



of size, type, materials and unit costs of components have been developed based on past experience in the region. No detailed design has been performed to support these opinions.

Current estimated costs to upgrade utility systems without any expansion to address any future land use changes are based on review of the nature and condition of existing sanitary sewer, water, and electric power distribution systems, as well as a review of local standards and requirements in order to operate, maintain, and/or acquire the systems by the Brunswick Sewer District, the Brunswick-Topsham Water District, and/or Central Maine Power, respectively. Estimated improvement costs for these systems include:

- | | |
|---------------------------------------|--------------------|
| ▶ Sanitary Sewer System | \$6.4 million |
| ▶ Water System | \$9.1 million |
| ▶ Electric Power Distribution System | (to be determined) |
| ▶ Steam Distribution System (Removal) | \$4.0 million |
| ▶ Natural Gas System | (n/a) |

Regarding the Steam Distribution System Removal line item above, there are approximately 18,500 linear feet of steam lines and 78 steam pits that potentially contain asbestos insulation.

Buildings and Facilities

As a major part of the study's inventory and analysis of existing conditions, a Building and Facilities Assessment was conducted for the most significant of the BNAS building resources. The purpose of the study was threefold: (1) to identify and document significant buildings and facilities that might be considered for similar or adaptive reuse in the future; (2) to determine the extent of conditions and characteristics that might impact a building's cost-effective utilization or adaptive reuse; and, (3) to provide a standard method and format to document the data for use during this planning study, and for future marketing of the building and facility resources.

During the data collection and building and site inventory process, Matrix Design Group Planning Team members (specifically, representatives from Bangor-based WBRC Architects and Engineers), obtained in excess of six gigabytes of digital information, comprising over 5,000 record documents (drawings, databases, environmental reports) associated with the study area. The review of the data and resulting summaries are based in large part on data and information provided by the US Navy through the Computer Aided Design (CAD) and Geographic Information System (GIS) it maintains, as well as information obtained during a series of on-site Property Conditions Assessment (PCA) building walkthroughs. More detailed data on many individual facilities, such as



building floor plans and land use data layers, is available in the CAD and GIS database provided by the Navy and contained digitally on DVD, all of which is provided in the appendix of this report. It should be noted that the data obtained may not include all facilities on the property.

Over the years, since the base was originally developed, facilities were sometimes built, added to or demolished by different Navy organizations, consistent with the Navy's Base Master Plan, the most recent of which was prepared in May 2002 by Prosser & Hallock. Consequently, not all of the information was necessarily recorded in the current database; however, it is believed that pertinent data is substantially complete and provides a reasonably adequate view of the built environment at BNAS. The primary source of this data, consisting of digital information downloaded from the BNAS Public Works Digital File Server located in Millington, Tennessee was made available to the Matrix Planning Team by BNAS Public Works personnel. Data was obtained in the following file formats, which has been provided to the BLRA in digital form on DVD in its entirety:

- ▶ TIF (Scans of record drawings, aerial imagery, site photography)
- ▶ PDF (Environmental reports, prior master planning efforts, project documentation)
- ▶ DWG (CAD files of buildings, either present on-site, or demolished)
- ▶ DWG (CAD files of various work efforts including asbestos removals, lead based paint abatement, and routing maintenance)
- ▶ XLS or .MDB (Work order summaries, project and infrastructure database, annual inspection summaries, and other related documents)
- ▶ JPG (Aerial photography, building interior photography, etc.)
- ▶ EOO (Arcview shape files for GIS based mapping)

One source of information that proved to be invaluable during the planning and evaluation process was the BNAS Buildings Database, which is maintained by Base Public Works civilian and military staff. Much of the information contained in this database references category codes and descriptors found within the Navy's NAVFAC P-72 manual entitled *Facility Category Codes*. Information categories include: year built, dimensional data, area, year accepted by government, cost to the government, programmed uses occupying the space, category code descriptions, and other information.

