

# Installation Summary Report

Naval Air Station Joint Reserve Base  
Willow Grove, Pennsylvania

September 2006



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# Table of Contents

## **1. Executive Summary**

## **2. Property Overview**

- 2.1 Introduction
- 2.2 Property Review
- 2.3 Surrounding Neighborhood
- 2.4 Access
- 2.5 Visibility
- 2.6 Land Uses
- 2.7 Utilities
- 2.8 Environmental Conditions

## **3. Economic Review**

- 3.1 Introduction
- 3.2 Demographics
- 3.3 Industry and Employment
- 3.4 Education

## **4. Market Review**

- 4.1 Introduction
- 4.2 Real Estate Markets

**Appendix A:** NAS JRB Site  
Improvement List

**Appendix B:** NAS JRB Site  
Improvement Map

**Appendix C:** Horsham Township Zoning  
and Land Use Map

**Appendix D:** Clear Zone Delineation  
Map

**Appendix E:** FEMA Floodplain Maps

**Appendix F:** CERCLA Sites Map

**Appendix G:** Bibliography

**Appendix H:** Glossary of Acronyms

## List of Figures

Figure 2-1	Key Findings of Property Overview .....	4
Figure 2-2	Regional Map.....	5
Figure 2-3	Installation Composition Map.....	6
Figure 2-4	Aerial Photos of Shenandoah Woods and Jacksonville Road.....	7
Figure 2-5	Installation Area Map .....	8
Figure 2-6	Photo of the Navy Lodge Exterior .....	9
Figure 2-7	Photo of the Navy Lodge Interior .....	9
Figure 2-8	Photo of Bachelor Officer’s Quarters .....	10
Figure 2-9	Photo of the Passenger Operations Terminal .....	11
Figure 2-10	Photo of the Jacksonville Road Housing Assets.....	12
Figure 2-11	Photos of the Shenandoah Woods Housing Assets.....	13
Figure 2-12	Shenandoah Woods Three Bedroom Floor Plan.....	14
Figure 2-13	Photo of Goodman Retail Center .....	15
Figure 2-14	Photo of Graeme Park Square Retail Center.....	16
Figure 2-15	Photo of Available Land Parcel .....	16
Figure 2-16	Photo of Route 611 from the Property .....	17
Figure 2-17	Photo of Commonwealth Corporate Center.....	18
Figure 2-18	Photo of Commonwealth Golf Club .....	19
Figure 2-19	Local Roadways Map .....	21
Figure 3-1	Key Findings of Economic Review .....	26
Figure 3-2	Horsham/Willow Grove Boundary .....	27
Figure 3-3	Philadelphia-Camden-Wilmington Metropolitan Statistical Area (MSA) Boundary .....	28
Figure 3-4	Per Capita Income.....	30
Figure 3-5	Graph of Philadelphia Employment Growth .....	32
Figure 3-6	Unemployment Trends.....	33
Figure 3-7	Chart of Horsham/Willow Grove Educational Attainment.....	37
Figure 3-8	Chart of MSA Educational Attainment.....	37
Figure 3-9	Chart of Pennsylvania Educational Attainment.....	37
Figure 3-10	Chart of U.S. Educational Attainment .....	37
Figure 4-1	Key Findings of Market Review .....	38
Figure 4-2	Industrial Market Deliveries, Absorption and Vacancy 2005.....	41
Figure 4-3	Office Market Deliveries, Absorption and Vacancy 2005.....	44
Figure 4-4	Philadelphia Northern Suburban Hotel Market Performance .....	48
Figure 4-5	New Residential Construction Permits Trend.....	50
Figure A-1	NAS JRB Major Site Improvement Map.....	52
Figure B-1	NAS JRB Site Improvement Map.....	57
Figure C-1	Horsham Township Zoning and Land Use Map.....	59
Figure D-1	Clear Zone Delineation Map.....	61
Figure E-1	FEMA Floodplain Map - NAS JRB Main Base .....	63
Figure E-2	FEMA Floodplain Map - Off-site Housing Assets .....	64
Figure F-1	CERCLA Sites Map.....	66



## List of Tables

Table 3-1	Population Trends .....	29
Table 3-2	Median Household Income Trends .....	31
Table 3-3	Philadelphia-Camden-Wilmington MSA Major Employers.....	34
Table 3-4	Local vs. Regional and National Employment Submarkets .....	35
Table 4-1	Flex Market Statistics 2005 .....	40
Table 4-2	Warehouse Market Statistics 2005.....	40
Table 4-3	Total Industrial Market Statistics 2005.....	41
Table 4-4	Class A Market Statistics 2005 .....	43
Table 4-5	Class B Market Statistics 2005 .....	43
Table 4-6	Total Office Market Statistics 2005.....	43
Table 4-7	Philadelphia Northern Suburban – Key Hotel Market Indicators.....	48
Table 4-8	New Residential Construction Permits Issued .....	49

# Section 1. Executive Summary

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## Introduction

The following Installation Summary Report provides an overview of Naval Air Station Joint Reserve Base at Willow Grove, Pennsylvania (NAS JRB Willow Grove) highlighting the various property, real estate market and economic trends of the local and regional markets. This information, summarized below and detailed throughout the balance of this report, provides a framework through which to explore and reasonably predict various reuse and/or redevelopment strategies for the federally owned lands affected by the 2005 Defense Base Realignment and Closure (BRAC) initiative.

## Property Overview

NAS JRB Willow Grove occupies 910 acres approximately 18 miles north of Philadelphia in the northeast portion of Montgomery County, Pennsylvania. In accordance with the recent BRAC activity, the 910 acre Naval Air Station Joint Reserve Base (referred to herein as the Property) has been officially approved for closure and is the focus of this report.

Property characteristics include:

- The Property is located at the nexus of Route 611 and Route 463 in Horsham Township, Pennsylvania, approximately five miles north of the Pennsylvania Turnpike.
- The Property's 910 acres are contiguous and have well delineated land uses that will support myriad future development opportunities.
- The Jacksonville Road housing enclave is located six miles northeast of the Property in neighboring Ivyland Borough in Bucks County. These six single family homes occupy two and a half acres and, although aging and inconsistent with surrounding residential development, are well positioned to support new residential construction given adjacent land uses.
- The Shenandoah Woods housing enclave is located eight miles northeast of the Property in neighboring Warminster, also in Bucks County. These 199 townhouse units occupy 51 acres as a relatively insulated residential community.
- The Property is adjacent to an area of growing commercial and residential development with land uses including medium and low density residential, office and industrial parks, recreational and retail.
- The Property operates and maintains its own water and sewage treatment facility with a separate sanitary and storm sewer collection system. However, in order to

accommodate future development strategies on the Property, plans will likely need to be made to tie into public water and sewer services.

- The Property has been placed on the National Priorities List (NPL). Four active Installation Restoration (IR) sites remain open and in various levels of remediation to date.
- In addition to the 910 acres of fee simple land comprising the main base, the Navy holds easement rights restricting the use of approximately 177 acres of “clear zone” land outside the base perimeter to ensure compatible use necessary to support the Navy’s flight mission. These easements are located at the southeast end of Runway 15-33. These clear zones are conical in shape and are categorized as Type I, II or III depending on their location relative to the runway.

### Economic Review

The economic and demographic characteristics of Horsham Township and Willow Grove, coupled with the larger Philadelphia-Camden-Wilmington Metropolitan Statistical Area (MSA) as well as the cities of Norristown, Pottstown, Reading and Allentown, were utilized to provide pertinent economic analysis. This review, which included population, income, employment and industry trends, highlighted the following:

- Regional population growth trends have been strong in recent years in the suburban regions to the north and west of Philadelphia as migration patterns tend to be skewed away from the central city.
- High housing costs in Horsham/Willow Grove have kept population levels relatively stable compared to its neighboring communities.
- Regional employment has been steadily moving away from manufacturing and towards service oriented jobs with stability being provided by the broad regional base in the health care and education sectors.
- The local and regional workforce is very well educated relative to state and national averages; a statistic which is consistent with the high relative income levels and a large percentage employment composition in professional services sectors.
- The Horsham/Willow Grove area maintains median household income levels significantly greater than the state and national averages.

### Market Review

A comprehensive market conditions analysis within Horsham Township and Willow Grove, as well as that of the greater Philadelphia market, highlighted the following:

- High housing costs in the Horsham/Willow Grove submarket have been driving increased demand for rental housing, increasing the attractiveness of NAS JRB Willow Grove’s housing assets and the prospect of denser long-term residential development.

### **NAS JRB Willow Grove**

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- Although quoted office lease rates are slightly below the greater Philadelphia Market average, the office market within Horsham/Willow Grove is strong as evidenced by low relative vacancy rates and positive net absorption.
- Increased development activity across all markets within the Horsham/Willow Grove general region has benefited the local hotel market in recent years.
- Recent retail development trends have been driven to areas northeast and southwest of the Property, due in part to the existing traffic constraints in the immediate vicinity of NAS JRB Willow Grove.
- Relative oversupply in the local industrial market has been driving down average quoted rates as a function of rental concessions.

## Section 2. Property Overview

### 2.1 Introduction

The Naval Air Station Joint Reserve Base Willow Grove (referred to herein as the Property) occupies 910 acres and is located approximately 18 miles north of Philadelphia in the northeast corner of Montgomery County, Pennsylvania. The Air Force, which operates Willow Grove Air Reserve Station, is the land holder of approximately 162 acres which lies contiguous to NAS JRB Willow Grove. Willow Grove Air Reserve Station was not affected by the 2005 BRAC action. The Property also contains two off-base housing areas known as Jacksonville Road and Shenandoah Woods which occupy two and a half and 51 acres, respectively, in lower Bucks County approximately six and eight miles northeast of NAS JRB Willow Grove. Figure 2-1 provides a summary of the key findings of this Property Overview section.

**Figure 2-1 Key Findings of Property Overview**

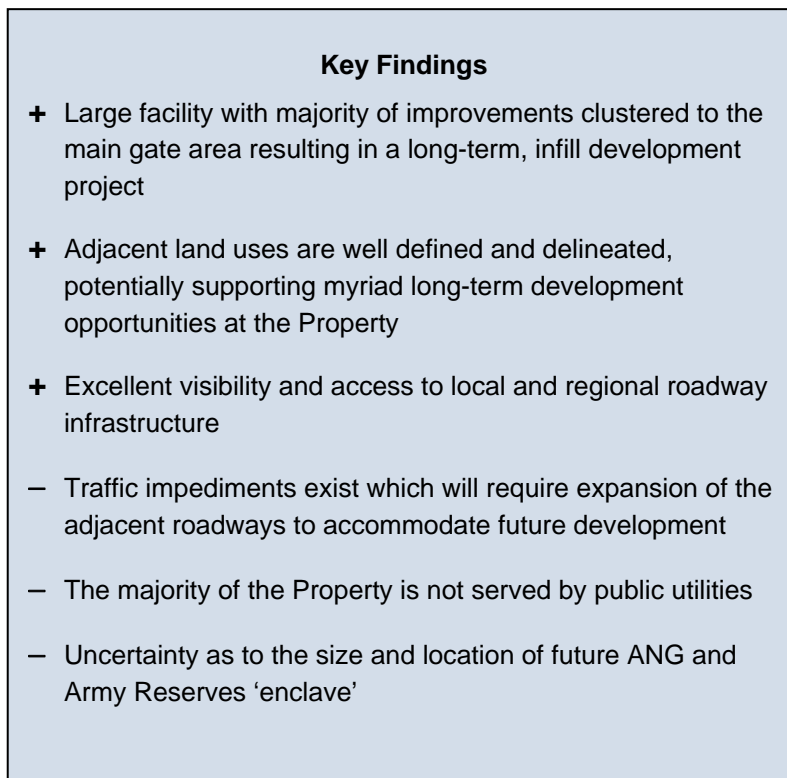


Figure 2-2 illustrates the location of this joint installation in southeast Pennsylvania.

