway 18. Nearly all of these projects received funding from state grants.

At about this same time, the Town recognized the need for aircraft hangars as recommended in the 1981 Master Plan. After initial exploratory work, the Town negotiated long-term lease agreements with individuals who built privately-owned hangars on Town owned land. Today, four such leases exist; two structures providing 22 T-hangars north of the Operations Building, and two large maintenance style hangars south of the Operations Building. In addition to the hangars, the Town owns the building formerly used as the airport manager's residence and now operated as the Lil' Red Baron. With these four hangars and the restaurant building, all the available building sites on the airport are occupied.



In 2008 the Town repaired the culvert under the south end of the runway after pavement collapsed into a hole that developed in the vicinity of the culvert. The Town also negotiated with the landowner to the north of the airport to remove trees obstructing the approach and departure path to the paved north/south runway. The Town's foresight in 1949, when it acquired the air navigation easement, was invaluable in assuring removal of trees which presented serious safety hazards to aircraft and liability concerns for the Town. The tree-clearing work was completed in January 2011, bringing the approach path into compliance with standards and making the airport much safer. Finally, several people interested in preserving the original hangar, an icon of Parlin Field, celebrated the hangar's 80th anniversary by establishing a Parlin Hangar Restoration Fund to collect donations necessary to refurbish the old hangar in a style consistent with its historic character. Organizers, some of whom are descendents of the original crew that built the hangar, expect to complete the restoration with donated funds and volunteer help at no cost to the Town – a project very much in keeping with the community involvement and volunteerism of the past few years. Most recently, Edmonds Aircraft Service, a well respected aircraft maintenance and repair service, began operations in the newly constructed maintenance hangar at Parlin Field. Formerly operating at Boire Field in Nashua, Edmonds Aircraft Service will attract new business to Parlin Field and is an asset to the Town of Newport.



This update to the 1981 Airport Master Plan includes an inventory of existing facilities, forecasts of aviation demand, facility requirements determination, alternatives analysis, and an Airport Layout Plan (ALP) set. A detailed analysis of existing facilities, airside and landside, will serve as the basis for planning recommendations. The following sections present a current detailed inventory of the facilities at Parlin Field.

1.2 AIRPORT REFERENCE CODE AND CRITICAL DESIGN AIRCRAFT

The Airport Reference Code (ARC) is the method used by the FAA to determine the appropriate design criteria for the airport. Design criteria affects issues such as the size of the runway, size of runway safety areas, the separation between the runway and taxiways, aircraft tie-downs, and buildings. The ARC is determined by two components: the approach speed and the wingspan of the critical design airplane. The critical design airplane is defined as the largest airplane to use the airport on a regular basis. FAA Advisory Circular (AC) 150/5325-4B - Runway Length Requirements for Airport Design, defines regular basis as a minimum of 500 operations (takeoffs and landings) per year.

The first component of the ARC is the aircraft approach category; this is depicted by a letter and is determined by the approach speed of the critical design aircraft (see **Table 1.1**). Generally, aircraft approach speed applies to the design and development of runways and runway-related facilities.

Table 1.1 – Approach Category Classification	
Approach Category	Approach Speed
A	Less than 91
B	91 but less than 121
C	121 but less than 141
D	141 but less than 166
E	166 or greater
Source: FAA AC 150/5300-13, "Airport Design," Change 15	

The second component, depicted by Roman numeral, is the airplane design group. This is determined by the critical design aircraft's wingspan (see **Table 1.2**).

Table 1.2 – Aircraft Wingspan Classification		
Airplane Design Group	Wingspan (feet)	Typical Aircraft
I	Less than 49	Cessna 172, Piper Cheyenne, Beech Bonanza A36
II	49 but less than 79	Beech King Air B-200, Citation III
III	79 but less than 118	Boeing-727, 737, DC-9
IV	118 but less than 171	A-300, Boeing-757, 767, DC-10
V	171 but less than 197	Boeing-747
VI	197 but less than 262	Future
Source: FAA AC 150/5300-13, "Airport Design," Change 15		



Discussions with airport management, Airport Advisory Board members, users and tenants indicate that the Beech Bonanza A36 and similar type aircraft such as the Cessna 172 should be designated as the Design Aircraft for Parlin Field's airfield layout standards.



The Beech Bonanza has wing span of 33.5-feet and an approach speed of 72 knots giving it an ARC of A-I.

Beechcraft Bonanza A36

1.3 AIRPORT ROLE

Defining the airport role aids in identifying how the airport is intended to serve its host community as well as its integration with the national system of airports with regard to development and funding. The airport role for Parlin Field is defined in both the FAA's National Plan of Integrated Airports System (NPIAS) (2011-2016) as well as the New Hampshire State Airport System Plan (NHSASP).

Parlin Field is classified as a General Aviation airport within the NPIAS. General Aviation airports while not specifically defined within the NPIAS are considered to be airports not classified as commercial service (no scheduled airline service). The NHSASP maintains that Parlin Field will remain in its role as a general aviation airport. Parlin Field will continue to serve as a facility that accommodates small general aviation single and multi engine aircraft operated for personal and business use.

1.4 AIRFIELD FACILITIES

The purpose of this section is to give a detailed analysis of existing facilities at Parlin Field. Airport facilities are categorized into one of two areas: airside and landside. Airside facilities include runways, taxiways, aircraft parking aprons, navigation aids, hangars, and fuel farms. Those facilities classified as landside include access roads, auto parking lots, and terminal buildings.

Landside Facilities

1.4.1 Airport Access Road & Automobile Parking

Airport Road serves as the single paved access road to airport. The road is unmarked and begins at Route 10 and ends at the airport parking lot. The road is in good condition. A Class VI road provides access to Corbin Road and aircraft storage hangars from the airport parking lot.

A paved automobile parking lot adjacent to the airport terminal building is marked to accommodate 15 vehicles. Airport parking is shared with the Lil' Red Baron Restaurant. The airport parking lot was paved in 2007.



1.4.2 Terminal Building

An 830 square foot terminal building was constructed through volunteer efforts in 2002 and is in excellent condition. The building was funded through donations from local businesses and state grant money provided through the NH Bureau of Aeronautics. Volunteers razed the former airport office and constructed the building that currently sits in its place. The terminal building has office space for the airport manager, a restroom, utility room and meeting space. The terminal building is used by community organizations such as the Cub Scouts and others and is where Airport Advisory Board meetings are held. The building has electric baseboard heat as well as a wood burning stove. High speed internet and a telephone line are also available.



Airside Facilities

1.4.3 Aviation Fuel Farm

The airport offers 100LL aviation fuel which is stored in a 10,000 gallon underground double-walled, dry-interstitial, storage tank. The underground tank was installed in 1995 and an automated credit card reader and fuel pump were added in 2000 which allows for 24/7 self-service fueling by pilots. An automated gasoline tank leak monitor (Veeder-Root) reports fuel volume, temperature, water and other parameters. The Veeder-Root system triggers alarms when sensors detect fluids in the interstitial space or piping sumps. The system receives a daily visual inspection according to industry standard practices, and complete annual inspection as required by the State of New Hampshire. The entire system is in good condition.



1.4.4 Runways

Two runways are available for use at Parlin Field. The main runway, Runway 18-36 is 3,450 feet long by 50 wide and is paved. The crosswind runway, Runway 12-30 is 1,950 feet long by 80 feet wide and is turf. Each runway is described in detail below.



Runway 18-36

The threshold on Runway 18 is displaced 690 feet for obstacle clearance which allows for a landing distance of 2,760 feet during summer months. The landing distance is reduced to 2,160 during the winter as the last 600 feet are closed (the last 300 feet are not plowed to reduce the effects of frost heaving on the pavement). Landing length is also reduced in the spring if the airport experiences a flooding event which typically covers the first several hundred feet of the Runway 36 end. However, the full runway length is available for take-off except when the south end is closed as described above. A two-hundred foot back taxi is required to utilize the full length of Runway 18.

The runway pavement is listed in fair condition by the NH Bureau of Aeronautics. The runway has approximately 1,250 linear feet of full-depth cracks 2 inches or wider, mostly transverse, throughout pavement with many more longitudinal and transverse small cracks (a full detailed assessment of Runway 18-36 prepared by members of the Airport Advisory Board is included in **Appendix A**).

The runway is marked as a visual runway and the markings are in good condition. Single intensity pilot controlled lighting is provided on Runway 18-36; non-standard reflector bars take the place of runway end lights at the south end of the runway. A visual approach path indicator such as a VASI (Visual Approach Slope Indicator) or PAPI (Precision Approach Path Indicator) would enhance the safety of visual approaches to the runway ends especially at night given the hilly terrain surrounding the airport.



There are currently only visual approaches to each runway end; however discussions with airport management, tenants and users indicate that a non-precision instrument approach such as an LPV (Localizer Performance with Vertical Guidance) to Runway 36 would add considerable utility and safety to the airport. The runway is considered a utility runway (with regard to FAR Part 77 protected airspace surfaces) and serves propeller aircraft weighing 12,500 lbs. or less.

An aviation easement (see Section 1.10) is in place for the approach to Runway 18. Significant clearing of obstructions (vegetation) has taken place over the last year (2010) in an attempt to provide a clear 20:1 approach to Runway 18 within the confines of the easement. Each threshold of Runway 18-36 has a displacement for obstacle clearance. The threshold on Runway 18 is displaced 690 feet and the Runway 36 threshold is displaced 300 feet. The relocation of the thresholds will be addressed within this Master Plan Update under the Alternatives Analysis section.

The runway does not meet FAA runway safety or object free area standards for clearing and grading within those areas at either of the runway ends. However the area within the longitudinal extents is largely within compliance. The Town does not control the land



within the Runway 18-36 Runway Protection Zone (RPZ) as recommended by the FAA (see **Figure 1-1**).

A noise abatement procedure is in effect for departures on Runway 36 to protect a noise sensitive residential area 3,000 feet northwest of the airport (see **Figure 1-1** pg. 9), per agreement between the Town and the landowner in exchange for obstruction removal north of the runway.

Runway 12-30

Runway 12-30 is a turf runway 1,950 feet long by 80 feet wide. The runway is in good condition as determined by the NH Bureau of Aeronautics in 2010. Yellow cones mark the runway edge and Runway 30 threshold. The runway is closed from November through May. The runway has visual approaches only. Significant obstructions exist at both ends of the runway (trees and power lines).



Runway 12 has an unmarked threshold which is displaced significantly due to trees at the approach end. The runway safety area crosses the paved runway 18/36. A non-standard right traffic pattern is in place to avoid terrain.

The runway does not meet the FAA standards for runway safety and object free areas. The Town does not control the land within the Runway 12-30 RPZ's. A noise sensitive area lies immediately off the departure end of Runway 30 (see **Figure 1-1** pg.9).