Evaluation Approach and Inventory Assumptions

Members of the Matrix Design Group Planning Team visited the base on several occasions with the assistance of Navy and civilian base personnel representing the Public Works and Public Affairs departments. The purpose of the field visits was to conduct a baseline property condition assessment to obtain readily available information from



site and building walkthroughs. The walkthroughs and data collection were performed generally in accordance with the standards outlined in *ASTM E 2018-01 Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process* to identify and communicate the presence of conspicuous defects or material deferred maintenance by non-intrusive visual observations.

Buildings Inventoried

To provide the maximum benefit to the BLRA for evaluation and implementation purposes, only structures that were considered “significant” to the reuse master planning process were included in the on-site building surveys. Of those buildings, ten were not inventoried or were inaccessible for one or more of the following reasons:

- ▶ Buildings with environmental hazards
- ▶ Buildings with boarded or blocked access points or windows
- ▶ Buildings identified as unsafe for access or in the process of demolition
- ▶ Buildings within the cantonment area national security access restrictions
- ▶ Buildings within the ordnance and weapons compound

Property Condition Assessment (PCA) Forms

Property Condition Assessment forms were completed for the 48 significant buildings. These forms documented general findings related to building architecture, structure, HVAC, mechanical, electrical, and site conditions. Opinions of probable cost for noted deficiencies and remedies were not provided as part of this process. A list of personnel resources and contacts who assisted the Planning Team in this evaluation, along with a list of current building occupants, are provided in **Appendix D** of this report.

Survey staff consisted of experienced / registered architects or professional engineers familiar with commercial, residential, institutional, and industrial building construction materials and methods. Site reviews documented and/or reviewed the following:

- ▶ Record drawing information
- ▶ General building information
- ▶ Year built, area in size, length, width, height, and number of stories
- ▶ Architectural, structural, and electrical characteristics
- ▶ Site accessibility
- ▶ HVAC, plumbing, fire alarm, and sprinkler systems
- ▶ Roofing, interior and exterior characteristics
- ▶ Noted deficiencies
- ▶ Photographic documentation



Historic Development of the Base

The BNAS cantonment area is a multi-purpose campus that has been built and changed over many years to serve a variety of purposes. It has been an airport since its initial development in the late 1930s, built on the site of a municipal airfield. Its primary mission has been to house and maintain various patrol aircraft and other Navy aviation and non-aviation activities. The base can be considered both an industrial facility where aircraft are hangared, maintained and flown, as well as a support facility with offices, housing and ancillary uses associated with a relatively self-contained operation.

The physical assets found at the base, including buildings, roads, runways, utilities and other infrastructure systems, are of various ages and condition. Some facilities serve very special purposes while others are relatively generic and could be reused for a variety of alternative activities. Because the base is so self contained, there is a wide range of facilities and land uses that are not directly attributable to the primary mission of the base, but support the resident employees and their families. These include retail stores, extensive recreational facilities and other resources.

The main base is divided into several distinct land uses including residential, industrial and administrative, aviation-dependent, recreational and open space. A large part of the open space that is located on the south side of the base consists of a protective buffer around the Navy's weapons storage facilities. With the exception of the industrial and administrative area, most of these areas are relatively distinct and separated from other uses. The central administrative core of the base includes a mix of office, shop and support space along with various public uses such as recreational facilities.

Summary of Base Development 1940-2000

- ▶ Maintenance Buildings 601 and 337
- ▶ Morale, Welfare, Recreation Buildings 357 and 339
- ▶ Bachelor Housing Buildings 205 and 947
- ▶ Operational Buildings 115 and 016
- ▶ Training Buildings 99 and 822
- ▶ General Storage Buildings 57 and 964
- ▶ Personnel Support Buildings 45 and 588
- ▶ Laboratories and clinics Buildings 33 and 180
- ▶ Facilities 21 and 101
- ▶ Communications & Navigation Buildings 16 and 785
- ▶ Fuel Related Facilities 7 and 479
- ▶ Weapons Storage Buildings 5 and 466
- ▶ Buildings 1,638, and 554



Exhibit 32 through **Exhibit 38** depict the transition of the base from the 1940s through the current configuration in ten year intervals. The source for these seven diagrams is the United States Navy.