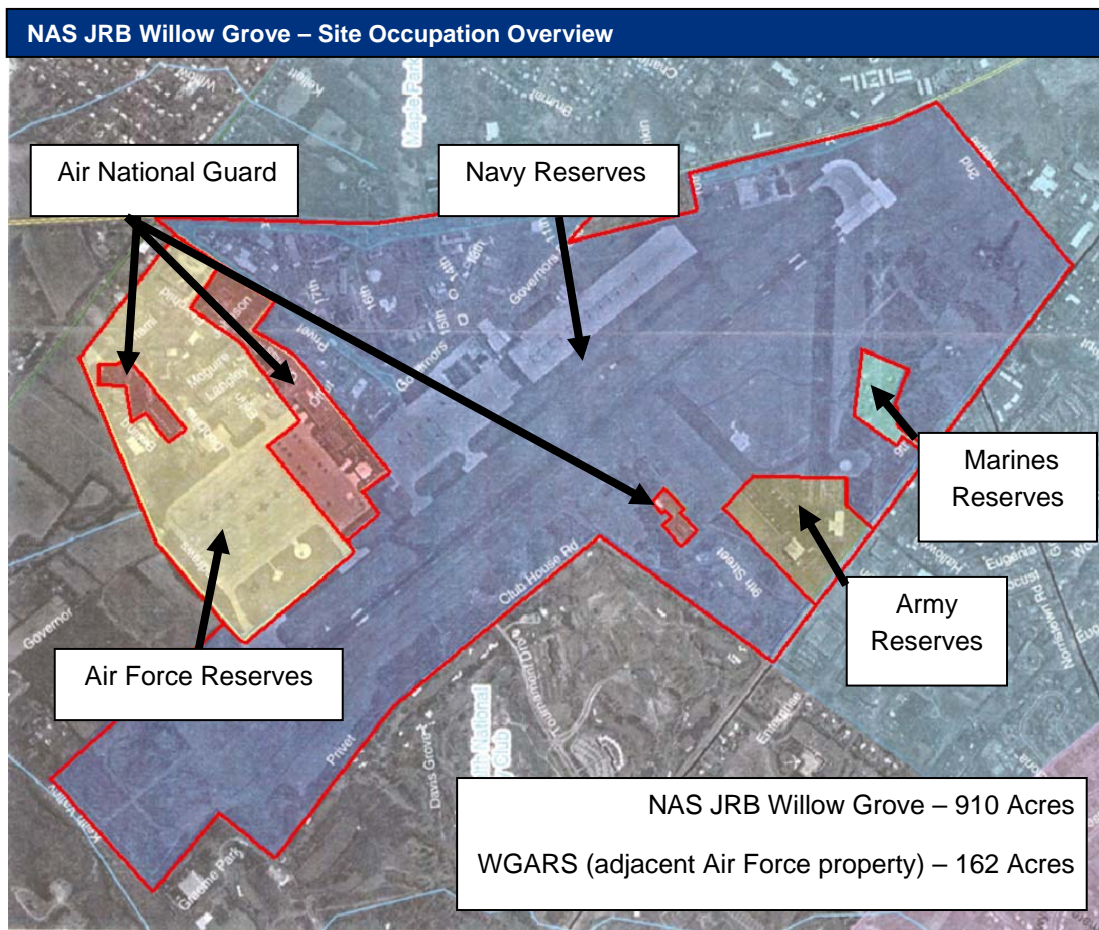
Figure 2-2 Regional Map



The Naval Air Station Joint Reserve Base Willow Grove (NAS JRB Willow Grove) and the Willow Grove Air Reserve Station (WGARS) are U.S. Navy and U.S. Air Force installations, respectively. State and federal military operations on the Property include Army Reserve units, the Marine Light Helicopter Squadron 775, the 913<sup>th</sup> Air Lift Wing of the Air Force Reserves, and the 111<sup>th</sup> Fighter Wing and 270<sup>th</sup> Engineering Installation Squadron of the Pennsylvania Air National Guard (ANG). NAS JRB Willow Grove lies within the boundaries of Horsham Township, a 17.5 square mile suburban region to the north of Philadelphia.

Naval operations account for more than 75% of the total installation and encompass the existing runway infrastructure. The WGARS is located at the northeast corner and is contiguous to the NAS JRB Boundary. WGARS contains 17 of the 20 structures currently housing Pennsylvania Air National Guard operations. Small enclaves of Army Reserves and Marines Reserves can be found at the south end of the Property. Figure 2-3 illustrates the location and space occupied by the Navy, Air Force, Army, Marines and Pennsylvania Air National Guard (east is pointing upwards). Note that those lands currently occupied by the Army and Marines Reserves are included in the 910 acre NAS JRB Willow Grove site.

Figure 2-3 Installation Composition Map



Source: NAS JRB Willow Grove September 2005

In addition, NAS JRB Willow Grove maintains six single family homes on nearby Jacksonville Road and the Shenandoah Woods 199 unit townhouse community both in neighboring lower Bucks County six and eight miles to the northeast of the Property, respectively. These housing assets are illustrated in Figure 2-4.

Finally, the Navy holds easement rights restricting the use of approximately 177 acres of land outside the base perimeter to ensure compatible use necessary to support its flight mission. These “clear zone” easements are located at the southeast end of Runway 15-33. The clear zones are more clearly illustrated in the map provided as Appendix D to this report.

The recent Department of Defense recommendation and subsequent BRAC activity to close and dispose of the U.S. Navy operations will result in some geographic and operational uncertainty for the Pennsylvania ANG. Currently, the 111<sup>th</sup> Fighter Wing (ANG) occupies about 20 existing structures as identified in the Figure 2-3. The 2005 Defense Base Realignment and Closure Commission provides for the establishment of “a contiguous enclave for the 111<sup>th</sup> Fighter Wing (ANG) and the 270<sup>th</sup> Engineering Installation Squadron (ANG)” and for those Army Reserve units not relocated to be incorporated into the same. As such, and as a result of the fact that there has been no definite determination of the specific size or location of this “contiguous enclave”, this



report will make the assumption that this enclave be collocated within and/or adjacent to the WGARS site.

Figure 2-4 Aerial Photos of Shenandoah Woods and Jacksonville Road



Aerial Photograph Source: Google Earth 2005

For the purposes of this report, “the Property” will be defined as all NAS JRB Willow Grove property, and the two Navy-owned, off-base housing enclaves in neighboring lower Bucks County.

## 2.2 Property Review

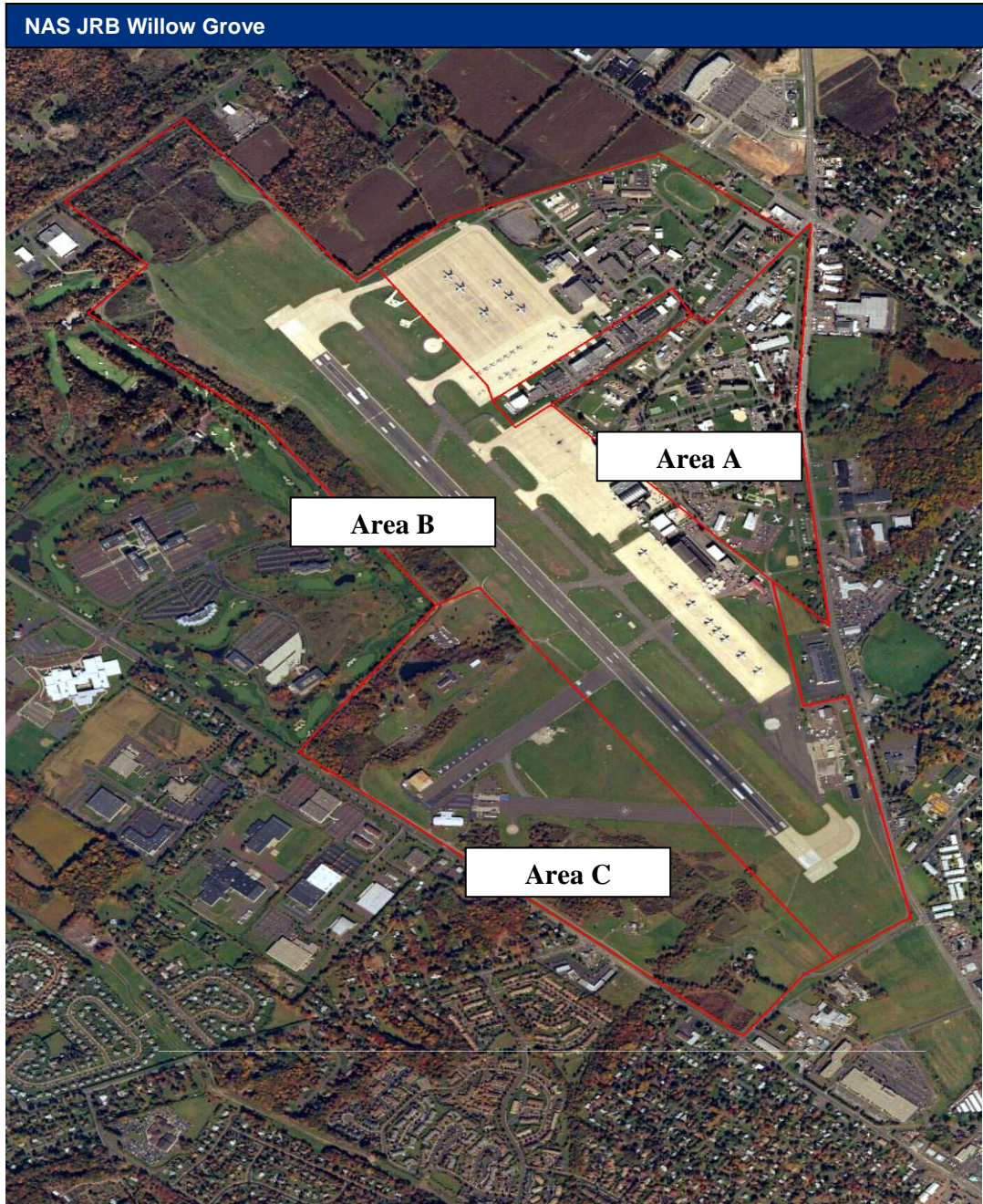
The Property, with the exception of the two residential enclaves in neighboring Bucks County, is situated between Pennsylvania State Routes 611 and 463, approximately five miles north of the Pennsylvania (PA) Turnpike. The Property is generally bounded by County Line Road and Keith Valley Road to the north and Maple Avenue to the south. Appendix B to this report provides a more detailed zoning and land use map for Horsham Township and the Property.

For the purposes of this analysis, the Property has been partitioned into three distinct Areas (Note that the WGARS and ANG operations have been outlined, but not labeled) as illustrated in Figure 2-5 on the following page.

The Property is presently improved with more than 140 structures containing approximately 1.2 million square feet (in addition to the 177,777 square foot Runway 15-33) with uses ranging from industrial and storage to housing and recreation. Site improvements range in condition, as nearly 40% of the existing structures have construction dates prior to 1970. A more detailed list of all improvements on the Property is included in Appendix A of this report.



Figure 2-5 Installation Area Map



Aerial Photograph Source: GlobeExplorer.com 2005

### 2.2.1 Area A

Adjacent to the south side of the WGARS functions, and immediately east of Runway 15-33, Area A is densely improved with structures facilitating the Navy Reserves' administrative, housing, personnel and utility functions. Over 96% of the existing housing structures within the main fences of the Property can be found within Area A's approximate 200 acres, including the Bachelor Enlisted Quarters (BEQs), the Bachelor Officer's Quarters (BOQs), five of the six Family Housing Units (which are

identified as Public Quarters F and Family Housing Units B through E) and the new Navy Lodge. Family Housing Units B through E range in size from 2,354 to 3,186 square feet and are three-bedroom, one-and-a-half bathroom single-family homes with single-car garages. In addition, Area A acts as the nexus of the Property's recreational and health care operations, contains the proprietary sewer and water treatment facilities and houses the 10,140 square foot boiler house.

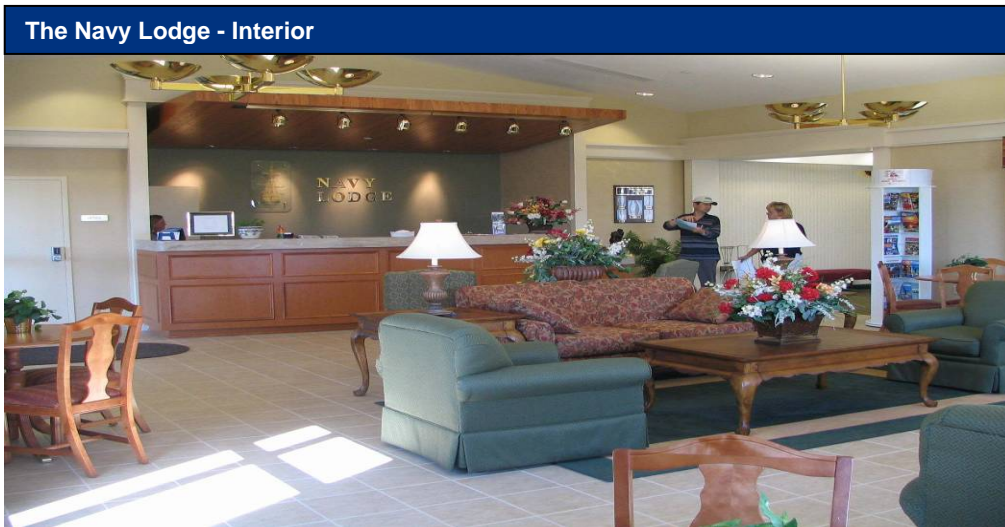
Figures 2-6 and 2-7 illustrate the Navy Lodge's exterior and interior. Built in 2005 as a hotel facility for visiting military personnel and Department of Defense (DoD) civilians, the Navy Lodge is a well-maintained structure with similar amenities to those seen in modern economy class hotels. The lodge consists of 52 suites with kitchenettes sized at approximately 600 square feet. The brick and masonry building is topped by an asphalt roof structure on the main lodge and a metal roof covering for the lobby and foyer sections.

**Figure 2-6 Photo of the Navy Lodge Exterior**



*Photograph taken September 21, 2005*

**Figure 2-7 Photo of the Navy Lodge Interior**



*Photograph taken September 21, 2005*



Figure 2-8 illustrates the BOQ. The BOQ facility is a two-story, apartment-style housing complex containing 32,225 square feet and a small recreation club. The structure was built in 1942 and contains a total of 57 units ranging from 238 to 368 square feet. Normal renovations have maintained the building in fair condition.