1.4.5 Taxiways

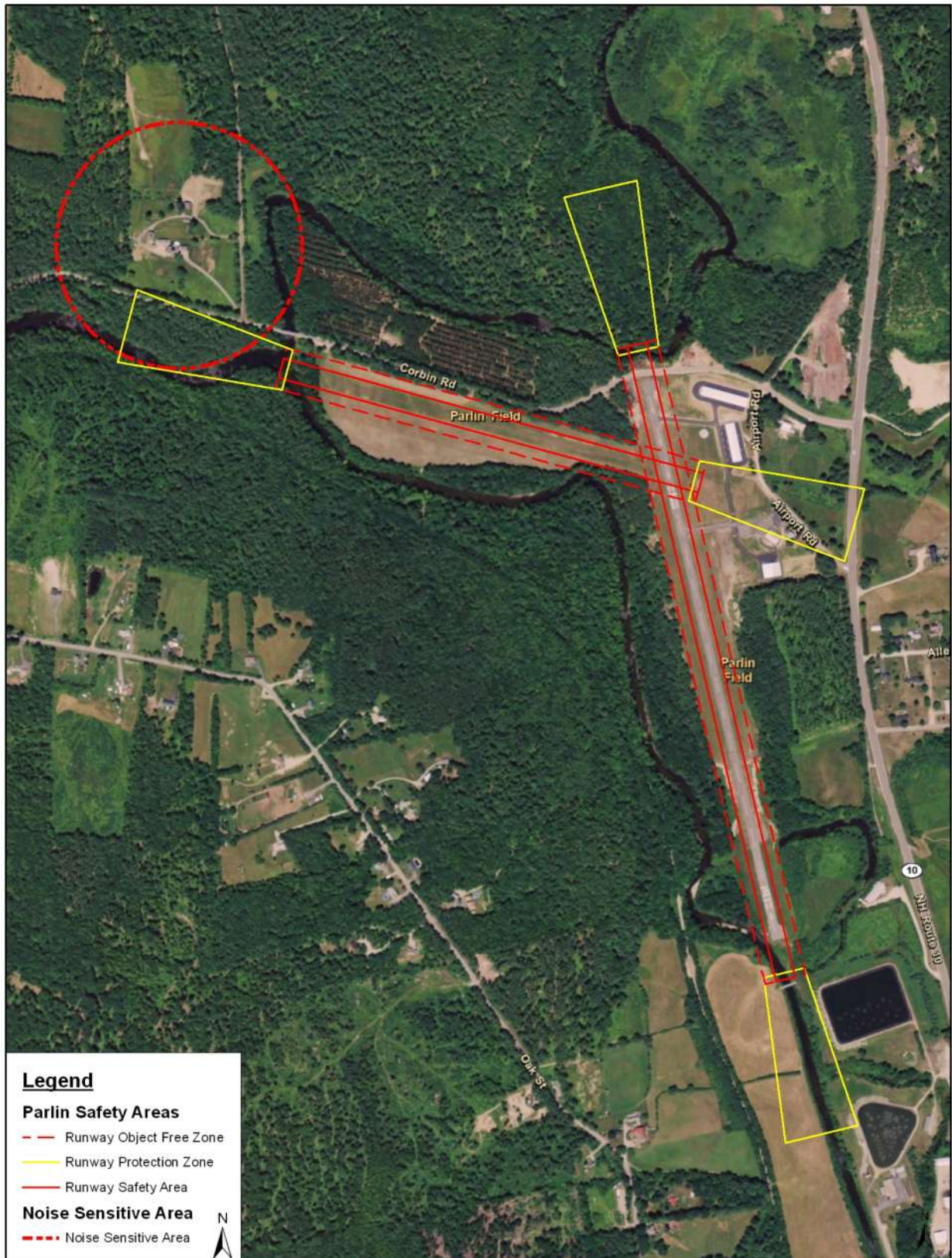
Several taxiways provide access from the terminal and aircraft parking areas to the runways. All of the taxiways are paved, unlit and in good condition.

1.4.6 Aircraft Storage Hangars

Several types of aircraft storage hangars are available at Parlin Field. The original hangar referred to as the **Community Hangar** (shown at right) is a 60 foot by 80 foot Quonset type hangar that was constructed in 1929 and still houses aircraft today. The hangar is constructed of corrugated steel.



A project is underway to restore and update the hangar in a manner consistent with its original character. The existing asphalt floor will be replaced with a concrete floor, steel supporting structures repaired, corrugated center roof panels replaced, windows refurbished, personnel doors and a new one-piece hangar door installed, and the entire structure painted. Current hangar rent is \$10 nightly and \$95 monthly, with room for 6 aircraft stored on a monthly basis.

**Figure 1-1 Parlin Field Safety Areas and Noise Sensitive Area**



Four other aircraft storage hangars are located on the airport as noted below. The hangars were built with private funds and the Town receives revenue from the hangars through land lease agreements and annual taxes (see Section 1.12).

Hangar A is an 80 foot by 100 foot single-bay maintenance style hangar with office space. The hangar houses five aircraft and was erected in 2005 and is in excellent condition.

Hangar B is an 80 foot by 96 foot single-bay maintenance style hangar with included office and vehicle storage space. The hangar is home to the airports only FBO, Edmonds Aircraft Service which services general aviation piston aircraft. The hangar was erected in 2010.

Hangar C is a 52 foot by 240 foot T-hangar. There are 10 individual T-hangar units within the structure. All the units are occupied. The hangar was erected in 2005 and is in excellent condition.

Hangar D is a 52 foot by 280 foot T-Hangar. There are 11 individual T-hangar units, one of which is a double-sized hangar unit with office space. All of the units are occupied. The hangar was erected in 2007 and is in excellent condition.

1.5 AIRCRAFT TIE-DOWNS

Paved Tie-Down

Two paved tie-downs are located on the main ramp adjacent to the fuel shelter. One of the tie downs is unusable because it is located too close to the taxiway leading to Lease Areas A & B. The other is available, and is typically used for short-term transient aircraft (up to 48 hours). The ramp is paved and in fair condition and has a sloping grade. There are cracks and deteriorating pavement throughout. It is lighted by motion sensing lights.

Turf Tie-Down

Six aircraft tie-downs are available on the turf. One tie-down is located south of the mid-field taxiway, two are north of the mid-field taxiway, and three are north of the main ramp. These tie-downs are used by longer-term transient and locally based aircraft generally during the summer months and rarely if at all during the winter. Current tie-down rent is \$2 nightly after 5 nights and \$15 monthly. Tie-downs seldom generate income, now that private hangars are available on the field.

1.6 AVIATION ACTIVITY

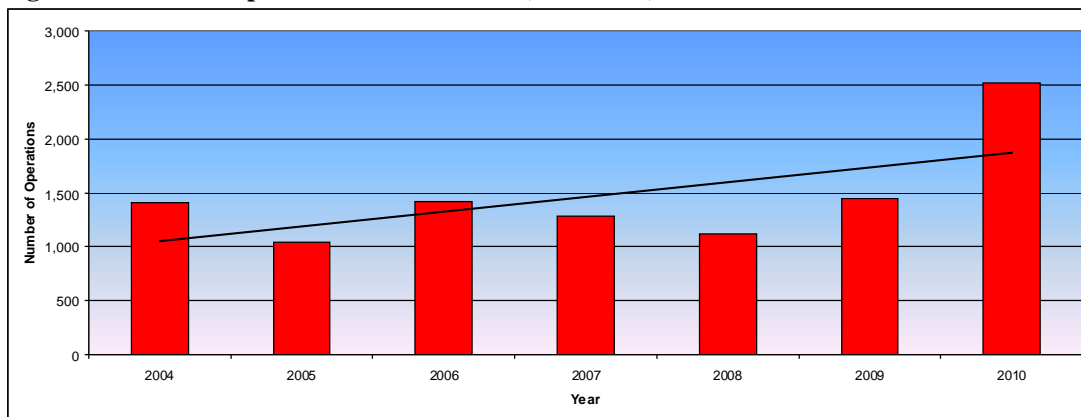
This section describes the levels of based aircraft and aircraft operations currently (2011) at Parlin Field. The purpose of this section is to provide an overview of historical and current aviation activity that will be used as a base for forecasting and facility requirements within this update.





Because Parlin Field does not have an Air Traffic Control (ATC) tower, obtaining an accurate count of takeoffs and landings (operations) can be a difficult task. To help track activity, an airport flight log is maintained in the terminal building where pilots are requested to fill in the date, aircraft tail number, home base, number of people onboard and other information. It is thought that the activity recorded on the airport flight log sheets represents approximately 2/3 of actual activity at the airport. **Figure 1-2** depicts the historical number of aircraft operations at Parlin Field from 2004-2010.

Figure 1-2 Aircraft Operations – Parlin Field (2004-2010)



Parlin Field has experienced an upward trend in aircraft operations over the last few years. This may be attributed to recent development at the airport with the building of several aircraft storage hangars, a change in the management at the airport, a change in the airport restaurant ownership and the addition of an FBO; all leading to a more attractive airport environment. Of the aircraft operations at Parlin, the majority (approximately 55%) are transient aircraft (that is aircraft originating from other airports that are not based at Parlin).

The number of based aircraft at the airport has seen a dramatic increase as well with the addition of several new aircraft storage hangars at Parlin. The number of based aircraft has increased from 23 in 2008 to 34 in 2010. All of the airport's based aircraft are stored in hangars.

1.7 UTILITIES

Airport utility information was garnered from the airport manager and the Newport Department of Public works who provided GIS files of currently known utilities serving the airport. The following utilities service the airport.

Electric

Electrical power is provided by Public Service Company of New Hampshire. Conventional residential-type electrical service provides power to the Operations Building, Community Hangar, runway and security lights, fuel pump, and automated card reader. The Operations Building has electric heat and an electric hot water heater. Total



annual consumption is about 9,000 Kilowatt Hours at a cost of approximately \$2,000. Wood heat is used in the Operations Building to reduce consumption of electricity used for space heating. Tenants on Lease Areas A, B, C, D, and the Lil' Red Baron have their own electric service.

Water

A water connection is provided to the airport terminal building and restaurant via a 10" diameter asbestos concrete water line which runs along Airport Road and Route 10. Water is metered at the airport-owned building occupied by the Lil' Red Baron. Because airport water use is minimal, the water bill is paid by the tenant, currently the Lil' Red Baron.

Sewer

The airport sewerage consists entirely of on-site disposal systems. Private hangars on Lease Areas A and B have their own systems consisting of septic tanks and leach fields. The Lil' Red Baron has two independent tank/leach-field systems – one for conventional waste and a second system with grease traps designed to handle restaurant kitchen waste. The airport operations building has a conventional system consisting of a septic tank located at the front of the Operations Building adjacent to the Hangar and leach field located across the ramp in the tie-down area.

Telephone

The airport maintains three phone lines, all of which are landlines owned by Fair Point Communications.