Exhibit 32: BNAS Build-out in 1940s

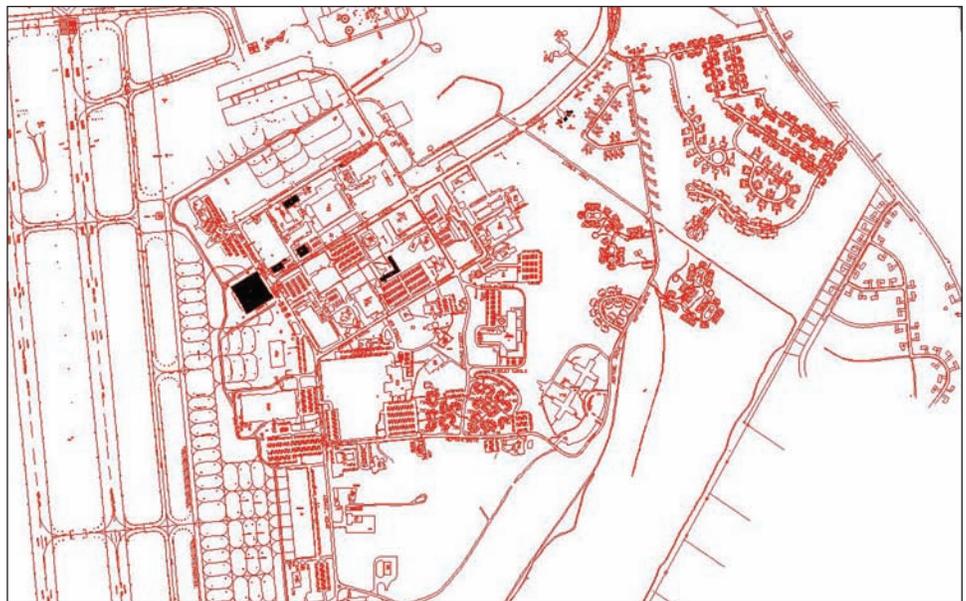




Exhibit 33: BNAS Build-out in 1950s

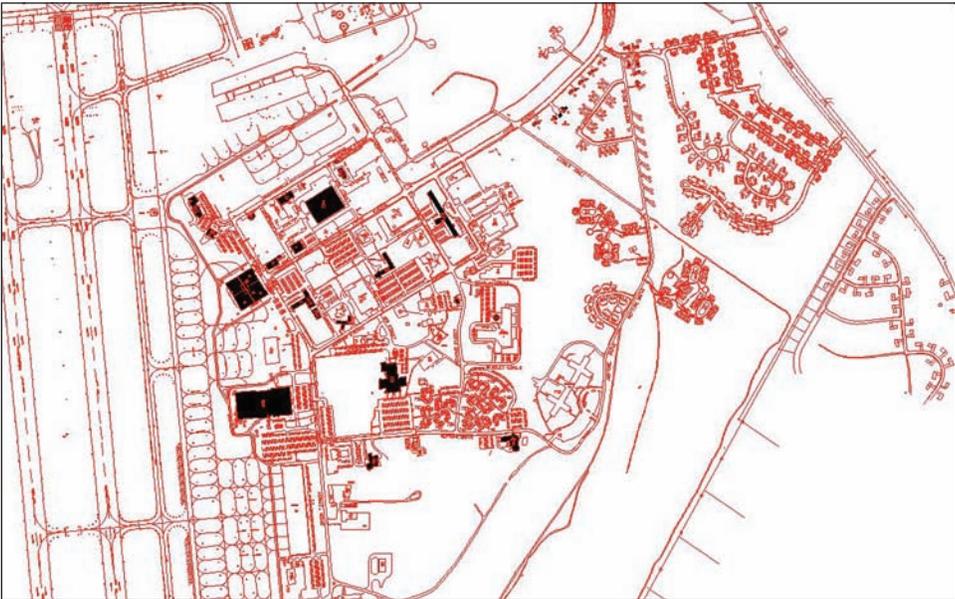


Exhibit 34: BNAS Build-out in 1960s

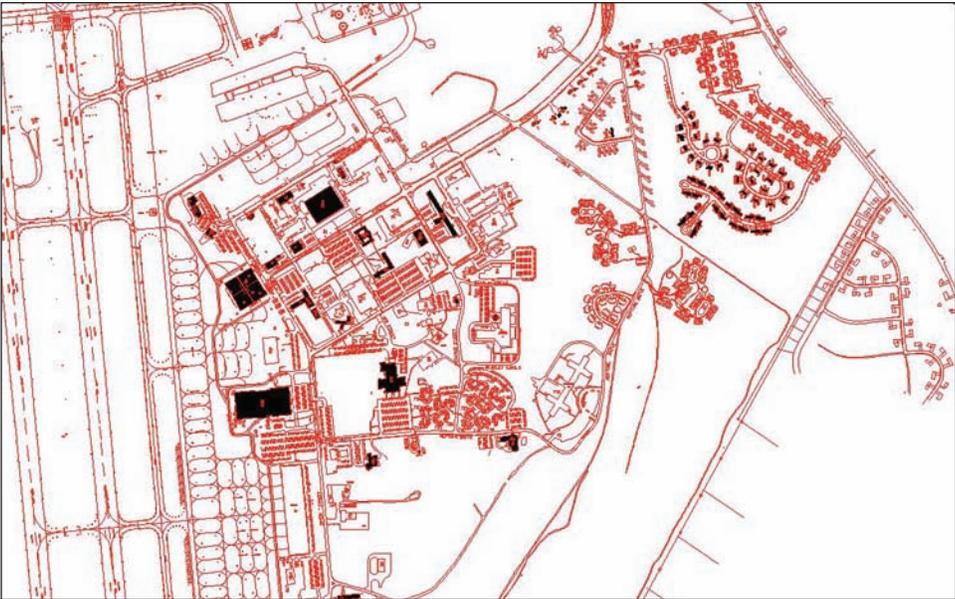




Exhibit 35: BNAS Build-out in 1970s

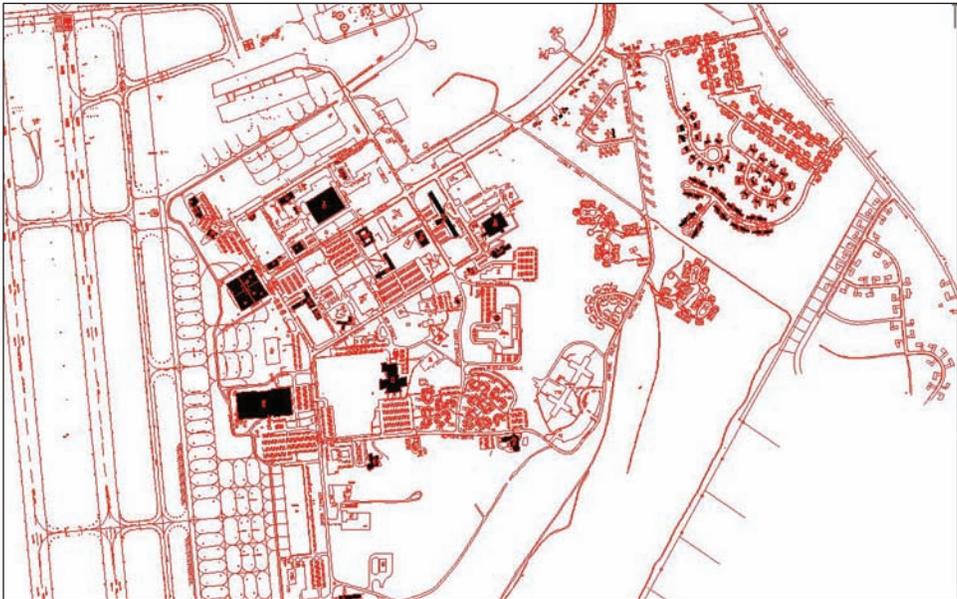


Exhibit 36: BNAS Build-out in 1980s

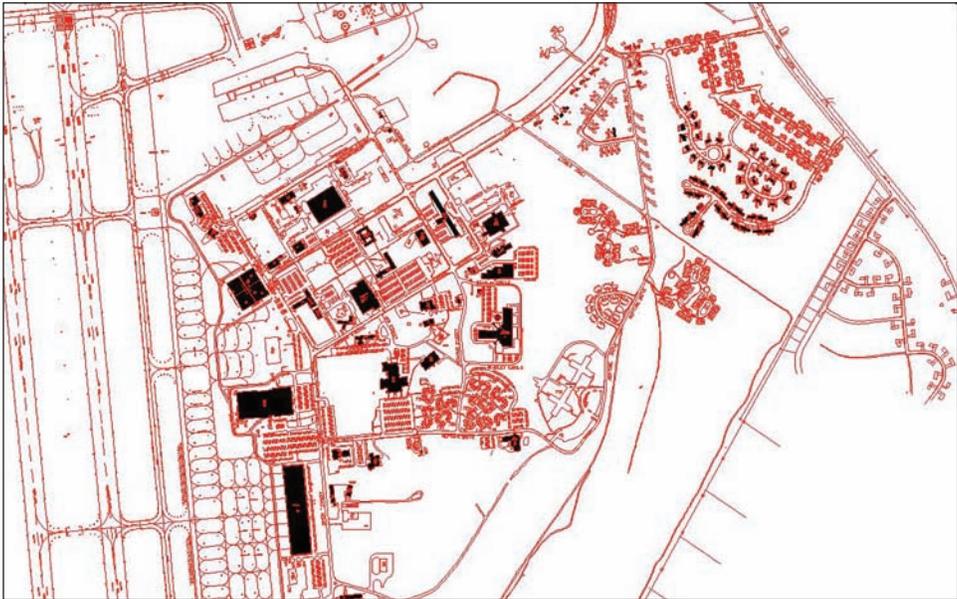




Exhibit 37: BNAS Build-out in 1990s

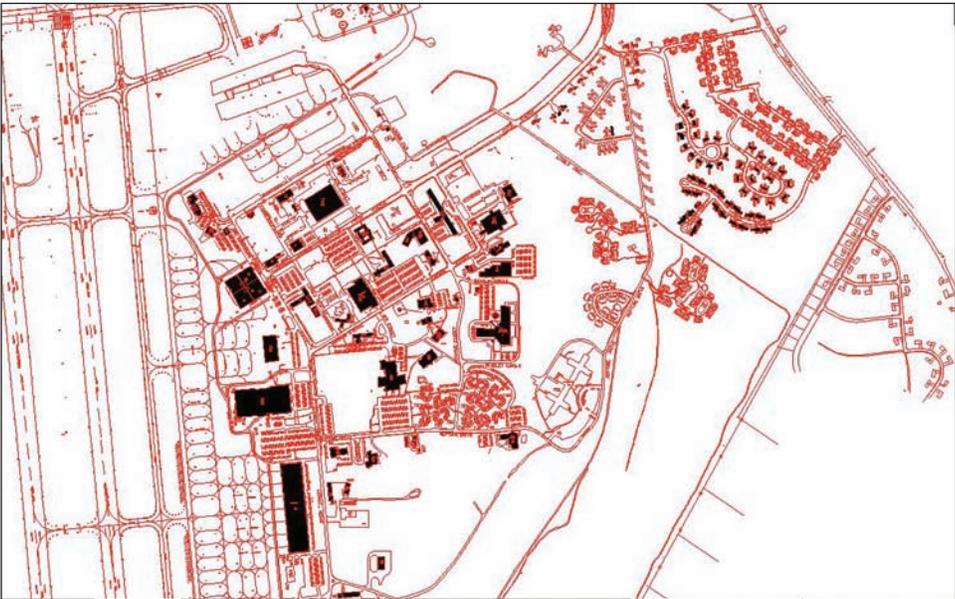
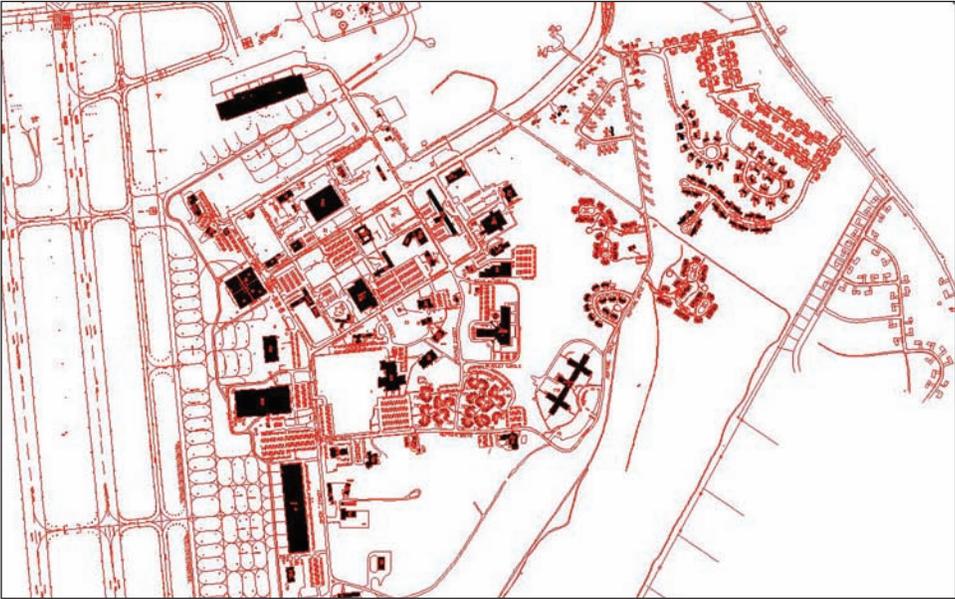


Exhibit 38: BNAS Build-out in 2000s





Summary of Significant Buildings and Facilities