The BEQ facilities on the Property were constructed in 1975 and 1988, respectively. BEQ #172 contains 72 units of 280 square feet. Barracks #609 contains 139 units of 253 square feet. While these facilities meet most of the basic military standards for housing, their size and communal living construction will minimize the potential for private reuse.

**Figure 2-8 Photo of Bachelor Officer's Quarters**



*Photograph taken September 21, 2005*

### **2.2.2 Area B**

Area B occupies approximately 460 acres and contains the main runway infrastructure and associated buildings supporting flight activity and storage. Runway 15-33 runs northwest to southeast for approximately 8,000 feet, effectively dividing the densely improved administrative and industrial facilities of Area A from the Army and Marines Reserves activities and munitions storage found in Area C. In addition, the Navy holds easement rights restricting the use of approximately 177 acres of land outside the base perimeter (as illustrated in Appendix D) to ensure compatible use necessary to support the Navy's flying mission. These easements are located at the southeast end of Runway 15-33. The Marine Hangar and the two Aircraft Maintenance Hangars (Facilities #80 and #175) contain nearly 300,000 square feet of industrial space located immediately east of Runway 15-33. However, of this industrial space, only the Marine Hangar Facility, which was built in 1989, and Building #650, a hazardous and flammable material storage facility, are in relatively new condition. Most other existing hangar and maintenance buildings found along the runway are at least 26 years old.

Figure 2-9 shows the Passenger Operations Terminal. Constructed in 1991 and a part of Hangar 80, the Passenger Operations Terminal occupies space east of

Runway 15-33 near the existing hangar and maintenance facilities described above. This 19,087 square foot control tower facility is in fairly good condition.

**Figure 2-9 Photo of the Passenger Operations Terminal**



*Photograph Source: NAS JRB Willow Grove September 2005*

### **2.2.3 Area C**

Bounded by Runway 15-33 to the northeast, and the current civilian boundaries of Maple Avenue and Horsham Road to the south and west, Area C's approximate 250 acres are sparsely improved and primarily house the Army and Marines Reserves activity. The 45,670 square foot Army Reserve Training Center, constructed in 1977, and the 18,950 square foot Army Maintenance Hangar are the two dominating structures within Area C. Immediately southeast of the Army facilities are the newer Marine facilities including the 27,700 square foot Marine Training Center which was constructed in 1997.

The largest of five Family Housing Units (Command Quarters) can be found at the far south end of Area C, within the fences of the Property. The Command Quarters is a five-bedroom, two-an-a-half bathroom home of 4,882 square feet and is constructed of brick and vinyl siding with a pitched asphalt shingle roof. Although it was constructed in 1942, it still meets most basic Navy housing standards.

### 2.2.4 Off-Site Housing Assets

In 1999, ownership of two housing enclaves located on the former Naval Air Warfare Center (NAWC) Warminster site was transferred to NAS JRB Willow Grove. These housing assets, known as Jacksonville Road and Shenandoah Woods, are located between six and eight miles away from NAS JRB Willow Grove in neighboring Bucks County.

The enclave identified as Jacksonville Road (Figure 2-10) is an assemblage of six separate residential lots with frontage alongside Jacksonville Road between Bristol Road and Street Road in neighboring Bucks County. Each of these lots, which sum up to approximately two and a half total acres, contains an identical single-family, ranch-style home with a single-car detached garage. Five of these units contain three bedrooms and two bathrooms while the remaining unit contains four bedrooms and two bathrooms. All are wood frame constructions from 1940 with pitched asphalt shingled roof structures.

**Figure 2-10 Photo of the Jacksonville Road Housing Assets**



*Photograph taken September 22, 2005*

According to the most recent 2003 U.S. Navy Housing Conditions Assessment, these structures meet most military housing standards. However, they are in various levels of distress due to their age and do not fit the aesthetics of the residential developments surrounding them. Immediately adjacent to the Jacksonville Road homes is the new Judd Builders residential development named Ivyland Village. This development consists of 2,200 square foot townhouses currently selling at \$378,000 and 5,000 square foot single-family homes which start around \$1 million.

The Shenandoah Woods townhouse development (Figure 2-11) consists of 199 units, which were constructed in 1974 and occupy a 51 acre, park-like site with playground, basketball and other recreational facilities, approximately eight miles east of NAS JRB Willow Grove.



Figure 2-11 Photos of the Shenandoah Woods Housing Assets

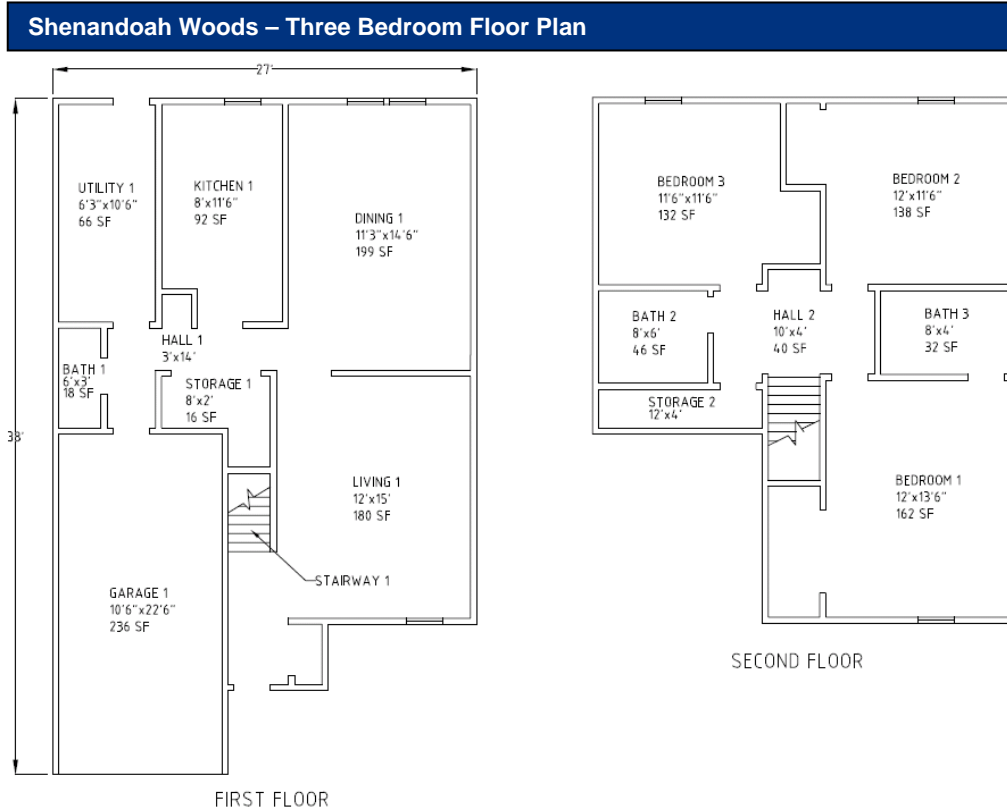


Photograph taken September 22, 2005

There are 149 three-bedroom units on the site which are two stories in height, contain two-and-a-half bathrooms, and provide their residents 1,162 square feet of living space. Figure 2-12 provides an illustration of the typical three-bedroom floor plan. The remaining 50 four-bedroom units present similar floor plans and contain two-and-a-half bathrooms and 1,352 square feet of living space. All of the units contain single-car, attached garages, are wood frame construction with vinyl siding exteriors and have pitched asphalt shingle roof structures.

According to the 2003 U.S. Navy Housing Conditions Assessment, these units meet most military housing standards but lack some aesthetic and functional appeal when compared to newer structures of similar type. The site is provided full utility service through Warminster Township and is within immediate proximity to the Southeastern Pennsylvania Transportation Authority (SEPTA) area public transit bus and regional rail systems.

**Figure 2-12 Shenandoah Woods Three Bedroom Floor Plan**



Source: U.S. Navy Housing Conditions Assessment 2003

## 2.3 Surrounding Neighborhood

The Willow Grove and Horsham Township Pennsylvania community, like much of Montgomery County, has evolved over the past 50 years from an area of agricultural dominance to a large industrial service town with a dynamic suburban community. There is a local industrial presence ranging from transportation to high-tech, which has resulted in a diverse range of consumer and housing needs. This is reflected in the various types of development that immediately surround the Property. Note that a detailed surrounding land use and zoning map is provided as Appendix B to this report.

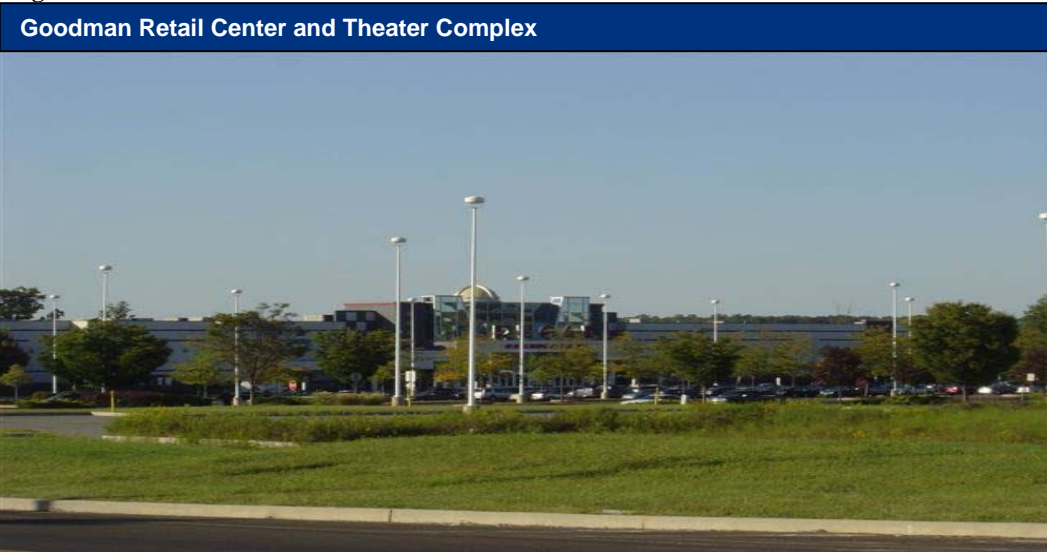
### 2.3.1 North

The northern end of the Property is generally bounded to the northeast by County Line Road, which divides upper Montgomery from lower Bucks County, and Keith Valley Road to the northwest. (See Figure 2-19 for a map of the roadways.) WGARS is contiguous to the Property on much of its northern border, effectively separating the northeastern portion of the Property from County Line Road. Frontage along Keith Valley Road is a mixture of residential and light manufacturing development, as it lies within the existing Airport Crash and Noise Overlay Districts. Current residential development in this vicinity includes R-1 zoning for large 80,000-square-foot lot

single-family homes along with newer townhouse communities such as Bluestone Woods with entry level prices in the low \$200,000s.

In addition to mixed residential, there is a fair amount of commercial and retail development along County Line Road northeast of the Property. Goodman Properties owns and operates a newly constructed retail center, shown in Figure 2-13, which includes the Regal Cinema, expanding chain restaurant development and retail space leasing between \$2.25 and \$2.50 per square foot.

**Figure 2-13 Photo of Goodman Retail Center**



*Photograph taken September 21, 2005*

Opposite the Regal Cinema retail development at the intersection of County Line Road and Route 611 (Easton Road) is the Graeme Park Square retail center shown in Figure 2-14. Constructed in the early 1960's, this 48,000 square foot facility currently leases available space at \$1.25 per square foot, as it is constrained by the age of the structure and limited parking facilities.



Figure 2-14 Photo of Graeme Park Square Retail Center



Photograph taken September 21, 2005

In addition, an undeveloped land sale opportunity borders the Property to the immediate north along County Line Road. These 70 acres shown in Figure 2-15 are privately owned and zoned low density residential (R-1) with office development provisions through Horsham Township. Plans following sale at approximately \$178,500 an acre call for a 500,000-square-foot office facility with 30 acres of public green space. This land parcel is currently not serviced by public water or sewer utilities.

Figure 2-15 Photo of Available Land Parcel



Photograph taken September 21, 2005

### 2.3.2 South

Route 463 (Horsham Road) to the southwest and Maple Avenue to the immediate south separate the Property from an industrial corridor backed by higher density residential development. The primary frontage is zoned for small commercial lots of 10,000 square feet up to industrial lots of four acres.

### 2.3.3 East

Figure 2-16 shows Route 611 (Easton Road) which provides frontage east of the Property. Easton Road is a mixed commercial, light industrial and retail thoroughfare backed by 12,000 square foot residential lots. Increased NAS JRB Willow Grove base activity, population growth in the surrounding area and immediate access to the PA Turnpike six miles to the south have encouraged restaurants, mixed retail, hotels and industry to locate along this highway. This region is primarily zoned general commercial with development provisions for 10,000 square feet up to four acre individual lots. Current development along this highway includes scattered office buildings, a large automobile dealership and a United Parcel Service (UPS) distribution facility.

Also located adjacent to the Property on its east is the Tinius Olsen Testing Machine Company, Inc. Tinius Olsen is a leading specialist manufacturer and supplier of static tension and/or compression materials testing machines.