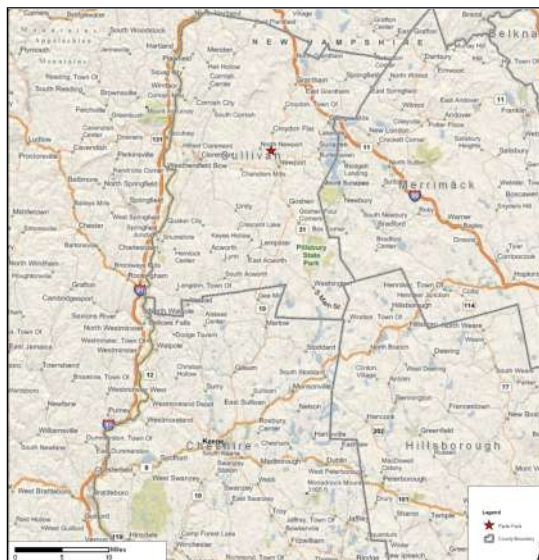
Two of the lines are billed through *One Communications*, as part of the Town of Newport Centrex telephone system. One of these lines provides voice service for the airport telephone. The other is an ATM line which provides dedicated service to the automated credit card reader.

The third line is billed through *NHVT.net* and is a dedicated DSL (ARDU) line providing internet service.

1.8 DEMOGRAPHICS

Parlin Field is located in the town of Newport, within Sullivan County, New Hampshire. Demographic information for population and employment was obtained from several sources including the US Census Bureau and NH Economic and Labor Market Bureau.

Sullivan County is primarily rural in nature and the population density is sparse. The host town of Newport reports fewer than 8,000 residents. Both the town of Newport and





Sullivan County have experienced minimal growth rates (approximately .3 and .6 percent annually) since 2000 and population growth is expected to continue, albeit at a smaller growth rate. Approximately 21 percent of the County population is less than 18 years old, 16.8 percent is 65 or older, with the remaining 62.2 percent being between the ages of 18 and 64. **Figure 1-3** illustrates the population density and dispersion for those counties that surround Parlin Field. Discussions with airport management indicate that the majority of based aircraft owners are individuals who are retired or close to retirement age. **Figure 1-4** (pg.14) shows the percentage of population over the age of 64 by census tract.

Figure 1-3 Population dispersion and density

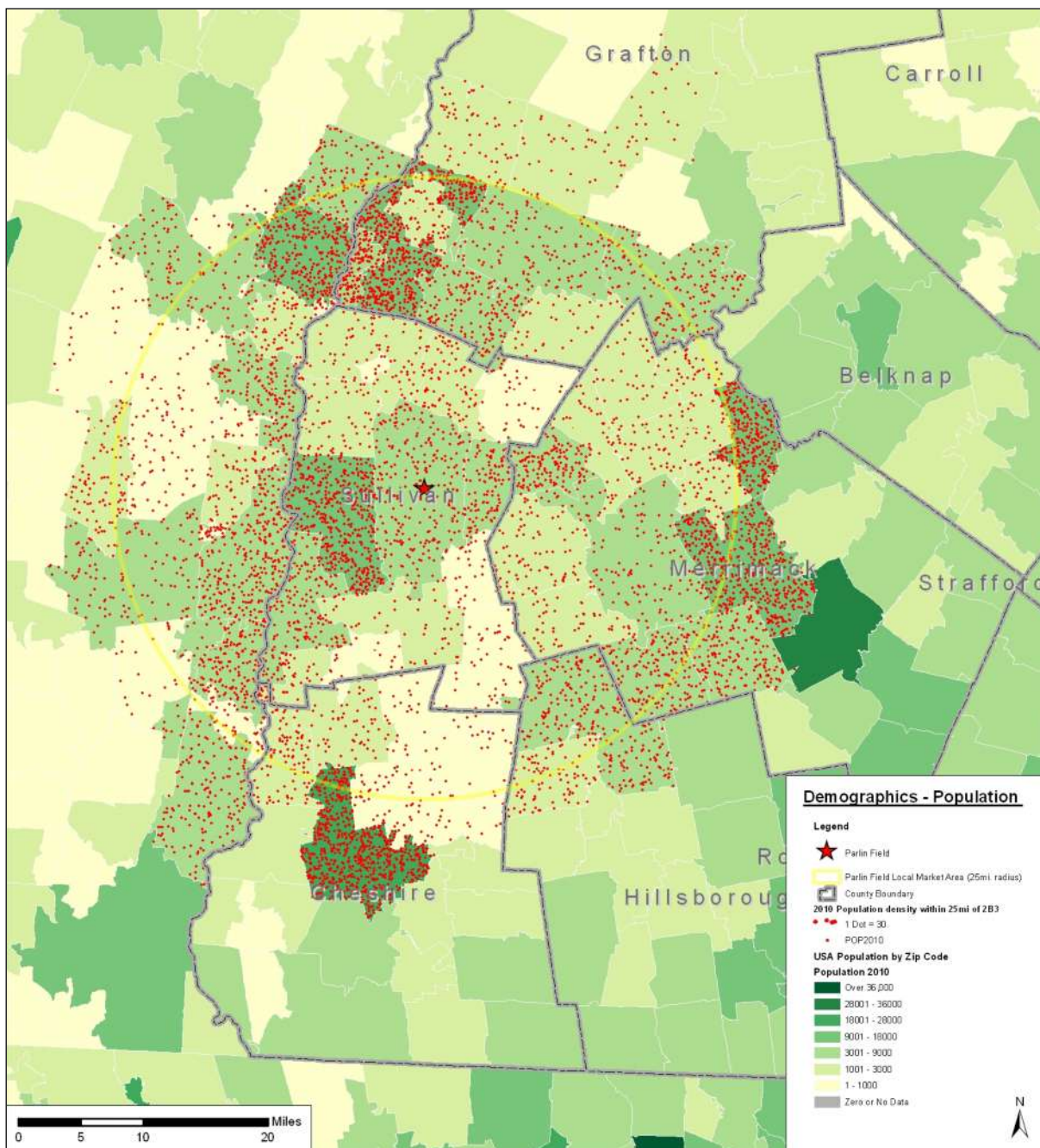
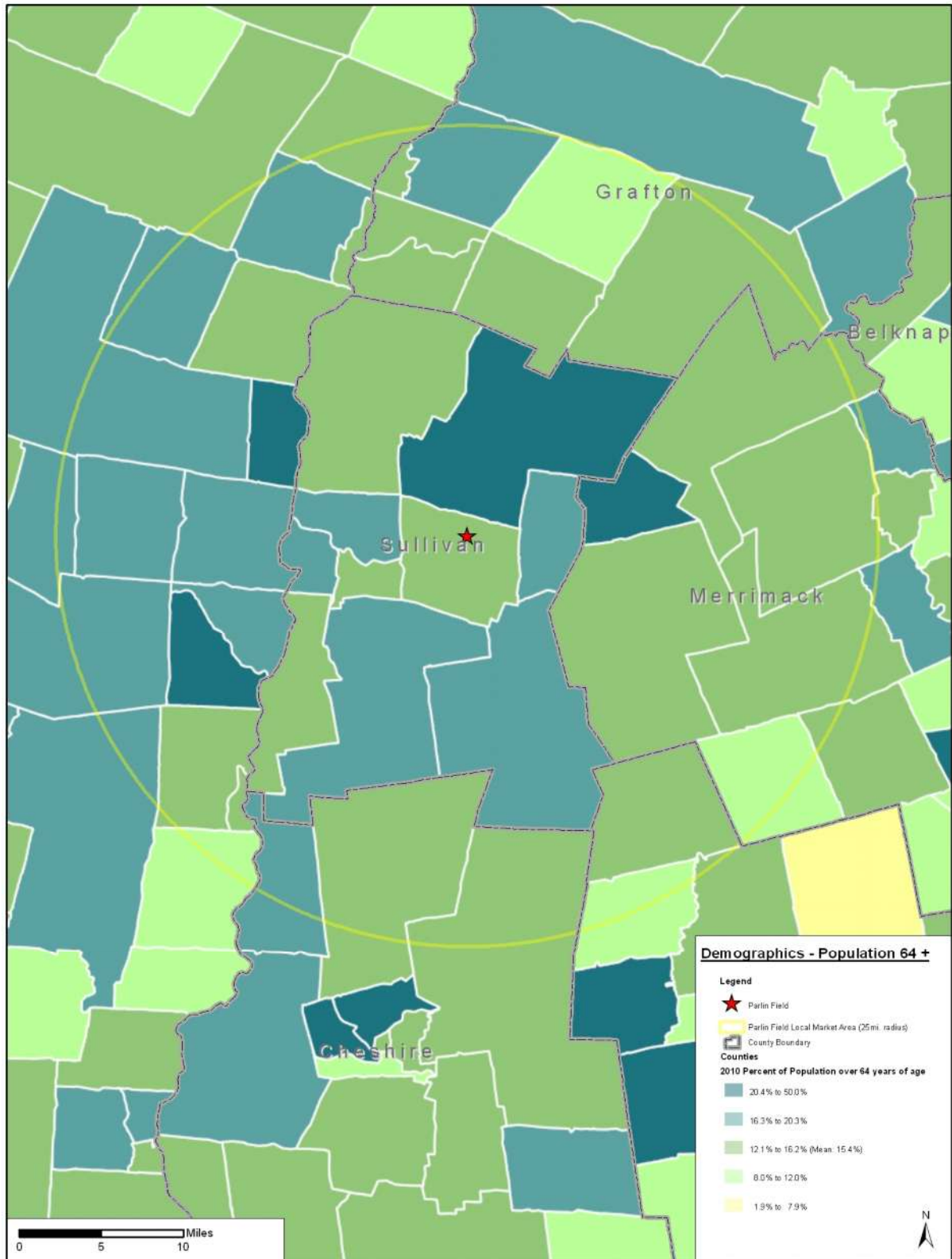




Figure 1-4 Population over age 64 by census tract





1.9 MARKET AREA

Parlin Field serves two different markets – that of those who base an aircraft at the airport for personal and/or business use and those who fly aircraft and passengers to the airport for recreation or business purposes. To aid in determining the users of Parlin Field aircraft registration records of based aircraft owners were obtained to determine the market area of based aircraft owners and aircraft sign-in logs were used to determine the origins of transient aircraft.