General descriptions of some of the major facilities within the Brunswick Naval Air Station are listed below. The descriptions are provided in a general order from north to south through the central cantonment area of the base. For detailed maps and charts illustrating the facilities inventoried, please see **Appendix D**.

Main Gate Area

The Main Gate is located just off Bath Road west of the Bath Road / US 24 intersection that serves the Cook's Corner commercial area. Access to the base is via Fitch Boulevard, after passing the security checkpoint that is located approximately 500 feet



from the entrance at Bath Road. For visitors without approved pass and decal badges, security checks must be processed at Building 38, a new facility constructed in 2004 on the west side of Fitch Boulevard; the former pass building on Bath Road is used for other security purposes.

Air Operations / Fire Station

Building 200 houses Air Operations for the base. With approximately 20,759 square feet, the facility is located at the intersection of Seahawk Avenue and Orion, on the north end of the aviation complex. The facility contains the air traffic control tower and passenger terminal area. A new control tower, which has replaced the functions of Building 200, is located on the west side of the airfield. Adjacent to Building 200 is the base Fire Department Building 292. This 10,665 square foot provides direct access to



the airfield as well as access to local roadways. The Fire Department is responsible for responding to airfield emergencies, as well as structure emergencies. This area is also the site of Building 45, a 3,000 square foot warehouse-type structure used for hazardous waste storage and transfer. Building 200 is shown at left.



Naval Mobile Construction Battalion Cluster

Twelve small metal-frame buildings located adjacent to and south of Bath Road provide shop, storage, and office space for the Naval Mobile Construction Battalion. The complex is accessed from internal base roads serving the north end of the base.