**Figure 2-16 Photo of Route 611 from the Property**



*Photograph taken September 21, 2005*

### 2.3.4 West

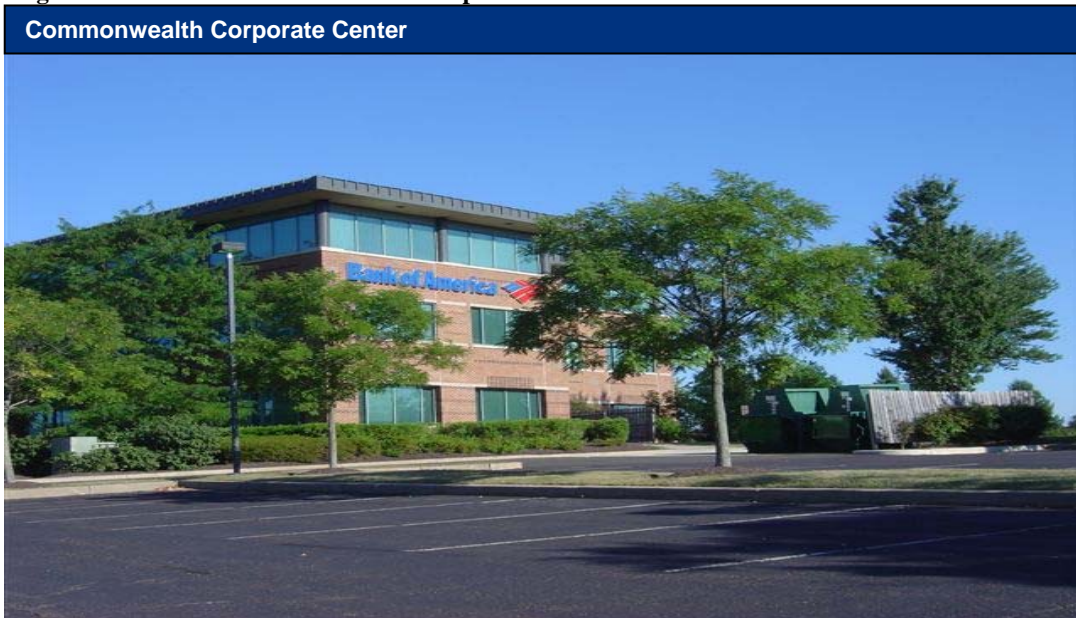
Major office, light industrial and mixed residential development dominate the landscape immediately west of the Property. Frontage along Route 463 (Horsham Road) includes a major office park, private country club and golf course and low

density residential backed by several local parks and Hatboro/Horsham High and Simmons Elementary Schools.

Figure 2-17 shows the Commonwealth Corporate Center. The Commonwealth Corporate Center landscape has been developing under tax abatement and assistance from Horsham Township since the early 1990's. Although 79 acres remain deed restricted to Horsham Township as open green space, according to local representatives, the remaining developable acreage is currently home to corporations such as Bank of America, Motorola, Centocor and GSBC. Quoted lease rates provided by Matrix Development Group, which owns and leases one of the four 100,000-square-foot facilities, currently range from \$19 to \$21 per square foot with ample surface parking provided to tenants at a rate of approximately five spaces per 1,000 square feet.

Available space within the Commonwealth Corporate Center is scarce, according to the Matrix Development Group. According to Horsham Township, plans have been made for the construction of two additional large office facilities within the park in the next couple of years.

**Figure 2-17 Photo of Commonwealth Corporate Center**

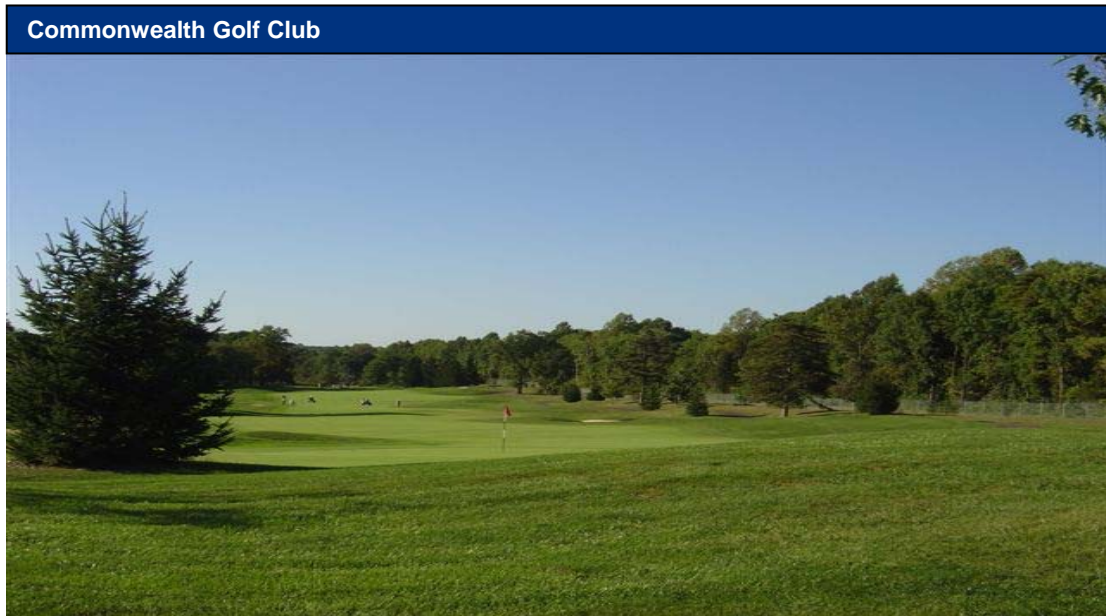


*Photograph taken September 21, 2005*

Adjacent to the Commonwealth Corporate Center is the private, 400 acre Commonwealth Golf Club shown in Figure 2-18. Designed by Arnold Palmer and Ed Seay in 1990, the 18-hole course has water features in play on 12 holes and leads to a large clubhouse on which construction was completed in 1996.



**Figure 2-18 Photo of Commonwealth Golf Club**



*Photograph taken September 21, 2005*

## 2.4 Access

### 2.4.1 Automobile - Truck

The Property is readily accessible by major regional thoroughfares. Route 611 (Easton Road) runs along the eastern border of the Property and provides direct vehicular access to Interstate 276 (The Pennsylvania “PA” Turnpike) five miles to the south. The PA Turnpike leads to the New Jersey Turnpike, Interstate 95 and, in turn, Philadelphia International Airport and most of the major east coast highway infrastructure. To the west, the PA Turnpike provides cross-state access to Pittsburgh and the Ohio border. Increased traffic flow along the four-lane Route 611 as a result of recent development has led to congestion and frequent rush hour delays. According to the Delaware Valley Regional Planning Commission (DVRPC), average annual daily traffic flows through the Property’s portion of Route 611 have increased steadily from 27,350 cars in 1997 to 34,067 in 2003. Future development along this corridor will likely require roadway expansion and civil reengineering.

Route 463 (Horsham Road) borders the Property to the west and provides alternate access from Route 611 to various residential, recreational and industrial segments of Horsham Township. Route 463 varies in width from two to four lanes along the Property’s western boundary, creating sporadic bottlenecks during peak traffic hours. Although traffic flows on Route 463 have also increased in recent years, it is less constrained than Route 611 as a result of limited access to the regional major highways.

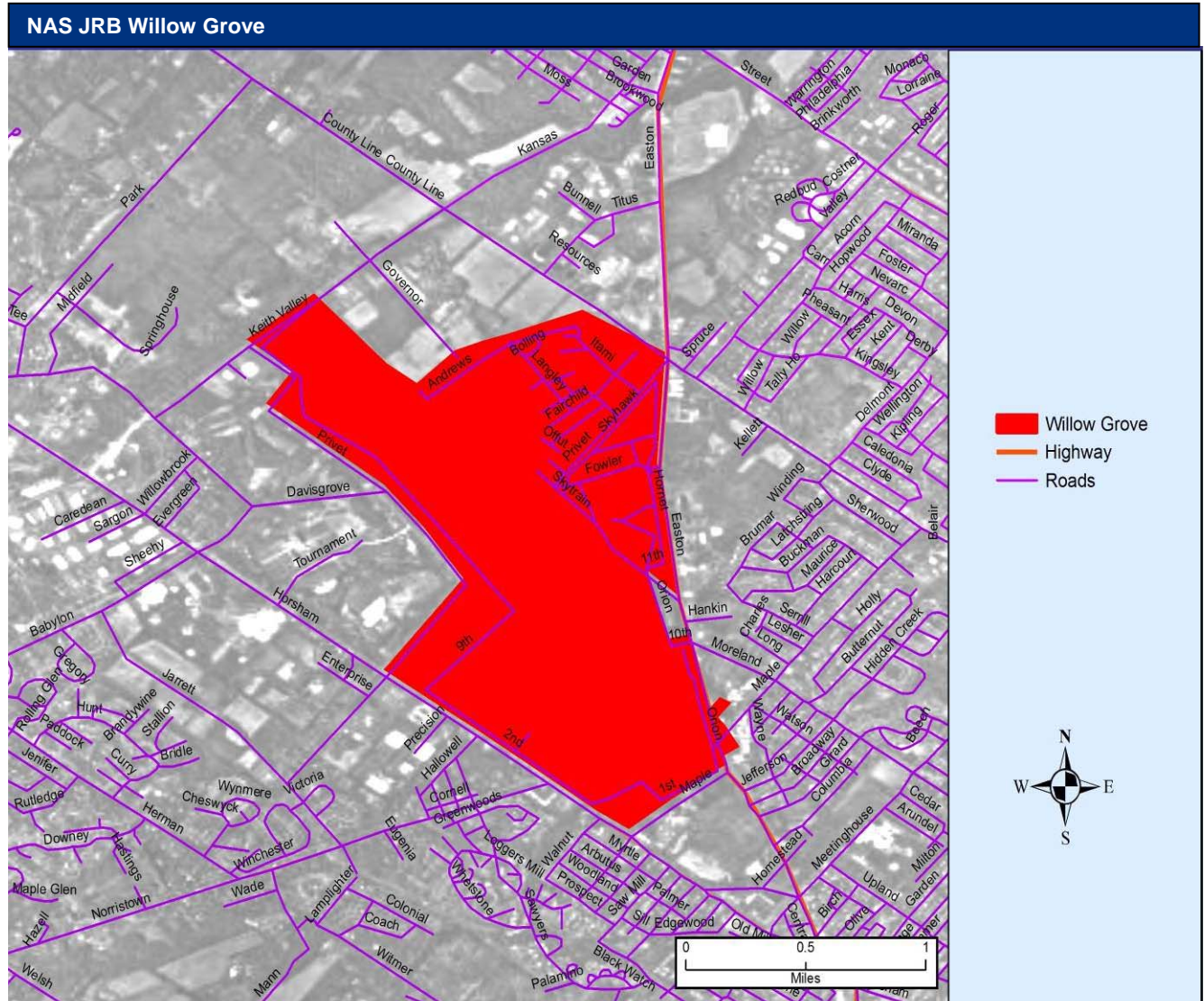
Figure 2-19 illustrates the roads and highways immediately surrounding the Property.

### **2.4.2 Mass Transit Access**

In terms of rail access, both Horsham and the neighboring Warminster Township have stops on the Southeastern Pennsylvania Transportation Authority (SEPTA) regional rail system R2 line. The Willow Grove stop is located approximately three and a half miles south of the Property, currently provides 92 parking spaces and offers a peak fare of \$4.50 to Central Philadelphia. The terminal stop on the R2 line (Warminster) is located approximately three miles north of the Willow Grove and approximately one mile from the Jacksonville Road homes. A much newer facility, the Warminster stop offers peak fares to the city at \$5.00 and 500 parking spaces. Both lines provide direct access to Central Philadelphia, Wilmington and the Philadelphia International Airport.

SEPTA Bus Route 55 has station stops along Route 611 (Easton Road) and provides direct access to regional hub terminals. Metro Bus routes and commuter buses out of the Olney Transportation Center serve most of the northern Philadelphia suburbs, SEPTA regional rail in Doylestown and Willow Grove, as well as the extensive downtown Philadelphia transit network.

Figure 2-19 Local Roadways Map



## 2.5 Visibility

The Property has good visibility along Route 611 (Easton Road) with over 9,600 feet of frontage. An additional 5,300 feet of frontage exists along the southeast border of the Property at Route 463 (Horsham Road). Airport “clear zone” extensions at the ends of Runway 15-33 limit visibility at the north and south ends of the Property as currently improved.

The Jacksonville Road homes have excellent visibility along Jacksonville Road in neighboring Ivyland Borough. However, the Shenandoah Woods townhouse community is set back from its access point off Bristol Road in Warminster making it a more insulated and less visible community.

## 2.6 Land Uses

As illustrated in Section 2.2 of this report, the Property is well divided with respect to land use. Area A is primarily improved with the Navy Reserves' administrative properties. It does contain an enclave of multi-unit residential facilities including the Navy Lodge as well as the Property's municipal support properties. Areas B and C are predominantly comprised of the Property's runway and aviation support structures. Some administrative buildings located at the southern end of Area C are currently utilized by the Army and Marine Reserves.

While the Property does not currently carry any local zoning overlay restrictions, the majority of lands immediately adjacent to the Property are zoned light industrial and commercial backed by scattered residential development (see Appendix B for additional detail). Conversations with local zoning authorities in Horsham Township indicate that the Property would carry an industrial zoning categorization immediately following disposal which would be augmented in accordance with the LRA's reuse plan. With the Route 611 commercial corridor to the east, industrial parks to the north and recreational and office parks to the south, future rezoning opportunities are likely to be diverse and in accordance with the aforementioned adjacent land uses.