Transient Aircraft Market

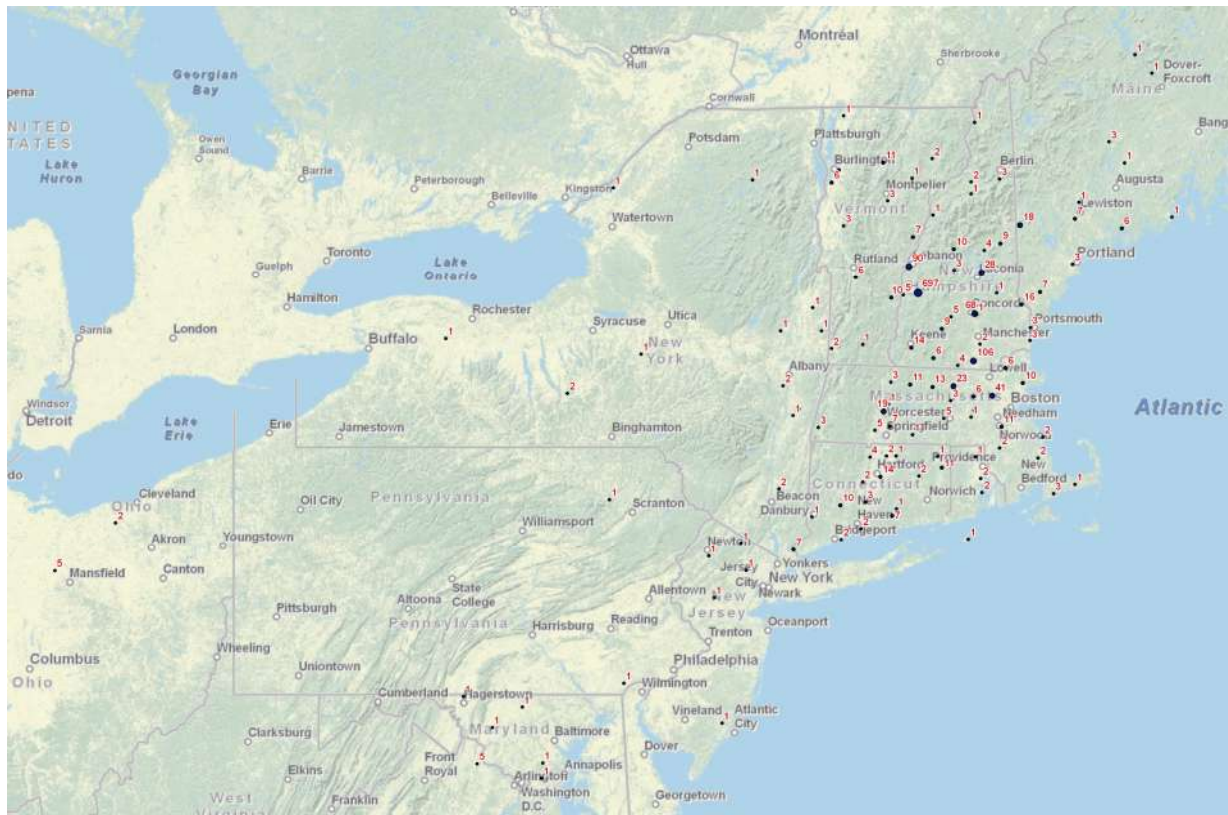
Parlin Field serves as a destination for those far and wide. The visiting aircraft log entries were obtained for a two year period (Dec. 2008 – Dec. 2010) which contained aircraft registration numbers (N-number), the airport the aircraft originated from, date of visit and number of people onboard the aircraft. This information was entered into a GIS (Geographical Information System) and plotted on a base map of the United States to visualize where the majority of users of Parlin are originating from. The two years of records yielded nearly 1,900 entries. Of those, the majority of aircraft operating at Parlin originated in the northeast states as shown in **Figures 1-5 and 1-6** below, however Parlin was a destination for aircraft arriving from points across the United States – from as far west as Portland, Oregon, north to South Dakota and south to Florida. According to the log, over 1,500 people arrived by air at Parlin Field from across the U.S. to visit the Newport area.

Figure 1-5 Countrywide distribution of transient aircraft at Parlin Field





Figure 1-6 Northeast distribution of transient aircraft at Parlin Field

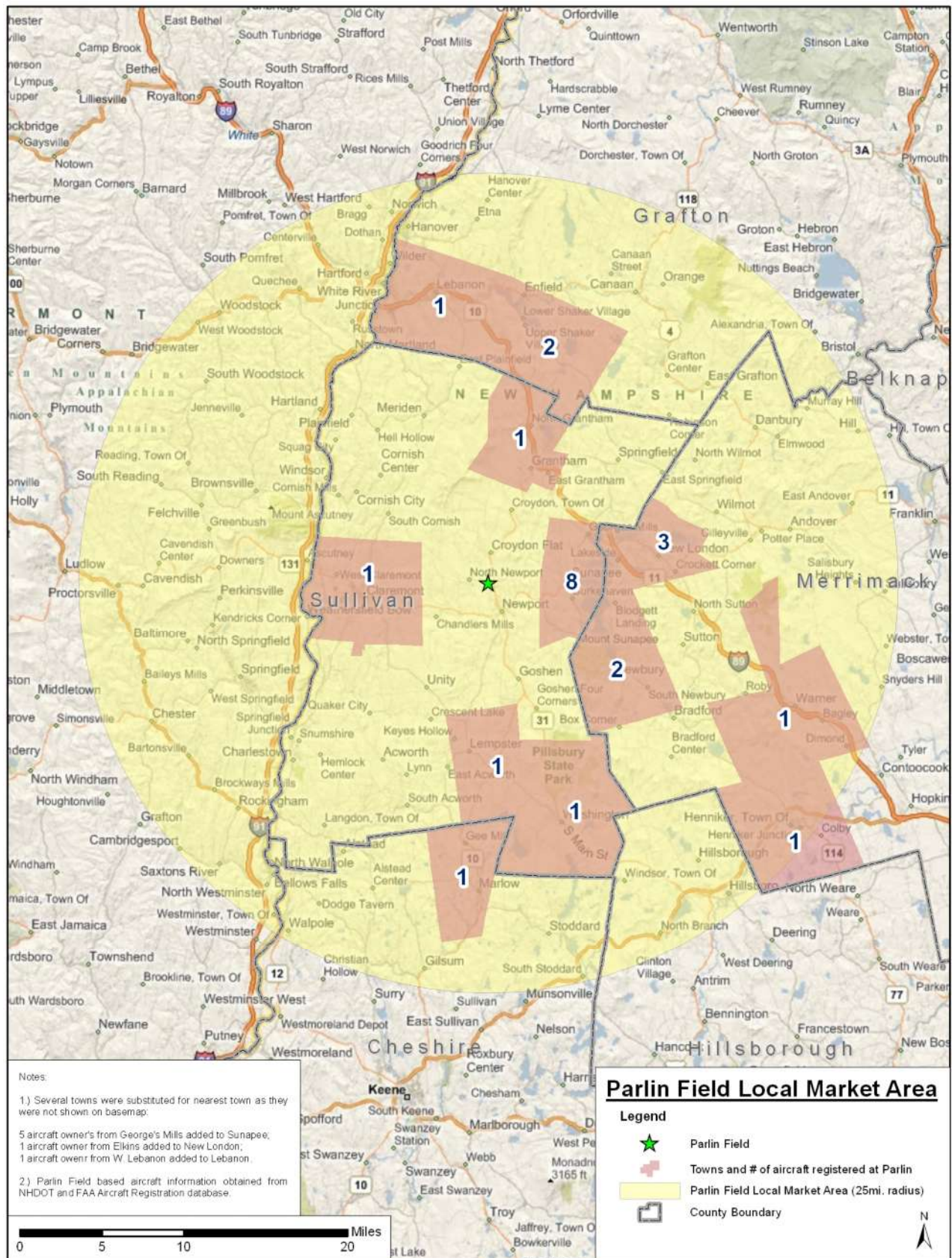


Based Aircraft Market

The towns where aircraft owners reside were obtained from the based aircraft registration records. The towns were then plotted to determine where Parlin Field is drawing its based aircraft owners from (the based aircraft market area). The majority of based aircraft owners are located primarily within a 25 mi. radius north and east of Parlin Field as shown in **Figure 1.7** on page 17.



Figure 1-7 Parlin Field Local Market Area





1.10 LAND USE AND ZONING

The Town of Newport has adopted zoning ordinances which provide for the protection of the airspace surrounding Parlin Field as well as an aviation easement. The provisions of the airport zoning are included in the Town's zoning ordinances under Article VIII. The Town's airport zoning closely follows Federal Aviation Regulation (FAR) Part 77 which describes protected airspace surfaces surrounding airports. The Town of Newport has adopted protected airspace surfaces which are described as follows under Article VIII Section 903 – Limitations:

The limit of height of obstructions shall be:

- A. In the approach areas of Runway 18-36 which are 500 feet wide at a point 200 feet from the end of the pavement and 2,500 feet wide at a point 10,200 feet from the end of the pavement, an inclined plane of 40:1 slope.
- B. On the sides of the landing strip and approach areas, an inclined plane of 7:1 slope.
- C. 936 feet above sea level within 6,000 feet of the Airport Reference Point (150 feet above the airport).
- D. Between 6,000 feet and 11,000 feet from the airport a line with a slope of 20:1 measured in a vertical plane passing through the center of the airport.

The extent of the Town of Newport Airport Zoning is shown in **Figure 1.8** on the following page.

An aviation easement was acquired by the Town of Newport between 1948 and 1949. The easement is intended to provide for a clear and safe approach to Runway 18 by aircraft and limits the height of vegetative and man-made objects within the easement trapezoid (shown in **Figure 1.9** pg. 20)