Hangar 6

Located on Pegasus Street (extended), Hangar 6 is the newest of the base's hangar facilities. Constructed in 2004, this state-of-the-art hangar has a total of 174,217 square foot, and contains hangar, maintenance shop, and administration space. The hangar deck has six bays capable of handling both the P-3 aircraft, as well as 737-800 aircraft,

proposed to replace the P-3 platform. While maintenance shops are located on the ground floor, administrative space is provided on the second floor; 294 vehicular parking spaces are included on the northwest side of the building, with the southeast side dedicated to airplane access associated maintenance activities.





Fuel Farm

Two large fuel tanks and associated facilities, including containment berms, are located in the northern part of the base, just east of the air-field and south of Bath Road. Access to this area is from internal base roads, with no direct access to Bath Road.



Supply Warehouse

The Station Supply Warehouse, also known as Building 294, is a single-story facility containing approximately 64,630 square feet of space. It has a concrete masonry unit exterior, truck loading docks on the northern side of the building, and is situated on Seahawk Avenue.



Public Works

The base Public Works are distributed among multiple buildings in a complex located at the south end of the flight line on Huey Drive near the south end of Orion. The Public Works recently were located off the flight line at the opposite end of Orion, but have since moved to their present location. Building

53 contains the 10,000 square foot administration office, while Building 584 contains 7,200 square feet of general warehouse space and Building 19 contains about 6,000 square feet of carpentry shop space. Additional structures make up the Operations and Maintenance facility, which is the former DPW located on Orion Street. This complex includes the 15,000 square foot Building 225 (1950s era) and the 7,200 square foot Building 252 (built in 2003). These facilities are used to repair heavy equipment. Building 53 is shown here.



Transient Visitor Quarters / Building 750

This two-story, 115,000 square foot military hotel was built in 2004 to serve transient enlisted base visitors. The building includes 248 double-occupancy hotel rooms, central lobby and reception area, administrative office, staff lounge, laundry facilities, and storage and vending areas. The building does not have an elevator, which would be necessary to meet ADA requirements.



Hangar 4 / Building 250

These two structures were constructed in the 1940s next to the airfield on Orion Street as part of the original base development. They contain a combined total of 178,963 square feet of space which is used to serve as hangar and administrative space as well as maintenance shops. The hangar deck, estimated at approximately 90,000 square feet,



contains enough room for two aircraft. On the second floor lies administrative space, and next door in Building 250 is the 90,000 square foot base headquarters, which is mostly comprised of administrative space and shops.



AIMD Ground Support

Building 86, totaling 31,980 square feet, is accessible only by the airfield, and is located within the flight line. It is primarily used for the maintenance of ground support



equipment for aircraft, including aircraft tugs and stairs for aircraft access. A separate structure of 18,000 square feet constructed in 2004 is also located within the flight line, but is accessible from Orion Street as well as the airfield. It stores equipment used to keep the airfield clear, such as snow removal vehicles.

Wing Headquarters

Building 87 (Wing Headquarters) was constructed in 1988, and at 52,513 square feet, remains the base's most substantial office building. The Commander Patrol and Reconnaissance Wing Five are headquartered at this structure, which is located on the eastern side of the core area off Pegasus Street.





Surface Naval Reserve Center

Building 151 (Surface Naval Reserve Center) is located on Fitch Avenue at the entrance to the cantonment area. This two story, 14,400 square foot pre-engineered metal building was constructed in 2001. Another structure located on Sewall Street is designated as Building 150, and is 13,196 square feet. It is primarily used for classrooms for the naval reserves and office space for the legal department and government workers union. Building 151 is shown below.



Hangar 5

This 163,454 square foot hangar dates from 1982 and is also located on Orion Street. It is



used for aircraft maintenance and corrosion control, and has seven aircraft bays for that purpose. The ground floor of the hangar contains the maintenance shops, while the second floor contains some administrative space.