Both the Jacksonville Road and Shenandoah Woods housing assets are located in residential zones. In 2006, Warminster Township approved a zoning ordinance amendment making Shenandoah Woods an R-2 Residential District, restricting new development there to single family detached homes.

Along Jacksonville Road in Ivyland Borough, medium density residential development and single-family homes surround the Jacksonville Road homes on all sides. Similarly, the Shenandoah Woods townhouses, although set back from their Bristol Road access point, are generally bounded by single family residential development and recreational space.

## 2.7 Utilities

The subject Property is well served by telephone, electric and natural gas utilities sufficient to accommodate the base and its operations. The Philadelphia Electric Company (PECO), a unit of Exelon Energy Delivery, provides both natural gas and electricity to the installation site and the offsite housing assets at Jacksonville Road and Shenandoah Woods. Electric power enters the transformer at the main gate in the east portion of Area A and is then redistributed throughout the Property via the Navy owned electric utility facilities. Three primary electric transformers are located at the more southern locations of Area C. The Property is provided telephone service through a Dimension 2000 switch leased and maintained by AT&T with a capacity of over 4,000 stations.

Currently, the Property is not provided with public water and sewer service. The Property operates and maintains its own water treatment facility with a separate sanitary and storm sewer collection system. Potable water is supplied via two 190-foot on-site wells rated at one million gallons of maximum daily flow capacity. In addition, two above-ground storage reservoirs of 500,000 and 450,000 gallons house water for fire protection. However, in order to accommodate future development



strategies on the Property, plans to tie into public water and sewer services will need to be made. In contrast, the Jacksonville Road and Shenandoah Woods housing enclaves are provided public water and sewer utilities.

## 2.8 Environmental Conditions

One of the primary challenges to redevelopment at NAS JRB Willow Grove will be the integration of environmental remediation plans and their impact on reuse and future land use. NAS JRB Willow Grove was placed on the National Priorities List (NPL) in 1995, as a result of contamination at landfills, underground storage tanks (USTs), fuel farms and a fire training area which possess various levels of heavy metals, petroleum, oil and lubricants (POLs) and other solvents.

Additionally, 52 of the buildings on NAS JRB Willow Grove as well as within the Jacksonville Road Housing Assets contain or are thought to contain asbestos containing material. The NPL is a prioritized list of sites with known or threatened releases of hazardous substances, pollutants or contaminants at locations throughout the U.S. and its territories.

For a more detailed assessment of the historical, cultural and environmental conditions at the Property, reference should be made to the recently published Final Environmental Condition of Property (ECP) Report for the NAS JRB Willow Grove and the Final Environmental Condition of Property (ECP) Report for the Off-Base Housing Areas of the NAS JRB Willow Grove, May 11, 2006 conducted by the Navy. Unless noted otherwise, the following subsections make direct reference to information contained in these reports.

### 2.8.1 Installation Restoration (IR) Program Review

Since placement on the NPL in 1995, the Navy has rectified identified source areas through activities including excavation, source removal and underground storage tank (UST) removals as part of the Installation Restoration (IR) Program. The IR program is a Department of Defense (DoD) initiative developed in 1975 to investigate and manage environmental impacts on military bases.

The Navy has identified 10 IR sites at NAS JRB Willow Grove; one additional site (potential "Site 11") was studied although was never added to the list of IR sites on the NPL. Currently, NAS JRB has four sites which remain "open"; meaning they are in various stages of investigation and cleanup. Consequently, seven sites, including the potential "Site 11" have been recommended for No Further Action (NFA). Details concerning these "open" IR sites are represented in the following text as well as illustrated in Appendix F of this report.

Site 1 (Privet Road Compound) is approximately two acres in size, and consists of a bowling alley, parking lot and a half acre undeveloped area. During the years of Privet Road Compound operations, waste was stored on-site temporarily prior to being disposed off-site, or burned and/or buried on-site. In 1999, approximately 1,100 tons of soil was removed from Site 1 as part of an interim removal action of contaminated soils. The Navy has submitted a NFA Record of Decision (ROD) to the U.S.



Environmental Protection Agency (EPA) for Site 1 soils which is currently under review.

Site 2 (Antenna Field Landfill) was operated between 1948 and 1960 as a principal disposal area for the solid waste generated by NAS JRB Willow Grove. The landfill occupies approximately nine acres. In addition to general wastes, bulk items such as furniture, tires and shingles as well as paint wastes and sewage sludge were disposed here.

Site 3 (9<sup>th</sup> Street Landfill) is located at the western boundary of NAS JRB Willow Grove and is approximately nine acres in size. Disposal operations began at Site 3 in 1960 as a replacement for Site 2. During these operations, wastes disposed were similar to those found on Site 2.

Site 5 (Fire Training Area) is located in the south-central portion of the NAS JRB Willow Grove and covers an irregularly shaped 1.25 acres. Site 5 was operated from 1942 to 1975 for large scale firefighting exercises involving the disposal and burning of flammable liquid wastes such as solvents, paint chemicals and various petroleum compounds.

### **2.8.1 Soils**

According to the Final ECP for NAS JRB Willow Grove May 11, 2006, there are no geological hazards present at the Property. Based upon existing site development, as well as that surrounding the site, there do not appear to be existing soil conditions that would prohibit future development plans.

### **2.8.2 Wetlands**

Federal Emergency Management Agency (FEMA) flood maps of the Horsham area, provided as Appendix E to this report, indicate that there are two areas within NAS JRB Willow Grove which would be inundated during a 100-year flood event.

Based upon discussions with the Navy Department of Public Works and Environmental Programs, wetlands on the Property are negligible and should not impede long term planning and/or development on the Property.

### **2.8.3 Natural and Cultural Resource Issues**

#### *Natural Resource Issues*

There are no known populations of rare, threatened or endangered plant or animal species identified on NAS JRB Willow Grove (either state or federal) according to the 2006 ECP report for NAS JRB Willow Grove. The Pennsylvania Science Office and The Nature Conservancy/Eastern Office of the Pennsylvania Natural Science Diversity Inventory conducted a thorough on-site survey for species of concern and significant natural communities in 1991. As a result of the survey, only one element found was a rare plant, hairy field bluegrass (*Paspalum leave* var. *pilosum*); later the hairy field bluegrass was removed from the Pennsylvania rare plant list.

*Cultural Resource Issues*

According to the 2006 ECP report for the Property, a Cultural Resources Survey was conducted at NAS JRB Willow Grove in 1996. Part of the Cultural Resources Survey included an Architectural Resources Survey. The findings of the Architectural Resources Survey indicated the following:

- Buildings constructed prior to 1946 – none meet the National Register Criteria as individual resources.
- Buildings constructed after 1946 – none contain concentrations of resources meeting National Register requirements for a historic district.
- Buildings constructed after 1946 – none meet National register requirements of extraordinary significance for resources less than 50 years of age.

The aforementioned Cultural Resources Survey indicated that four locations within the boundaries of NAS JRB Willow Grove have been identified to have potential for prehistoric archaeological resources. In addition, there are 15 identified locations of potential historic sites within the boundaries of NAS JRB Willow Grove.

## Section 3. Economic Review

### 3.1 Introduction

In assessing the redevelopment potential of NAS JRB Willow Grove, a variety of data sources were utilized to determine what factors might most influence the Property’s ultimate reuse and/or redevelopment. This included reviewing historical economic data such as population and employment trends. Figure 3-1 represents several key findings with respect to the general surrounding economy.

**Figure 3-1 Key Findings of Economic Review**



### 3.2 Demographics

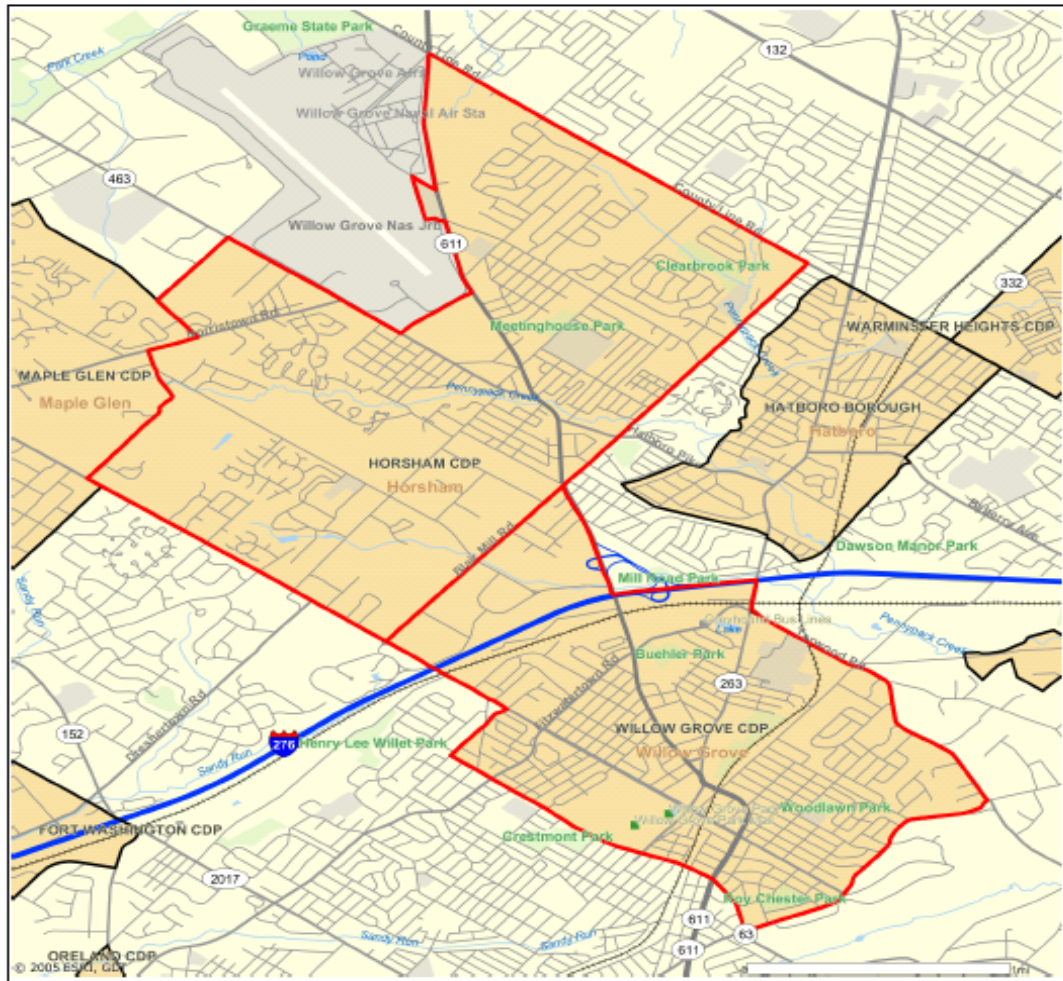
#### *Horsham/Willow Grove*

In assessing the economic characteristics of Willow Grove and Horsham Township, the demographic trends of Philadelphia and its surrounding suburbs were reviewed as well as those for the neighboring cities of Allentown and Reading in southeastern Pennsylvania. Due to the magnitude and composition of the Philadelphia regional market, of which Horsham Township and Willow Grove are a small part, a baseline for demographic comparison was constructed by analyzing the similarly sized commuter towns surrounding the Philadelphia. In order to construct a statistically viable sample, the demographics section of this report will represent the Horsham

## NAS JRB Willow Grove

Township and Willow Grove submarkets as one population (referred to herein as Horsham/Willow Grove); outlined in red in Figure 3-2. Note that the Property is located to the northern tip of the Horsham Township boundary line in Figure 3-2.