Figure 1-8 Town of Newport Airport Zone

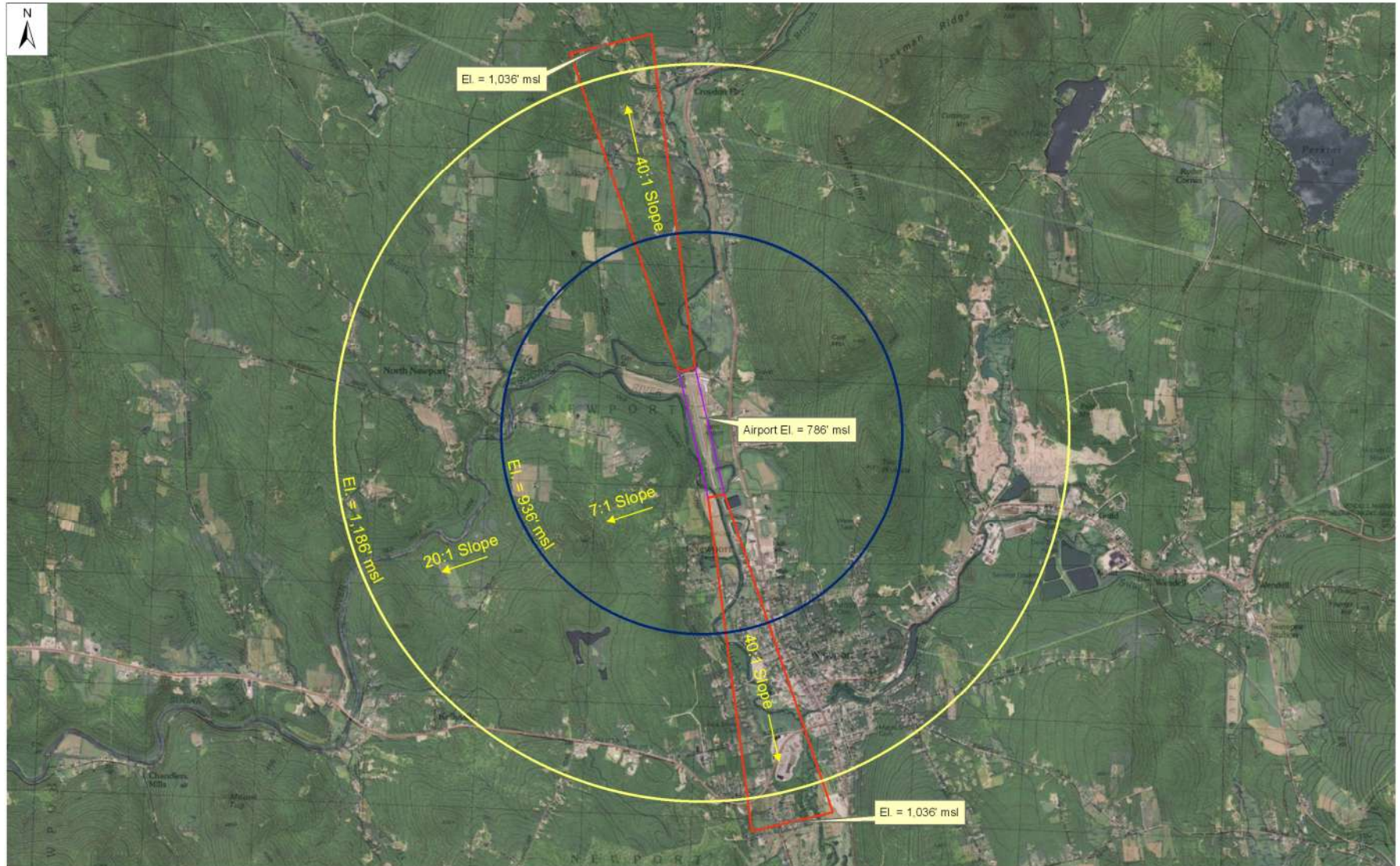
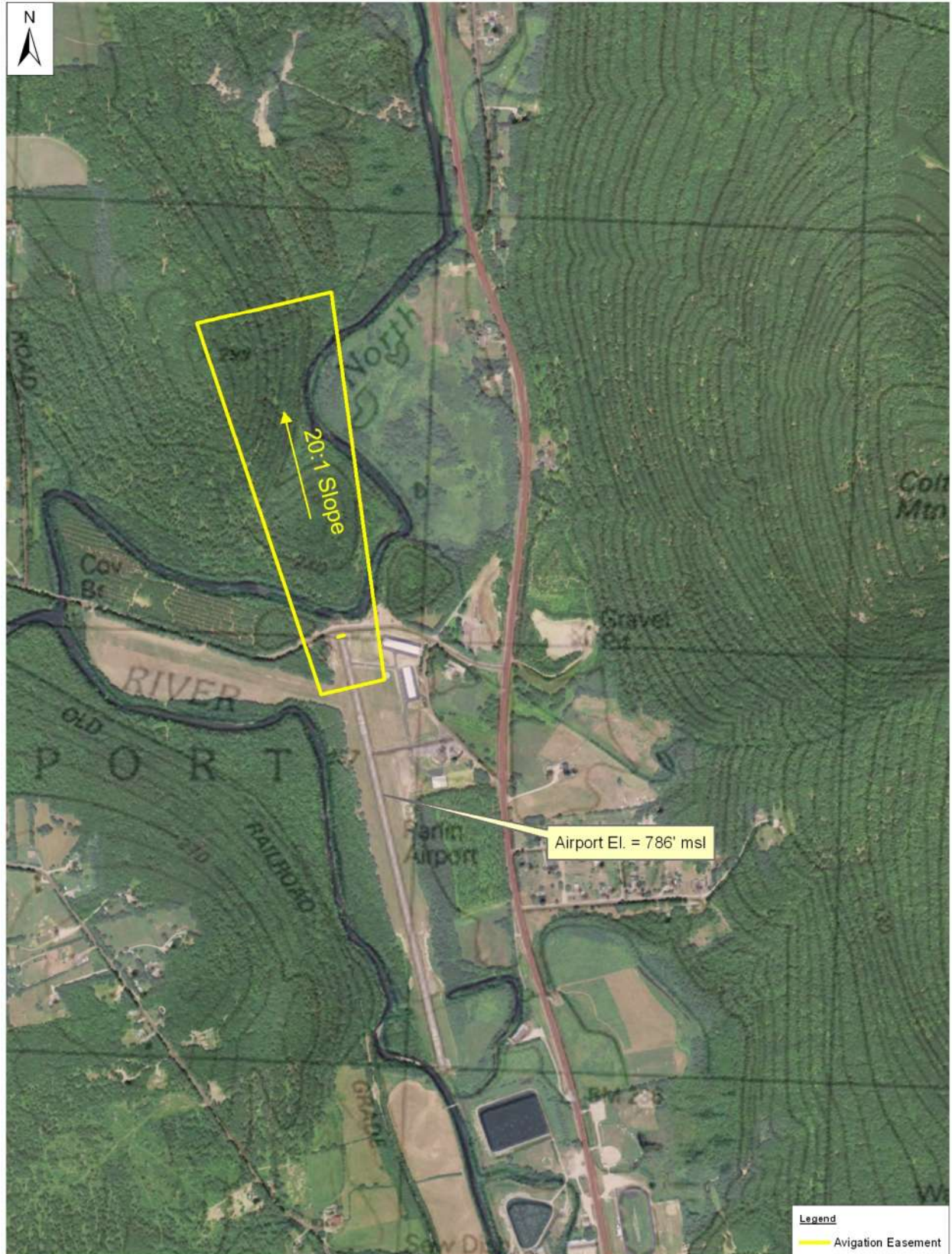




Figure 1-9 Town of Newport avigation easement





1.11 ENVIRONMENTAL

This section presents a general overview of known environmental conditions in the immediate vicinity of Parlin Field. Areas of environmental sensitivity have the potential to limit airport development or impact airport operations and for this reason a search of national, state, and local databases was conducted to determine areas of environmental sensitivity. The following environmental areas were considered:

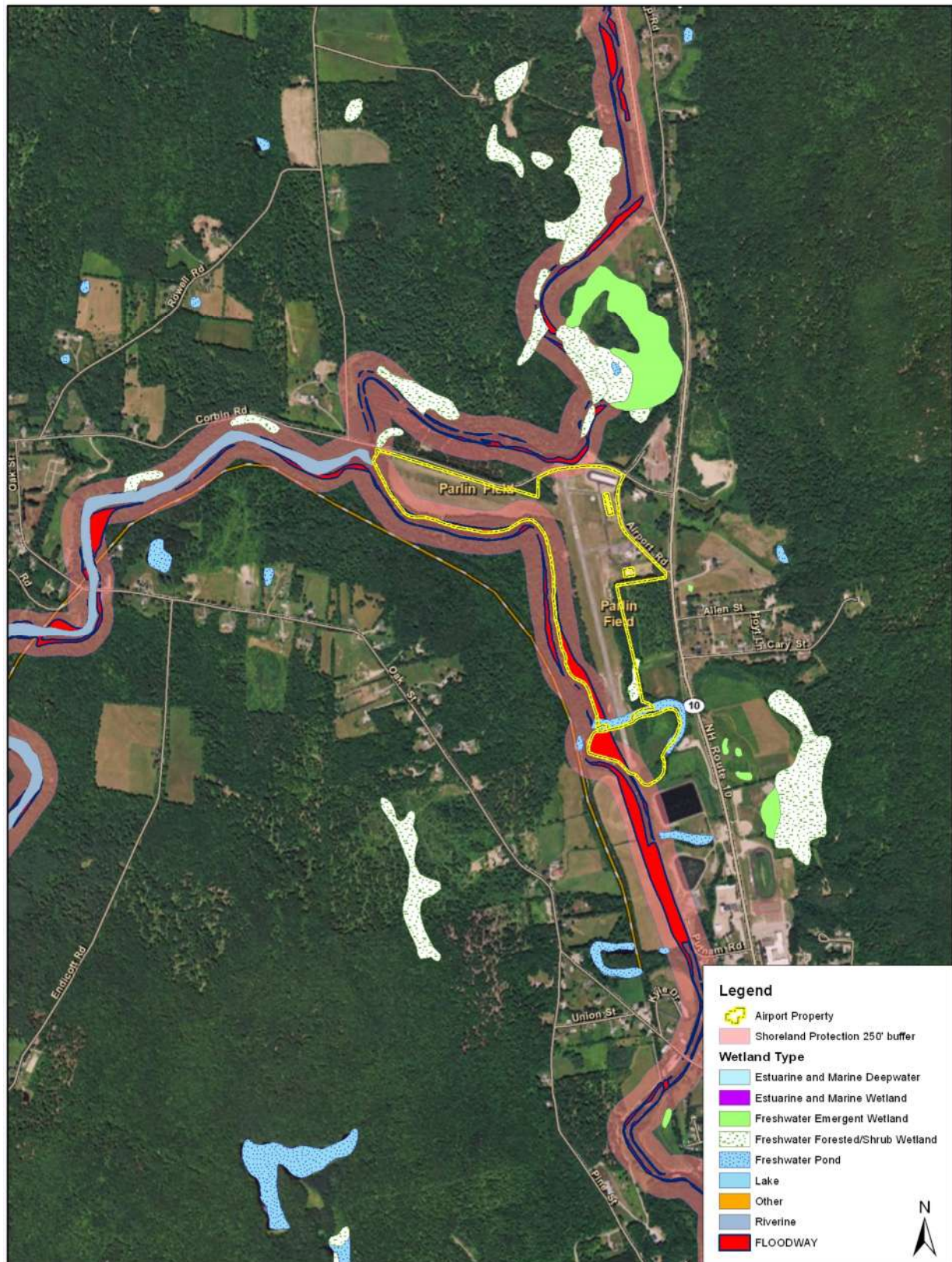
- . Wetlands
- . Floodplains
- . Rare plant and species habitat
- . Shoreland Protection

The United States Fish & Wildlife Service (USFWS) database (USFWS critical habitat portal - <http://criticalhabitat.fws.gov/>) was searched to determine the presence of critical habitat and endangered species. According to the USFWS website for critical habitat and endangered species, there are no areas of habitat or endangered species within the airport boundary.

Wetlands layers from the National Wetlands Inventory (<http://www.fws.gov/wetlands/Data/DataDownload.html>) were imported into a GIS and overlaid onto a base map of the airport to determine location and extent at Parlin Field. These areas are of concern as they present potential limitations to airport operations and/or development as wetland areas attract various species of wildlife which become a safety hazard to aircraft operations and may require extensive permitting. There was one area of wetland (.87 acres) located on the east side of Runway 18-36 near the end of Runway 36. The wetland is noted as being of type PSS1E (Freshwater Forested/Shrub Wetland).

A portion of the airport is within a floodway as identified through Federal Emergency Management Agency (FEMA) flood maps. The floodway is shown on **Figure 1.10** (pg. 22).