Other Facilities

Community Facilities

Located on Burbank Avenue, Building 20 houses a post office, a credit union, and educational organizations including the Navy College Learning Center, New Hampshire College, and Embry-Riddle University in 25,697 square feet of space. Other community facilities include Building 26, which houses a 6,500 square foot children’s day care center, and Building 25, which contains a 10,000 square foot office building utilized by the base personnel office.

Lodging Facilities

Several facilities designed to provide short-term lodging are located on the base, given its role as a major Navy Reserve training center. These include the Navy Lodge, with a 26-room capacity available to military personnel and retirees, and the Orion Inn, located at Building 512, which is designed as a bachelor / transient quarters and contains 65 suites plus 10 executive suites. Also located in the same building are three barracks-type quarters, resulting in a structure totalling three floors and 61,432 square feet in size.

Residential Facilities

Long-term quarters exist within the core cantonment area, including eight buildings which each have three floors and total 22,174 square feet apiece. They are designated Buildings 212, 213, 214, 215, 217, 218, 219, and 220. Buildings also serving similar functions include 512 and two new BEQ complexes.





There are numerous other military housing developments, ranging in size, condition, and age. Most, with the exception of the McKean Street housing development, are situated in the northeast corner of the base. These developments are operated and maintained by GMH, a private entity with a lease on various parcels of BNAS housing property that will last until 2054.

- ▶ Station Quarters, contains mostly 3-bedroom residences (12), plus four 4-bedroom houses along Fitch Street. All residences are single-family detached.
- ▶ Brunswick Gardens, built in 1960, almost exclusively contains 3-bedroom units as well, (40 units), with the exception of four 4-bedroom units.
- ▶ Midway Terrace, dating from 1982, has a heavy focus on 2- and 4-bedroom units (40 and 22 units, respectively).
- ▶ Woodland Village was built in 2001 and 2006 totaling 116 units in various duplex and quadplex configurations. Homes are either 3- or 4- bedroom residences.
- ▶ Mariners Landing, 2003, is heavily focused on smaller units, with the vast majority (122 units) being of the 2-bedroom variety. There are two each of the 4- and 5-bedroom types.
- ▶ McKean Street, containing 188 3-bedroom residences as well as 43 4-bedroom residences, is situated to the west of the base, near downtown Brunswick.

Training Facilities

There are six training buildings on base totaling over 270,000 square feet. These structures include Building 54, (30,000 square feet), Building 644, which houses the P-3 aircraft training facilities and contains 10,100 square feet, and Buildings 16 and 82. There is also a small arms firing range on Pegasus Street, constructed in 2004, which is 4,242 square feet in size and contains five shooting lanes, a range master's control area, and storage.

Historic Bunker

This 1,258 square foot facility, classified as historic, is a small earth-bermed arms magazine. Its location at the intersection of Fitch Avenue and Pelican Street is outside the weapons area.

Weapons Storage and Operations

In the southeast portion of the base are located many storage structures and facilities totaling 204,215 square feet that are separated from other uses by a 3,000 foot woodlands buffer that extends clear to the southern border of the base. Ordnance storage facilities are comprised of Buildings 59, 60, 62, 63, 64, 69, 71, 76, 126, 127, and 128. Concrete bunkers with earth-bermed roofs (National Guard Magazines), are designated as Buildings 126, 127, and 128.



Medical Facilities

A 25,354 square foot building on Sewall Street houses medical and dental clinics that provides 24-hour emergency services for local military personnel and retirees. Local area hospitals handle inpatient services.

Recreational Facilities

An outdoor soccer field, baseball / softball fields, tennis courts, and picnic areas are located throughout the cantonment area, as well as other recreational facilities such as a recreation mall and bowling alley (Building 211), a 16,000 square foot fitness center and gymnasium (Building 25), and also an auto / hobby shop located in Building 29. Mere Brook Golf Course is a 9-hole facility in the southern portion of the base that includes a driving range, a 3,000 square foot clubhouse, and snack bar. This course is accessible from Harpswell Road and is open to both military and civilian users.