**Figure 3-2 Horsham/Willow Grove Boundary**

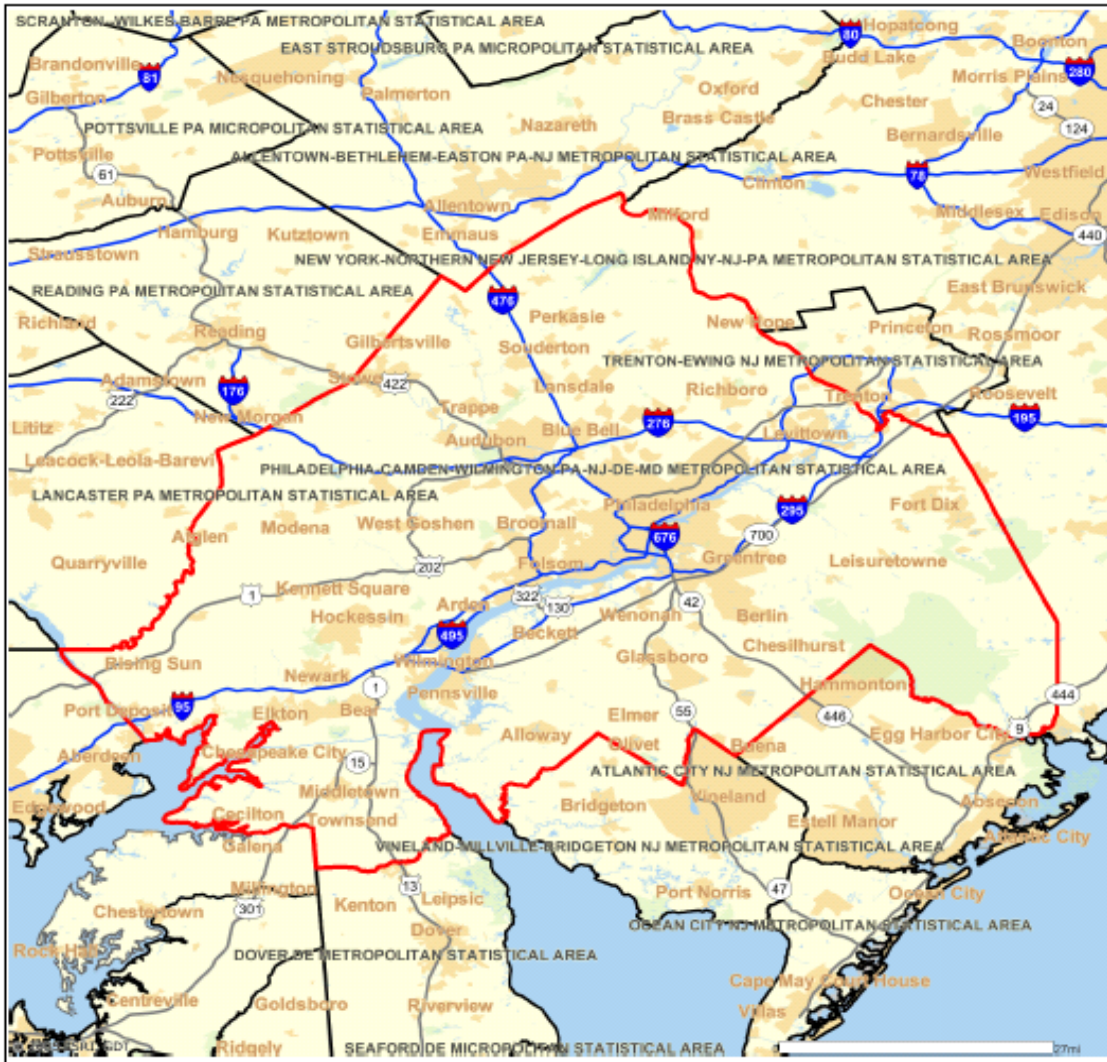


Source: ESRI 2005

### *Philadelphia-Camden-Wilmington Metropolitan Statistical Area (MSA)*

To gain a better understanding of the relative economic strength of the greater Philadelphia metropolitan region as a whole, economic analysis has also been provided for the Philadelphia-Camden-Wilmington Metropolitan Statistical Area (MSA) which consists of Philadelphia, Camden and Wilmington, as well as area commuter regions within New Jersey, Delaware and Maryland. In addition, the suburban areas of Horsham/Willow Grove, Norristown and Pottstown are all included within the boundaries of the MSA. Figure 3-3 defines the MSA in red:

Figure 3-3 Philadelphia-Camden-Wilmington MSA Boundary



Source: ESRI 2005

### 3.2.1 Population

Table 3-1 compares recent Horsham/Willow Grove population growth trends with those of the surrounding Philadelphia towns of similar size. For further reference, growth trends have also been illustrated for the cities of Philadelphia, Reading and Allentown. Historical data and current estimates are provided by the U.S. Census Bureau through the Environmental Systems Research Institute (ESRI).

The population growth trends in the suburbs surrounding Philadelphia have been increasingly strong in recent years. Migration out of the city of Philadelphia has resulted in the steady development of the surrounding submarkets such as Norristown and Pottstown. Individuals leaving the city of Philadelphia, which has been losing on average more than 0.4% of its population per year over the past five years, are relocating in the suburban areas to the north and west. Horsham/Willow Grove has not seen similar gains in population over the same period due to relatively high housing costs and lesser supply. Median home value in Horsham/Willow Grove was



**NAS JRB Willow Grove**

measured at \$140,453 in 2000, compared to \$87,385 in Pottstown and \$85,761 in Norristown. The residential development that is occurring in Horsham/Willow Grove has driven these costs up by 65% over the last five years, resulting in the displacement of a portion of its middle to lower income residents. This has changed the local demographic and resulted in a relatively flat population growth trend over the past five years.

**Table 3-1 Population Trends**

Location	1990 Population	2000 Population	Average Annual % Change 1990-2000	2005 Population	Average Annual % Change 2000-2005	Projected 2010 Population	Projected Average Annual % Change 2005- 2010
Horsham / Willow Grove	31,036	31,013	-0.01	30,923	-0.06	31,437	0.33
Norristown	30,898	31,282	0.12	31,976	0.44	32,769	0.49
Pottstown	21,837	21,859	0.06	22,568	0.65	23,159	0.52
Reading	78,391	81,207	0.35	83,731	0.62	86,368	0.62
Allentown	105,153	106,632	0.14	109,688	0.57	114,959	0.94
Philadelphia	1,585,577	1,517,550	-0.44	1,484,645	-0.43	1,461,195	-0.32

Source: ESRI 2005

The regional cities of Allentown and Reading are currently experiencing similarly positive growth to that of the smaller, more affordable suburban communities of Philadelphia. Their economies are growing as a result of relatively low costs of doing business and high household incomes. This has translated into respective average annual population growth rates of 0.57 and 0.62% over the last five years. In addition, projections for Allentown, a potential commuter destination for Horsham/Willow Grove residents, predict population growth to be nearly 1.0% annually through 2010, given recent residential and commercial development.

Population projections over the next five years are expected to be similarly positive for the Philadelphia suburban markets as the city of Philadelphia is expected to lose residents at a slightly lesser rate than current. Horsham/Willow Grove is expected to see population growth at approximately 0.33% annually through 2010, with slightly better forecasts on the horizon for the similarly sized communities of Norristown and Pottstown. Increased commercial and retail development in Horsham/Willow Grove as well as neighboring Bucks County is expected to attract new residents at an increased rate.

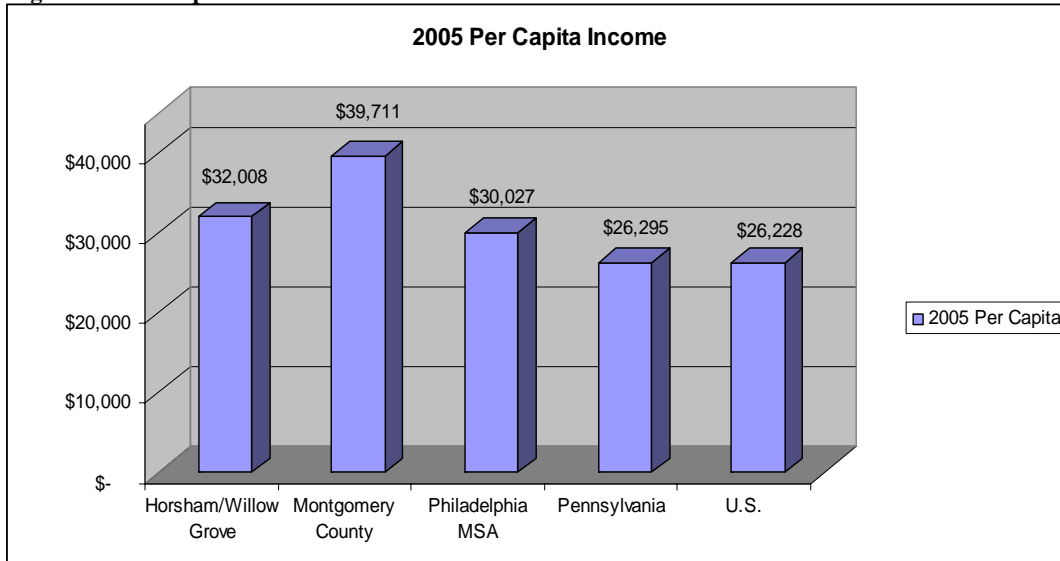
**3.2.2 Income**

*Philadelphia-Camden-Wilmington MSA*

With respect to the rest of the nation, Philadelphia and its surrounding submarkets have historically benefited from higher relative levels of income. The same

composition of employment by sector that has made this MSA one of the most diverse in the U.S. has driven up median household income statistics for those in and around the city of Philadelphia. Per capita income in the MSA exceeds both state and national levels by nearly \$3,000 as illustrated in Figure 3-4.

**Figure 3-4 Per Capita Income**



Source: ESRI 2005

In addition, the MSA currently has a measured median household income that is nearly \$9,000 greater than that of the nation and has experienced 0.8% greater annual income growth on average over the past five years, according to ESRI.

Table 3-2 illustrates recent and five-year projected median household incomes (MHHI) for select geographies within the MSA and the Philadelphia-Camden-Wilmington MSA relative to the state of Pennsylvania and the U.S. as a whole.

*Horsham/Willow Grove*

As illustrated in Table 3-2, Horsham/Willow Grove has maintained high median household incomes relative to the neighboring suburbs of Philadelphia. Currently, the median household income in Horsham/Willow Grove is measured to be over \$23,000 higher than that of Norristown and over \$22,000 higher than that of Pottstown. The combination of high housing costs and the relatively large percentage of its employment population working in the finance, insurance and real estate fields have made Horsham/Willow Grove one of the wealthier submarkets of southeastern Pennsylvania. In fact, median household incomes in Horsham/Willow Grove are estimated to be nearly \$17,000 higher than those of the nation. Additionally, Horsham/Willow Grove has seen a greater level of median household income growth (4.95% per year) over the past five years than the other selected geographies in Table 3-2.

Median household incomes for Horsham/Willow Grove are projected to continue growing at a greater rate than the region, with the exception of Pottstown. These growth projections provided by ESRI indicate that by 2010 the Horsham/Willow

Grove geographic submarket will have a median household income nearly 40% higher than the state of Pennsylvania and over 17% higher than the MSA. This is attributable to the anticipated continued growth in Horsham/Willow Grove’s concentration of high paying professional services.

Table 3-2 Median Household Income Trends

Location	1990 MHHI \$	2000 MHHI \$	Average Annual % Change 1990 - 2000	2005 MHHI \$	Average Annual % Change 2000 - 20 05	Projected 2010 MHHI \$	Projected Average Annual % Change 2005 - 2010
Horsham / Willow Grove	41,776	53,505	2.51	66,739	4.95	82,074	4.60
Norristown	28,608	35,711	2.24	43,320	4.26	52,844	4.42
Pottstown	29,201	35,854	2.07	44,182	4.64	54,656	4.74
Reading	22,116	26,662	1.89	31,151	3.37	36,831	3.65
Allentown	25,988	31,919	2.08	38,302	4.00	46,027	4.03
Philadelphia MSA	35,682	48,201	3.05	58,463	4.26	69,983	3.94
Pennsylvania	29,069	40,108	3.27	48,534	4.20	58,658	4.17
United States	30,056	42,164	3.44	49,747	3.60	58,384	3.47

Source: ESRI 2005

### 3.3 Industry and Employment

#### 3.3.1 Employment

##### *Philadelphia-Camden-Wilmington MSA*

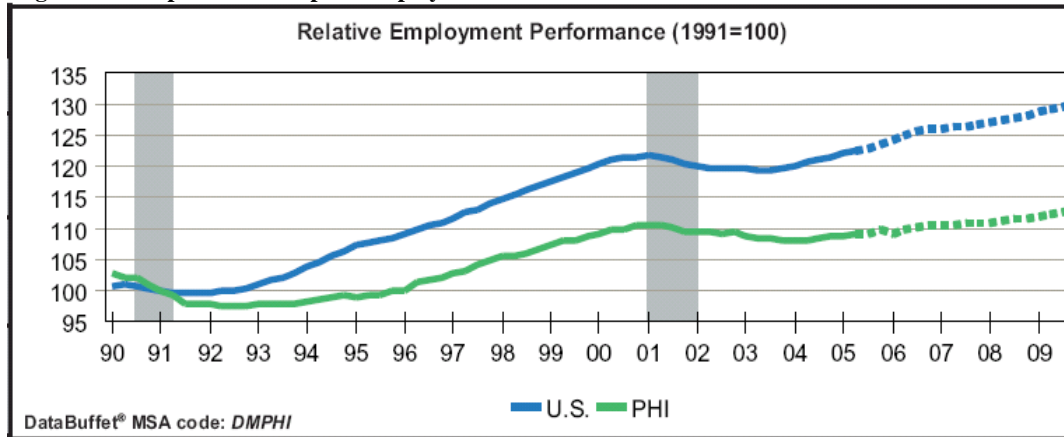
The Philadelphia-Camden-Wilmington MSA employment market has seen steady growth in its service industries for the past several years offset by the shrinkage of its manufacturing base. According to the Delaware Valley Regional Planning Commission, in 1970 one in four jobs in the region was manufacturing. The U.S. Census Bureau indicated that by 2000, this number had decreased to one in twelve. Rising energy, labor and operating costs have resulted in many textile and automobile parts related jobs going abroad. As a result, economic development officials in the region have steadily sought new technology and service based jobs to fill the employment gaps. Services, led by the education/health and the leisure/hospitality sectors, are driving the majority of hiring in the area today.