A state shoreland permit is required under the Comprehensive Shoreland Protection Act (CSPA) prior to undergoing certain construction activities, excavation or filling within the protected shoreland. The protected shoreland is encompassed within a buffer from 0' to 250' from a reference line of a water body. The Sugar River flows adjacent to Parlin Field and as such, a buffer has been placed from the centerline of the river flow out to 250 feet (the actual reference mark will vary) to identify areas on the airport that may require a permit for certain types of construction, filling or excavating activity. The 250 foot buffer is shown in **Figure 1.10** (pg. 22).

**Figure 1-10 Parlin Field environmental considerations**



1.12 AIRPORT REVENUES AND EXPENSES

A review of airport revenue and expenses is provided within this section. Parlin Field derives revenue from the sale of aviation fuel, ground leases, aircraft tie-down fees, and hangar storage fees. The airport takes in sufficient revenue to be financially self-sufficient without being a burden on the town coffers. A table of revenue vs. expenses for year ending 2010 is provided below.

Revenue	
Ground Leases (Areas A, B, C, D)	\$28,545.36
Little Red Baron	\$300.00
Community Hangar (4 aircraft)	\$2,400.00
Aviation Fuel Sales	\$10,800.00
Aircraft Registration NH RSA 422:36	\$760.72
Tie-Down	\$100.00
Taxes on Hangars	\$12,746.00 (municipal portion only)
Total Revenue	\$55,652.08
Expenses	
Salary (airport manager)	\$20,000.00
Staff Training	\$132.00
Telephone/Internet	\$2,200.00
Vehicle gas/oil	\$467.13
Contract Services	\$3,141.58 (includes Lakes Region Environmental, Simplex Grinnell etc.)
Electricity	\$1,603.27
Administration Supplies	\$1,000.00
Airport Maintenance	\$7,500.00 (includes crack sealing on paved runway, lime & fertilizer for grass runway and other areas on airport, building maintenance, etc.)
Building Insurance	\$1,097.76
FICA	\$1,530.00
Dues/Fees/Subscriptions	\$25.00 (Granite State Airport Mgrs Assn.)
Equipment Rental	\$1,000.00
Public Education	\$100.00 (includes posters for open house, etc.)
Airport Liability Insurance	\$3,278.00
Total Expenses	\$43,574.74



Chapter 2 – Aviation Forecasts



2.1 INTRODUCTION

Forecasts of aviation demand serve two purposes: to correctly plan the timing of airport capital improvements and to determine the necessary facilities to meet future demand. Indicators of demand such as past aviation activity, industry trends, forecasts of population and employment, as well as prior studies were used to develop the aviation forecasts in this study.

Aviation activity at Parlin Field is conducted by predominately light (less than 12,500 lbs.) single and multi-engine piston aircraft. The majority of operations (takeoffs and landings) are considered recreational in nature, although business and charter flights do occur. The forecasts prepared within this study are focused on the general aviation piston engine market segment as it best reflects current and anticipated activity at Parlin Field.

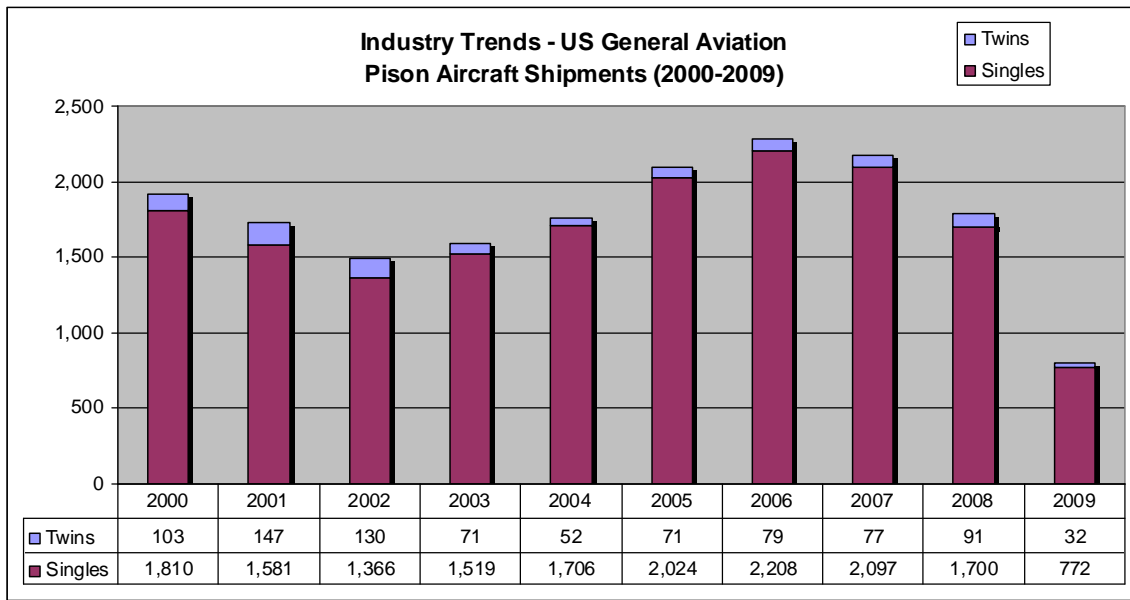
Due to the volatility of aviation demand, especially in recent years, projections have been prepared to offer a range of forecast activity. Forecasts have been prepared for low, baseline and high growth scenarios. The forecasts provided are for short-term (2010-2015), mid-term (2016-2021) and long-term (2021-2030) planning periods.

The variables used to develop the forecasts are typically dynamic and will change over time. Thus the greatest accuracy of the forecasts occurs within the short-term and become less accurate during the mid-term as the variables change with time. The long-term forecasts are generally used as an outlook of what could occur.

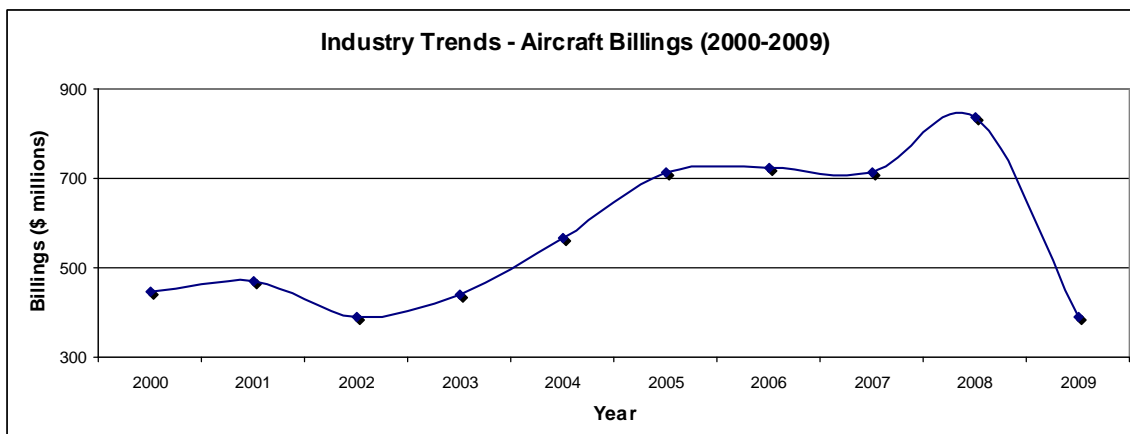
Although these forecasts provide a guide to the future development of the Airport, it must be recognized that there are always fluctuations in an airport's activity, due to a variety of factors, including swings in the economy and shifts in population.

2.2 INDUSTRY TRENDS

The General Aviation Manufacturer's Association (GAMA) is an industry trade association comprised of the manufacturers of general aviation aircraft and equipment. GAMA reports and tracks the shipments and billings of general aviation aircraft from member companies, which provides a gauge as to the health of the industry. The latest report by GAMA (Nov. 2010) showed a marked decrease in the shipments and billings of new general aviation piston-powered aircraft over 2008-09.



Source: General Aviation Manufacturers Association



Source: General Aviation Manufacturers Association

The historical shipment and billing activity depicts a declining trend since 2006 with general aviation aircraft shipments reaching an all-time low over the past decade in 2009. The premise for the decline has been the global economic downturn in concert with bad political and media press of general aviation and its usage.

Reviewing activity data from air traffic control towered airports around New England shows that general aviation aircraft operations (both itinerant and local) have declined steadily since 2000. The decline in operations pre-dates the current economic recession and indicates that factors such as rising ownership and operating costs have been impacting general aviation activity levels. The decline in operations accelerated in 2008 and 2009 at the height of the current recession.



In addition to declining aircraft shipments and billings, the pilot population has also seen a 20% decline since 1980 and the average age of active pilots is ever increasing (in 2009 it was 45.3 years of age¹). With a declining pool of active pilots coupled with rising insurance, fuel and maintenance costs, chances of growth in terms aviation activity becomes increasingly limited.

2.3 LOCAL FACTORS

Local conditions impact airport activity as do statewide and national trends and should be factors in selecting a preferred forecast. An airports' accessibility, infrastructure and overall atmosphere can be the determinants in attracting aviation activity. At Parlin Field many positive improvements have taken place over the last couple of years (2009-2010) which have directly impacted aviation activity at the Airport and resulted in increased operations and based aircraft (in contrast to what has been experienced regionally). These include:

- The building of additional aircraft storage hangars;
- On-airport restaurant;
- The addition of aircraft maintenance fixed based operator to Parlin Field;
- A new airport manager;
- The clearing of trees to provide for clear approaches to the airport;
- Competitive aviation fuel pricing;
- Increased utilization of based aircraft (especially from retirees);
- Airport outreach/awareness in the form of seminars, fly-ins and newsletters.

2.4 PROJECTIONS

Projections of based aircraft and aircraft operations are presented below based on growth rates as determined by accepted aviation forecasting methodologies. Based aircraft are defined as the total number of active general aviation aircraft that are either hangared or tied-down at an airport. There were 34 based aircraft at Parlin Field in 2010. An aircraft operation is defined as either a takeoff or a landing. Parlin Field had approximately 2,700 aircraft operations in 2010. Activity levels were derived from aircraft logs maintained by airport management and are felt to capture a large percentage (2/3) of activity conducted at Parlin Field.

The projections for Parlin Field are based on growth rates derived from:

- FAA's Terminal Area Forecast (TAF)
- New Hampshire Aviation System Plan Update
- Socioeconomic Trends
- FAA's National Aerospace Forecast

The forecast scenarios are presented below.