Employment forecasts for the city of Philadelphia predict steady positive job growth in the next few years. However, growth in health care, leisure/hospitality and education-based industries is not expected to be sufficient to completely offset the continuing losses in the manufacturing sector for the city of Philadelphia, resulting in a positive



growth rate, but one below that of the nation. Figure 3-5 illustrates recent and predicted employment performance of the city relative to that of the nation, indicating Philadelphia’s anticipated inability to create jobs at the same pace as the U.S. as a whole.

Figure 3-5 Graph of Philadelphia Employment Growth



Source: 2005 Economy.com

*Horsham/Willow Grove*

Horsham/Willow Grove’s ability to create new jobs is expected to be greatly linked to that of the region and the city of Philadelphia as a result of commuter ties and a similarly skewed employment demographic to the professional services sectors. In fact, the Horsham/Willow Grove employment market has an even higher concentration of professional services employment than the MSA. According to ESRI in 2005, an estimated 13.0% of Horsham/Willow Grove’s employed population age 16 and older worked within the finance/insurance/real estate sub-sector. This represents a 0.4% increase from the 2000 U.S. Census figures for Horsham/Willow Grove and a much higher percentage than the Philadelphia MSA and state estimates for the same sector, 7.8% and 6.9%, respectively.

Major local employers such as Bank of America and Motorola, accompanied by the large commuter population into the education/health services and financial/insurance/real estate employment sectors in and around Philadelphia contribute to an estimated 72.2% white collar employment population for Horsham/Willow Grove in 2005. “White collar” is defined as workers employed in management/business/financial, professional, sales and administrative support capacities. This figure, according to ESRI, is more than 10% higher than the state and national measures and has helped Horsham/Willow Grove maintain median household incomes greater than those of its neighboring communities.

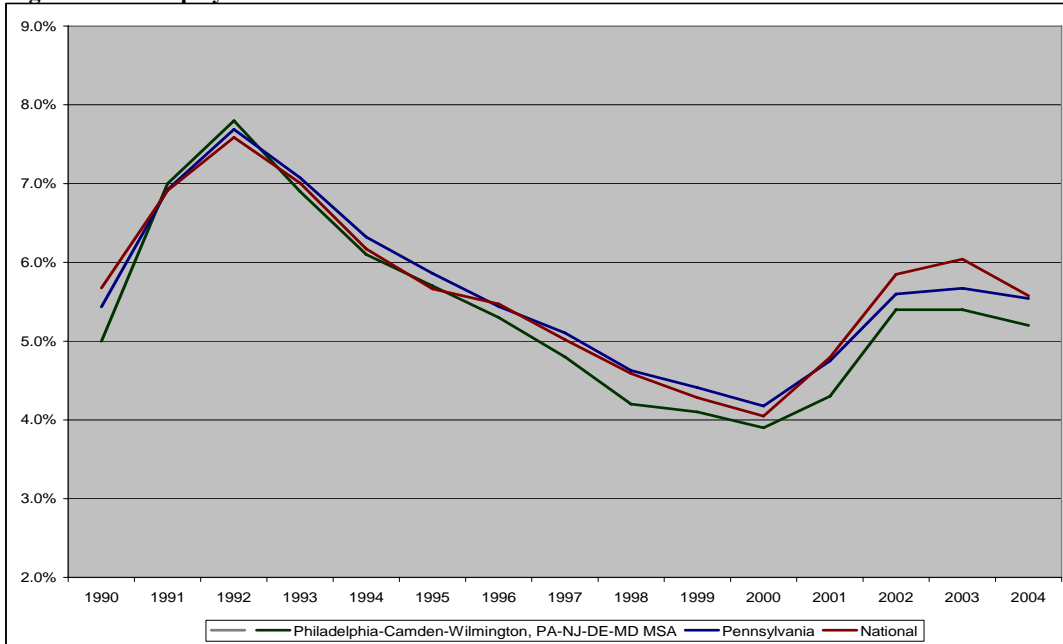
**3.3.2 Unemployment**

*Philadelphia-Camden-Wilmington MSA*

The Philadelphia MSA has followed a trend very similar to the national average with respect to regional unemployment over the last 15 years as illustrated in Figure 3-6. In recent years, unemployment levels have slightly outperformed the rest of the nation as

a result of the aforementioned growth in the service sector. Although the Philadelphia MSA has steadily lost manufacturing jobs, its ability to limit the corresponding economic impact through service sector growth has proven beneficial to unemployment rates which have been declining on average since 2003. Even if the city of Philadelphia continues to create new jobs at a lesser rate than the nation as predicted, the relative diversity found within its employment market of the MSA should continue to weigh favorably on unemployment rates.

**Figure 3-6 Unemployment Trends**



Source: U.S. Labor Department, Bureau of Labor Statistics 2005

*Horsham/Willow Grove*

In Horsham/Willow Grove, similar trends in unemployment have been seen as a function of the heavy commuter population into the city of Philadelphia and heavy skew of professional and service sector employment similar to that of the MSA. Recent professional and service sector job growth in the region has helped maintain unemployment levels in Montgomery County and Horsham/Willow Grove consistently below those of the MSA. According to the Bureau of Labor Statistics, unemployment levels in Montgomery County have fluctuated between 3.7% and 4.6% since 2000, finishing 2004 approximately 1.3% below the national average.

**3.3.3 Major Employers**

*Philadelphia-Camden-Wilmington MSA*

As one of the most diverse employment markets in the U.S., the Philadelphia MSA includes several major employers in education and health services, finance, government and other professional and business services. Table 3-3 provides the names of the largest employers in located in the Philadelphia area.

**Table 3-3 Philadelphia-Camden-Wilmington MSA Major Employers**

Employer	# of Employees	Employer	# of Employees
University of Pennsylvania	23,609	Children's Hospital of Philadelphia	7,000
Jefferson Health System	20,386	Prudential Financial	6,568
Merck and Company	10,000	Lockheed Martin Corp.	6,500
The Vanguard Group	8,000	Acme Markets	6,440
Southeastern Pennsylvania Transportation Authority	7,370	Genesis Health Ventures, Inc.	6,393
Crozer-Keystone Health System	7,026	Wyeth Pharmaceuticals and Research	6,280
UPS of America, Inc.	7,015	Exelon Corp.	5,695
Tenet Healthcare Corp.	7,002	Independence Blue Cross	5,672

*Source: 2005 Economy.com*

*Horsham/Willow Grove*

Because of the large percentage of Horsham/Willow Grove residents who commute to Philadelphia or work within its MSA boundaries, many of its residents are also employed by these large regional leaders. According to ESRI, 45.2% of the nearly 18,000 residents which make up Horsham/Willow Grove’s employment population age 16 years and older in 2005 worked in service industries such as Merck and Company, Jefferson Health System and Prudential, the three largest employers in Montgomery County.

**3.3.4 Employment Sectors**

*Philadelphia-Camden-Wilmington MSA*

The employment sub-sector analysis taken from the 2000 U.S. Census for the Philadelphia-Camden-Wilmington MSA relative to Horsham/Willow Grove, Montgomery County and the nation as a whole is illustrated in Table 3-4. The workforce composition by sector for the MSA differs to a large degree from that of the nation. The education/health, finance/insurance/real estate and professional/business services sub-sectors contribute more heavily to this economy than the national norm.

The regional presence of more than 50 colleges and universities including the University of Pennsylvania, Temple University, Villanova University and Saint Joseph’s University help contribute to the 22.4% of total employment found within the education/health services sub-sector, a figure which was 2.5% higher than that of the nation in 2000. Additionally, recent rankings from *U.S. News and World Report* have placed ten Philadelphia hospitals within the top 50 in their respective fields, driving the regional desirability and presence of health care professionals.

**Table 3-4 Local vs. Regional and National Employment Submarkets**

	Horsham/ Willow Grove	Montgomery County	Philadelphia MSA	U.S.
Agriculture/Mining	0.1%	0.3%	0.5%	1.9%
Construction	6.3%	5.6%	5.7%	6.8%
Manufacturing	13.7%	15.0%	12.2%	14.1%
Wholesale Trade	3.5%	3.9%	3.7%	3.6%
Retail Trade	12.2%	11.3%	11.5%	11.7%
Transportation/Utilities	3.5%	3.2%	5.0%	5.2%
Information	3.5%	3.5%	3.0%	3.1%
Finance/Insurance/Real Estate	12.6%	10.0%	9.1%	6.9%
Professional/Business Services	11.7%	12.9%	11.2%	9.3%
Education/Health Services	20.9%	21.6%	22.4%	19.9%
Leisure/Hospitality Services	5.8%	5.4%	6.5%	7.9%
Other Services	4.3%	4.5%	4.6%	4.9%
Public Administration	2.0%	2.7%	4.7%	4.8%

Source: U.S. Census Bureau 2000

Although Pennsylvania has traditionally been a heavy manufacturing state, the percentage of manufacturing jobs making up the MSA’s manufacturing sub-sector was 2.8% less than that of the state as a whole in 2000. This is a reflection of the loss in recent years of much of this region’s manufacturing base. According to the Delaware Valley Regional Planning Commission, there has historically been a large presence of food and beverage, chemical, printing, and paper related manufacturers within the region’s industrial market. Fortunately for Philadelphia and the MSA, nondurable goods manufacturing jobs typically drive up salaries relative to their durable counterparts, a figure which is captured in the nearly \$17,000 discrepancy between manufacturing salaries in Philadelphia and the national norm according to 2005 Economy.com.

*Horsham/Willow Grove*

The Horsham/Willow Grove sub-sector analysis is similar to that of the MSA to which is belongs: heavily skewed towards the professional services jobs which help drive up the local median household income levels. In 2000, the percentage of Horsham/Willow Grove residents employed in the finance/insurance/real estate sub-sector was approximately 2.6% higher than that of Montgomery County, 3.5% higher than that of the MSA and nearly twice the national average. Additionally, 0.5% more of Horsham/Willow Grove’s residents in 2000 were employed in the professional/business services sub-sector than the MSA; a figure which was 2.4% greater than the national average.

ESRI estimates for 2005 indicate that Horsham/Willow Grove’s employment market has continued shifting away from its historically strong manufacturing base. In 2005, the

percentage composition of Horsham/Willow Grove's employment population age 16 and above employed in the manufacturing sector was estimated to be 10.4%, a figure approximately 3.3% lower than the 2000 U.S. Census value.

### 3.4 Education

#### *Philadelphia-Camden-Wilmington MSA*

Education levels in the Philadelphia-Camden-Wilmington MSA are significantly higher than state and national averages. This is expected from a region with a greater representation of its workforce in professional services such as education and healthcare. According to the U.S. Census Bureau in 2000, 82.4% of Philadelphia MSA residents age 25 and older had at least a high school diploma or GED equivalent. This figure is higher than the state and national averages of 81.9% and 80.3%, respectively. Additionally, the percentage of residents within the MSA possessing a completed advanced degree was 5.2% higher than the state average and 2.8% higher than the national average.

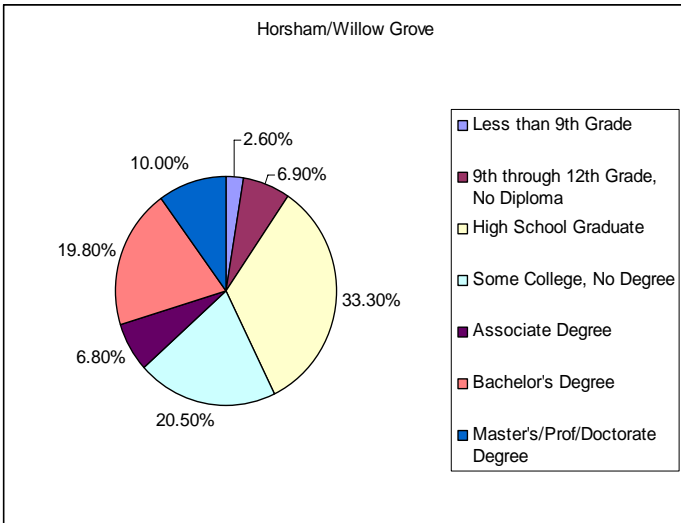
#### *Horsham/Willow Grove*

With respect to Horsham/Willow Grove, measured levels of education for residents age 25 and older are driven up, in a sense, by the local housing costs. More expensive and affluent communities see higher education levels, especially when such a significant portion of its workforce is employed through various professional services. Only 9.5% of Horsham/Willow Grove's residents are without the minimum of a high school level education, a figure which is 10.1% better than that of the nation. In addition, 36.6% of Horsham/Willow Grove residents have completed an advanced degree. This represents a 3.1% increase from that seen in the MSA, an 8.3% increase from that of the state of Pennsylvania and a 5.9% increase from that of the nation.

Figures 3-7, 3-8, 3-9 and 3-10 illustrate the levels of educational attainment for Horsham/Willow Grove, the MSA, state of Pennsylvania and the nation as a whole. Note that all statistics are based upon the 2000 Census of Population and Housing conducted by the U.S. Census Bureau.