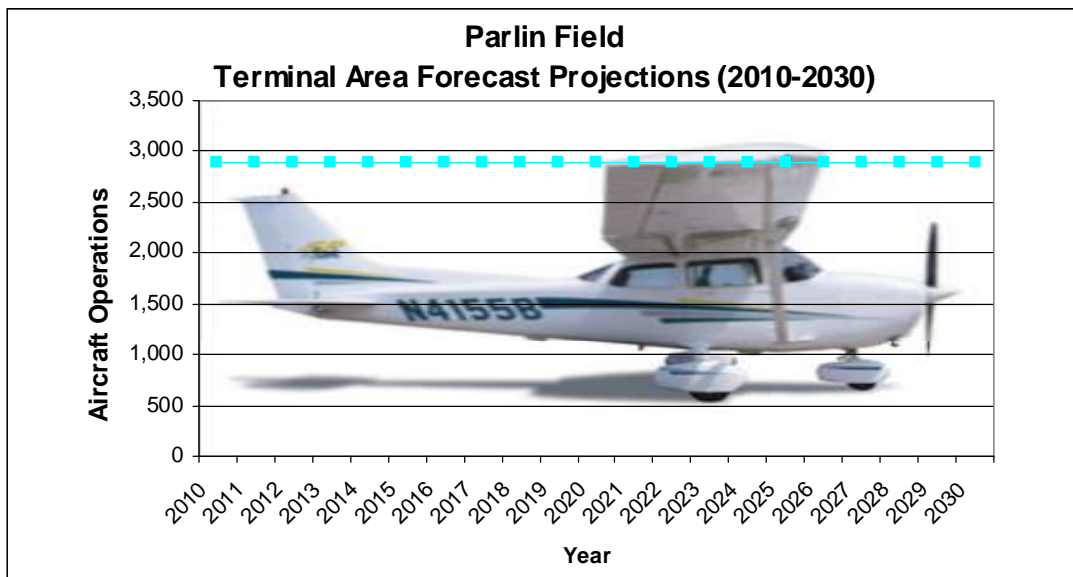
¹ Federal Aviation Administration



2.4.1 FAA Terminal Area Forecast (TAF)

The FAA's Terminal Area Forecast (TAF) provides an annual update on historic and forecast flight operations data, segregated by local and itinerant operations, as well as by general aviation, air taxi, commuter, air carrier and military operations. Instrument operations and based aircraft counts are also provided for each airport. The TAF forecast runs through the year 2030. Airport management or Air Traffic Control (ATC) personnel usually provide the operations data to the FAA through FAA Form 5010. The data is then input into a national database for public query. The database website is located at <http://www.apo.data.faa.gov/faatafall.htm>. Parlin Field does not have an ATC facility or a full-time airport manager. Therefore, data for the airport is provided by the part-time airport manager based upon a "best guess" estimate of activity using aircraft log entries and fuel sales.

The most recent TAF lists the airport operations for Parlin at 1,300 annual itinerant and 1,700 local operations, for a total of 3,000 operations, with 30 based airplanes. That represents an estimated 100 operations per based aircraft (OPBA). The FAA's terminal forecast shows a flat projection for operations and based airplanes through the year 2030. This projection assumes the airport would remain in its current state and is the baseline of the forecast projections.



Source: FAA Terminal Area Forecasts



2.4.2 New Hampshire State Aviation System Plan

The New Hampshire Department of Transportation completed an update to the NH State Aviation Systems Plan (NHSASP) in March 2003. The NHSASP provides a general assessment of aviation needs throughout the state. Included in the NHSASP were forecasts of aviation demand prepared for a ten year period (2000-2010). The state was divided into planning regions and Parlin Field was included in the Upper Valley planning region along with Claremont Municipal Airport and Lebanon Municipal Airport. Several scenarios were derived from the NHSASP growth rates and applied to based aircraft and aircraft operations as summarized below.

NHSAP Based Aircraft Forecasts

Compound average annual growth rates were extrapolated from each of the four scenarios provided in the NHSASP for the Upper Valley region for based aircraft projections and then used to forecast the number of based aircraft at Parlin through the year 2030 as shown in **Table 2.1** below.

Table 2.1 NH State Aviation System Plan Forecast Summary – Based Aircraft					
		Resulting Based Aircraft			
Forecast Method	NHSASP CAGR ¹ (2000-2010)	2010	2015	2020	2030
Applied socioeconomic growth	1.46%	34	37	40	45
Applied FAA Forecast growth	.88%		36	37	41
Population Market Share*	1.38%		37	39	45
Trend line analysis	.36%		35	35	37
*recommended in NHSASP 1. CAGR = compound average annual growth rate (results rounded up)					
2. starting based aircraft at Parlin Field (2010) = 34 based aircraft					

The forecast methods and growth rates for based aircraft were defined in the NHSASP (and as shown in **Table 2.1** above) as follows:

Applied socioeconomic growth rate – was based on the projected growth of statewide population;

Applied FAA Forecast growth rate – was based on FAA forecasts of active general aviation aircraft;



Population market share – assumed a ratio of population to based aircraft and applying to the population forecast by region. The ratio was held constant throughout the planning period;

Trend line analysis – assumed the growth rate of based aircraft between 1990 and 2000 remained constant.

The NHSASP predicated a range of based aircraft from a low of 37 to a high of 45.

NHSASP Aircraft Operations Forecasts

The aircraft operations growth rates used in the NHSASP for the Upper Valley region were applied to Parlin and projected for the 20 year forecast period for this study (2010 – 2030), and the results are shown below.

Table 2.2 NH State Aviation System Plan CAGR Summary – Aircraft Operations					
		Resulting Aircraft Operations			
Forecast Method	NHSASP CAGR ¹ (2000-2010)	2010	2015	2020	2030
Applied socioeconomic growth	.97%	2,500	2,600	2,700	3,000
Operations per based aircraft*	1.38%	2,500	2,700	2,900	3,300
Trend line analysis	-4.34%	2,500	2,000	1,600	1,000
*recommended in NHSASP 1. CAGR = compound average annual growth rate (results rounded) 2. starting annual operations at Parlin Field (2010) = 2,500 annual operations					

The forecast methods and growth rates for aircraft operations were defined in the NHSASP (and as shown in **Table 2.2** above) as follows:

Applied socioeconomic growth rate – assumes that an increase in demographic indicators such as population, employment, and per capita income relate to an increase in the demand for general aviation services;

Operations per based aircraft – divides the number of aircraft operations by the number of based aircraft to develop an average number of operations per based aircraft;

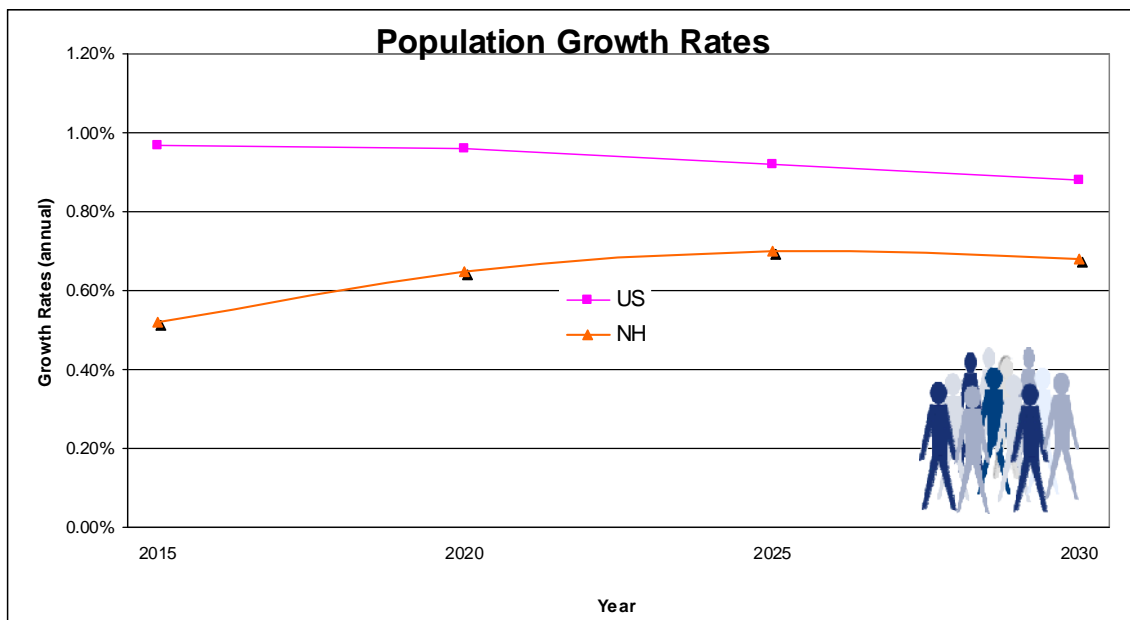
Trend line analysis – assumes the growth rate exhibited between 1990 and 2000 will remain constant through planning period.



2.4.3 Socioeconomic – Population and Employment

The State of New Hampshire is unique both in terms of its population base and employment trends. Numerous studies have been commissioned to examine socioeconomic trends and their causes and influence throughout the state. Of specific interest to aviation forecasting are the trends in population and employment. They illustrate an areas' propensity to demand aviation services. National, regional, and local trends with regard to these two forecasting elements are discussed below.

The State's population base relative to land area makes for unique transportation needs, with high demands on the State's highways, and unique requirements for aviation services. As more and more people opt for rural living, pushing further and further from service centers, the result is longer travel times and higher dependency on the transportation system. Reports by the U.S. Census Bureau indicate positive growth for the U.S. and the State of New Hampshire through 2030. Albeit the short-term population trend in NH has been a declining one (even under favorable economic conditions). However, nationwide growth is expected to occur at .93 percent annually², while New Hampshire's population should increase at a compound average annual growth rate (CAGR) of .64% percent annually³. As population increases, so does the demand on the transportation system.



The local market area served by the airport must be defined prior to developing a population based forecast. The airport serves not only the Town of Newport, but several surrounding counties as well (Sullivan, Merrimack, Hillsborough, Grafton, and

² US Census Bureau Projection

³ **Interim Population Projections for New Hampshire and Counties 2010 to 2030**, *NH Office of Energy and Planning (OEP)* August 2010



Cheshire). Based aircraft records were obtained from NHDOT and the information was added to a Geographic Information System (GIS) to plot the location of current based aircraft owners at Parlin (as described in Chapter 1 Section 1.9) to better define the market currently served by Parlin Field.

A projection of based aircraft was developed predicated on an average of forecast population growth rates for counties within the market area as determined by the NH Office of Energy and Planning (OEP) (calculated at .69%). This projected population growth for the market area could correlate to the number of future based aircraft assuming a ratio of based aircraft to population. The ratio of aircraft to population for the market area for 2010 is 5,600 people per based aircraft using the formula:

$$\text{Based aircraft} = \text{Population Forecast} / \text{People per Based Aircraft Ratio}$$

The projections are shown below:

Table 2-3 Based Aircraft Population Projection			
Year	Area Population	Population per Based Aircraft	Based Aircraft
2010	189,000	5,600	34
2015	195,600		35
2020	202,500		36
2030	216,900		39
Notes: CAGR of .69% based on average of anticipated market area growth rates taken from population forecasts prepared by NH Office of Energy and Planning			

Nationwide employment is projected by the U.S. Census Bureau to increase at an average annual rate of .8 percent with the highest growth occurring in the professional and health care occupations. NH employment trends are expected to shift from the manufacturing sector to the health care sector⁴ with total employment growing at .85 percent annually. Much like the population forecast, the employment projections for NH are predicting slow growth over the long-term.

Strong employment indicates a greater propensity for disposable income, which is a predominate factor in general aviation flying activity. Aircraft operations projections were prepared based on employment growth rates for those counties within the market area. An average growth rate was calculated (1.12%) and applied to current aircraft operations counts to develop the projection shown in **Table 2-4** below.

⁴ Vital Signs 2010 Economic and Social Indicators for New Hampshire, Economic and Labor Market Information Bureau, March 2010



Table 2-4 Aircraft Operations Employment Projection	
Year	Aircraft Operations
2010	2,500
2015	2,650
2020	2,800
2030	3,100
Notes: CAGR of 1.12% based on average of anticipated market area growth rates taken from employment forecasts prepared by NH Economic and Labor Market Bureau	

Using the above growth rates, the airport could expect an increase of approximately 600 operations (from 2,500 to 3,100) over the twenty-year planning period. Based aircraft could increase by 5, from 34 to 39 over the same period. However, the majority of aviation demand for Parlin comes not in the form of local demand, but transient activity. That is, tourists and business people traveling from out of state. This type of transient activity is better reflected in the FAA's National Aerospace Forecast, described below.

2.4.4 FAA National Aerospace Forecast

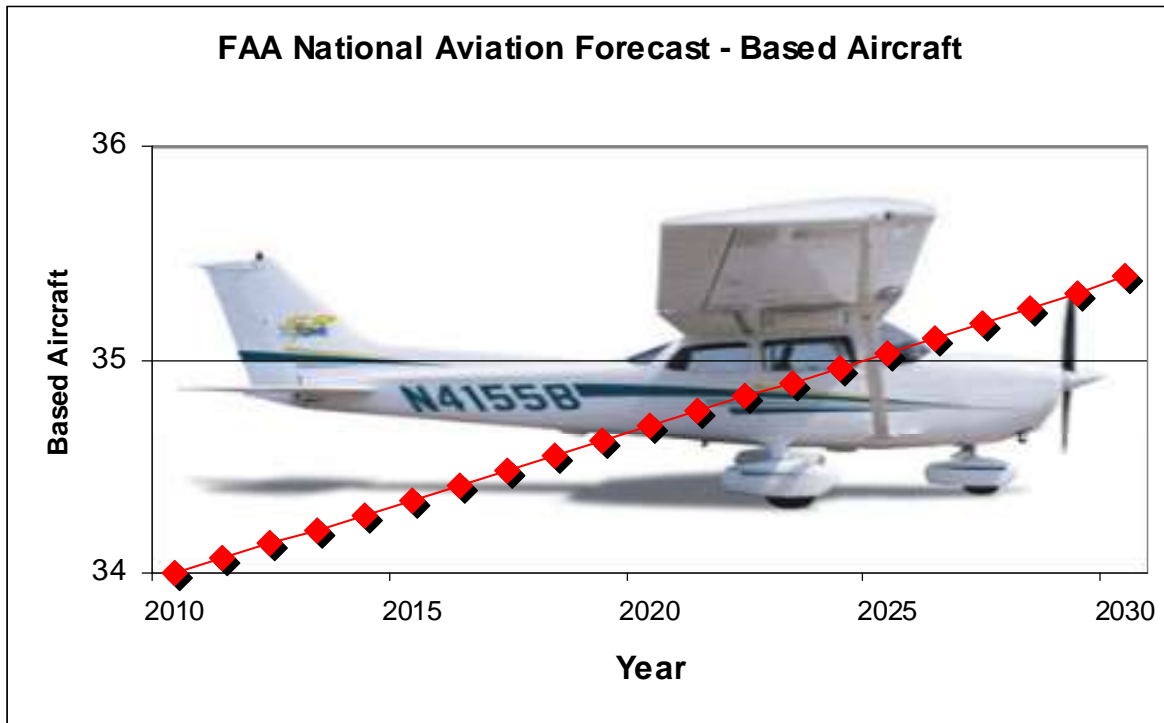
The FAA prepares an annual report on the metrics, trends and state of the general aviation industry. Included is a forecast of general aviation demand in terms of aircraft fleet size and hours flown. The forecast considers global and national economic indicators within the analysis of the aviation industry.

Projections for the general aviation segment of the industry are favorable. The FAA points to signs of an economic recovery coupled with the expansion of business use of general aviation aircraft, the extension of bonus depreciation, the entry of Very Light Jets (VLJs) and light sport aircraft as positive indicators of the future of general aviation. On the flip side, high fuel prices and the threat of terrorism pose substantial risk to the projected growth of general aviation.

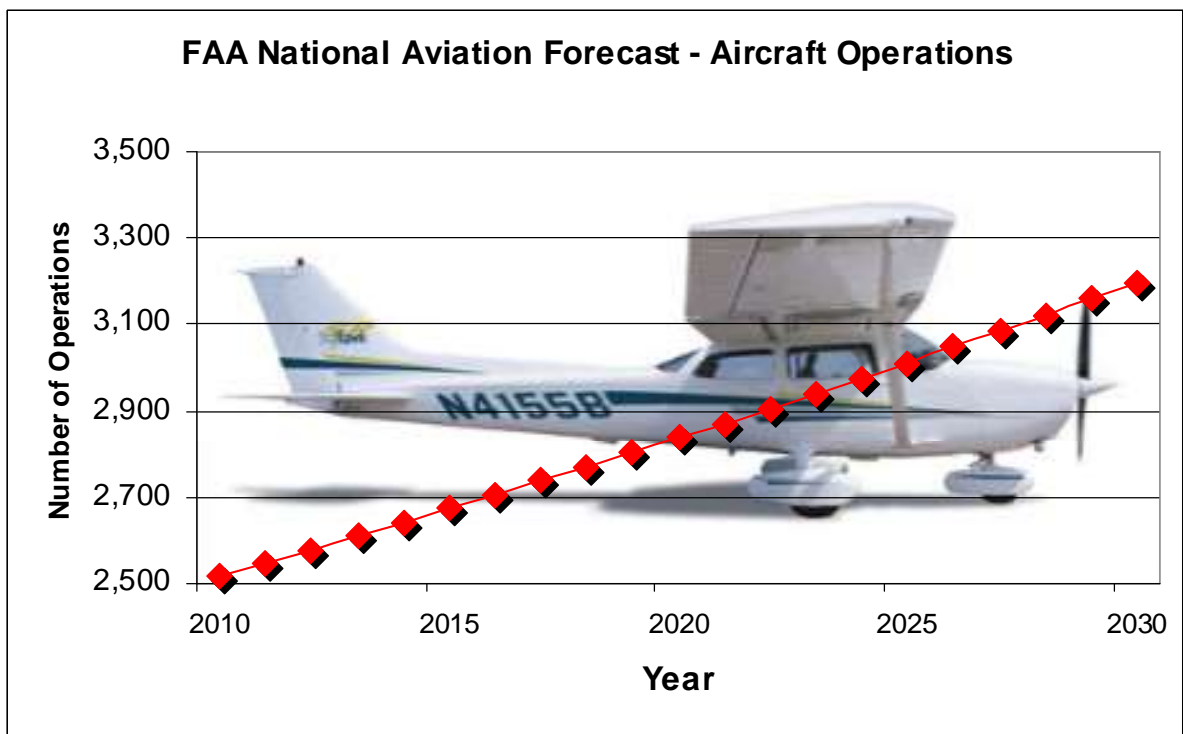
The FAA projects the total active single-engine piston aircraft fleet to grow at .2 percent annually from 2009 through 2030.

In terms of hours flown, or operations, piston activity is forecast to grow at 1.2 percent annually, while the FAA expects total hours flown for the active general aviation fleet to increase by 2.5 percent annually over the twelve-year forecast period.

The FAA growth rates were applied to based aircraft and aircraft operations at Parlin Field. The results are shown below:



Source: FAA Aerospace Forecasts (2010-2030)



Source: FAA Aerospace Forecasts (2010-2030)



Applying the FAA forecast average annual growth rate for GA piston single-engine aircraft of 1.2 percent to the current estimated level of aircraft activity at Parlin, operations would increase from 2,500 to 3,200, an increase of 700 operations over the twenty-year planning period. The total active single-engine piston aircraft fleet is projected to increase nationwide at .2 percent annually. Applying this to based aircraft at Parlin, the number would increase by 1, from 34 to 35 based aircraft.

2.5 PREFERRED FORECAST

The selection of a preferred growth rate for operations and based aircraft results from the analysis of the above forecast elements to determine which scenario most closely models the potential future national, regional and local trends likely to occur. It is important to note that, while every effort has been taken to accurately portray historic, current and potential trends, it is impossible to predict the future. Aviation forecasts are generally most accurate within the first five years, with each successive year declining in accuracy. The forecasts are meant to provide a range of activity with the expectation that actual activity will occur within close proximity to the forecast range.

The scenario that provides the most likely account of probable aviation activity at Parlin Field is the one based on the socioeconomic trends within the airports market area. Applying the trends and metrics of this forecast to current and expected activity at Parlin Field yields approximately 3,100 annual aircraft operations and 39 based aircraft over the twenty-year planning period. A discussion of the peak period demand based on the preferred forecast as well as the design aircraft at the airport is presented below.

2.6 PEAK PERIOD DEMAND

Peak period operations are considered when determining facility requirements at an airport. Peak period operations can be used to determine the size of terminal buildings, apron spaces, and automobile parking lot size. In this analysis, three specific peak periods were estimated; these included peak month, average day, and peak hour operations. Definitions for these demand periods are as follows:

Peak Month Operations – the month during which the most aircraft operations occur. Information that has been obtained from the fuel sales at the airport show that on average, August is the peak month of operations at Parlin Field. The month of August accounts for approximately 20 percent of total operations at the airport with 518 recorded operations in August 2010.

Average Day Operations – aircraft activity that can be expected on a typical day. Dividing the peak month operations by 31 derives average day operations. This yields approximately 17 operations on the average day at Parlin.



Peak Hour Operations – the hour during which most activity occurs within the average day. Total peak hour operations generally equate to 15 percent of the average day total operations. Calculations suggest a peak of 2 operations per hour, but experience shows that as many as 15 operations per hour occur during fly-ins and weekends with good flying weather.

Table 2-5 shows peak period general aviation operations over the planning period.

Table 2-5 General Aviation Operations Peak Period Forecast				
Year	Annual Operations	Peak Month	Average Day	Peak Hour*
2010	2,500	518	17	15
2015	2,650	530	17	15
2020	2,800	560	18	15
2030	3,100	620	20	15
Source: Parlin Field				
*Parlin experiences upwards of 15 operations per hour during airport events and on summer weekends				

2.7 CRITICAL DESIGN AIRCRAFT

The type of aircraft that frequent Parlin Field (single and multi-engine airplanes) are not expected to change over the course of the planning period, therefore, the current and future ARC for Parlin Field shall be A-I based on the Beech Bonanza as identified in Chapter 1 of this document.