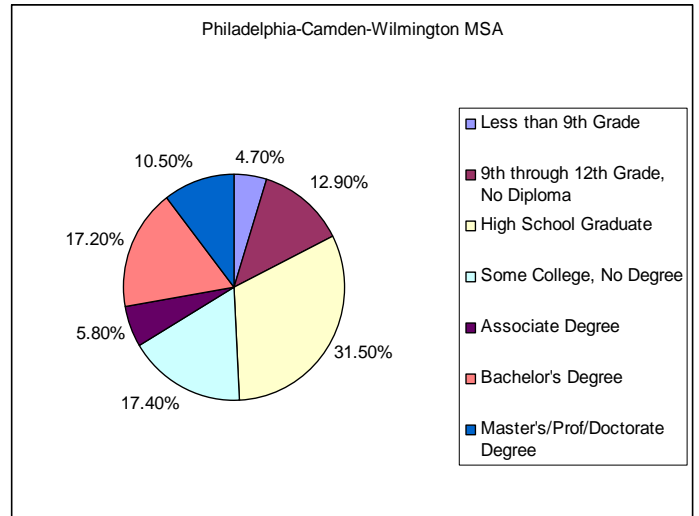


Figure 3-7 Chart of Horsham/Willow Grove Educational Attainment



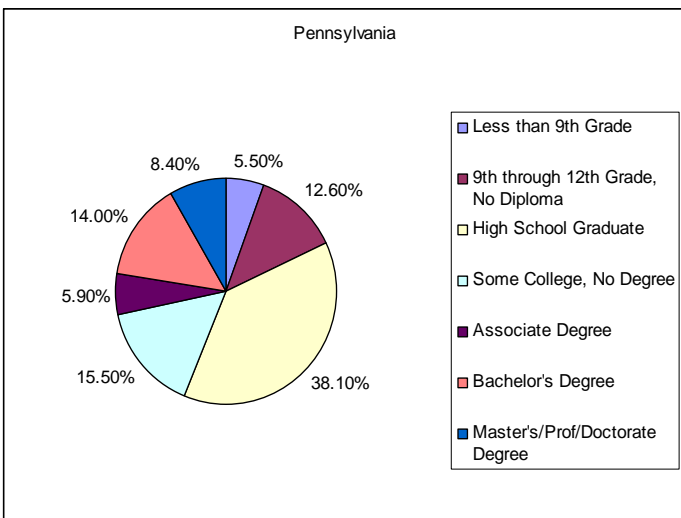
Source: U.S. Census Bureau, 2000

Figure 3-8 Chart of MSA Educational Attainment



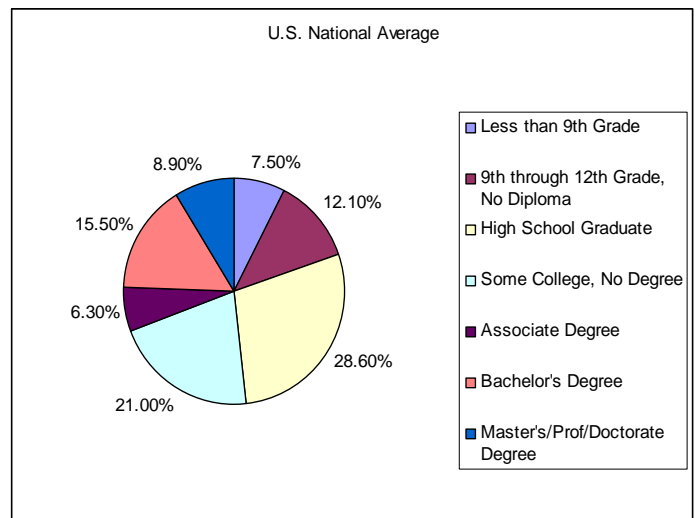
Source: U.S. Census Bureau, 2000

Figure 3-9 Chart of Pennsylvania Educational Attainment



Source: U.S. Census Bureau, 2000

Figure 3-10 Chart of U.S. Educational Attainment



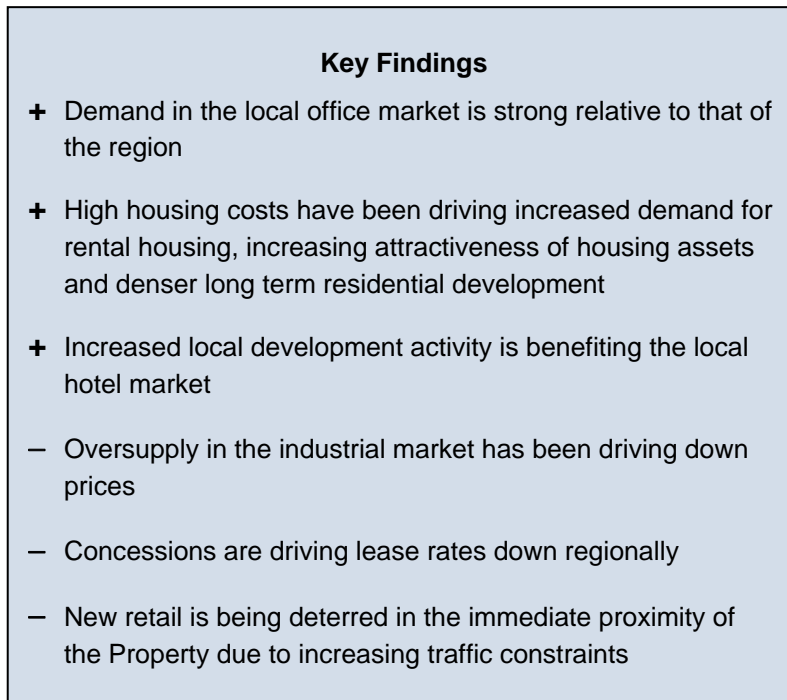
Source: U.S. Census Bureau, 2000

## Section 4. Market Review

### 4.1 Introduction

Through our efforts to offer a comprehensive analysis of the redevelopment potential of NAS JRB Willow Grove, a number of real estate factors were reviewed including industry profiles, location characteristics and the competitive marketplace surrounding the Property. Figure 4-1 highlights the key findings from this detailed market review as they pertain to the Property.

**Figure 4-1 Key Findings of Market Review**



Lands adjacent to and surrounding the Property serve a mixture of retail, commercial, residential and recreational purposes (see Appendix B for further detail). Although Horsham/Willow Grove only occupies approximately 17.5 square miles, its market composition is diverse and includes office parks, light industry and manufacturing, country clubs and golf courses and scattered retail and residential tracts.

Neighboring lower Bucks County, which is home to the Jacksonville Road and Shenandoah Woods housing areas, is similarly diverse with respect to representation from the different real estate sectors. Both areas, which are approximately two miles apart from one another, are bordered by newer residential development.

## 4.2 Real Estate Markets

The Philadelphia real estate market is one of the largest and most diverse in the nation. The surveyed Philadelphia Market includes Philadelphia County and the suburban counties of Bucks, Montgomery, Chester and Delaware in Pennsylvania and Burlington, Camden and Gloucester in southern New Jersey. Due to the large size and scale of this market, and Horsham/Willow Grove's small role within it, further analysis into pertinent geographic submarkets will be made where appropriate.

### 4.2.1 Industrial Market

#### *Philadelphia Market*

The industrial market within the Philadelphia Market has improved slowly but steadily over the last year, with healthy net absorption being driven by the central city. Net absorption within the entire market was estimated at a positive 10,861,451 square feet in 2005 according to CoStar Group, a leading information entity providing comprehensive market research for commercial real estate throughout the U.S. The majority of this positive absorption has been concentrated in the warehouse submarket, where vacancy rates dropped by nearly 0.9% over the past year, to finish the fourth quarter of 2005 at 11.2% in spite of over 3.6 million square feet of new inventory delivered over the same time frame. In spite of substantial positive net absorption, total vacancy rate for the entire Philadelphia industrial market continues to be 11.5% across all industrial classes through the fourth quarter of 2005.

Of the nearly 710 million square feet of industrial inventory in the Philadelphia Market, more than 638 million square feet is found in the warehouse submarket. According to the Society of Industrial Realtors, the new construction market is being dominated by build-to-suit projects that are much more feasible in the regional submarkets away from the central city of Philadelphia. Rising interest rates should continue to drive lease rates upwards through 2006, especially in the suburban markets where the demand for good warehouse and distribution space is still high.

Tables 4-1, 4-2 and 4-3 illustrate the relative performance of the many submarkets for flex and warehouse space relative to the larger Philadelphia Market. Note that the Property falls into the East Montgomery County Ind submarket.

#### *East Montgomery County*

In its detailed quarterly reports, the CoStar Group has divided the large Philadelphia industrial market into submarkets. Horsham/Willow Grove lies within the East Montgomery County submarket and will be referenced in the following analysis.

At the close of 2005, the East Montgomery County industrial submarket represented nearly 49 million square feet of inventory, 77.6% of which is warehouse space. Area vacancy rates were at par with the rest of the Philadelphia suburban submarkets at 11.6%, a figure which is only slightly higher than total market average of 11.5%. Average quoted lease rates for industrial space across all classes within East Montgomery County was \$6.84 per square foot; a figure which is \$1.55 higher than the market as a whole and indicative of the higher quality space, particularly

warehouse space, in the East Montgomery County submarket relative to the total Philadelphia Market.

Table 4-1 Flex Market Statistics 2005  
FLEX MARKET STATISTICS

Year-End 2005

Market	Existing Inventory		Vacancy			YTD Net	YTD	Under	Quoted
	# Bldgs	Total RBA	Direct SF	Total SF	Vac %	Absorption	Deliveries	Const SF	Rates
Berks Ind	72	3,458,422	945,600	973,758	28.2%	(655,018)	0	0	\$6.73
Bucks Ind	158	5,653,077	648,397	648,397	11.5%	559,101	119,015	277,300	\$9.87
Burlington Ind	164	6,161,442	701,047	767,844	12.5%	78,161	0	0	\$8.60
Camden County Ind	193	4,578,556	259,202	259,202	5.7%	347,008	0	0	\$8.19
Center City Ind	1	36,000	0	0	0.0%	0	0	0	\$0.00
Central Pennsylvania Ind	211	6,673,749	1,093,049	1,117,882	16.8%	(301,208)	0	67,500	\$7.85
Chester Ind	250	8,765,019	959,319	1,052,684	12.0%	34,726	20,000	150,000	\$9.42
Delaware County Ind	195	6,344,862	1,464,669	1,499,272	23.6%	(465,869)	20,500	9,000	\$8.77
East Montgomery Cty Ind	280	10,986,229	1,850,942	2,005,059	18.3%	296,895	0	0	\$9.61
Gloucester County Ind	48	1,410,414	185,132	185,132	13.1%	8,153	0	0	\$10.53
Greater Northeast Ind	20	801,535	35,438	35,438	4.4%	173,937	17,407	30,600	\$5.01
I-81 Corridor Ind	28	1,041,582	94,665	94,665	9.1%	30,079	0	0	\$5.57
Kensington Ind	8	106,394	0	0	0.0%	(238,000)	0	0	\$3.13
Lehigh Valley Ind	148	5,515,205	684,400	699,800	12.7%	155,053	68,485	0	\$8.48
Lower North Philly Ind	38	1,833,126	219,613	219,613	12.0%	877,810	1,500	0	\$27.02
New Castle County Ind	70	2,376,044	209,083	209,083	8.8%	211,565	80,000	0	\$6.46
Northeast Philly Ind	6	97,018	4,800	4,800	4.9%	0	0	0	\$0.00
Northwest Philly Ind	14	269,835	30,000	30,000	11.1%	6,900	0	0	\$8.27
Southern New Jersey Ind	38	1,281,943	145,157	145,157	11.3%	34,875	0	0	\$16.00
Southwest Philly Ind	19	476,195	30,900	30,900	6.5%	46,000	0	0	\$15.61
Sussex County Ind	3	47,921	0	0	0.0%	0	0	0	\$0.00
West Montgomery Cty Ind	49	2,384,828	239,628	239,628	10.0%	118,560	135,100	18,000	\$6.29
Wilmington Ind	38	696,222	34,160	34,160	4.9%	42,770	0	0	\$11.55
<b>Totals</b>	<b>2,051</b>	<b>70,995,618</b>	<b>9,835,201</b>	<b>10,252,474</b>	<b>14.4%</b>	<b>1,361,498</b>	<b>462,007</b>	<b>552,400</b>	<b>\$11.08</b>

Source: CoStar Property 2005

Table 4-2 Warehouse Market Statistics 2005  
WAREHOUSE MARKET STATISTICS

Year-End 2005

Market	Existing Inventory		Vacancy			YTD Net	YTD	Under	Quoted
	# Bldgs	Total RBA	Direct SF	Total SF	Vac %	Absorption	Deliveries	Const SF	Rates
Berks Ind	192	12,581,434	2,010,288	2,025,288	16.1%	1,993,296	0	0	\$2.99
Bucks Ind	1,079	49,127,559	4,772,921	4,772,921	9.7%	1,175,832	100,000	1,194,360	\$4.02
Burlington Ind	469	30,807,788	2,761,147	2,821,747	9.2%	263,894	0	150,000	\$4.31
Camden County Ind	725	33,662,398	2,967,404	3,024,225	9.0%	205,129	84,777	0	\$4.15
Center City Ind	42	1,983,201	220,268	220,268	11.1%	(66,676)	0	0	\$5.07
Central Pennsylvania Ind	1,765	177,137,440	12,967,534	13,687,346	7.7%	1,642,894	1,026,134	1,760,000	\$3.86
Chester Ind	391	20,006,953	1,988,072	2,018,072	10.1%	71,973	75,094	43,664	\$5.84
Delaware County Ind	407	25,682,199	2,369,420	2,369,420	9.2%	162,774	77,266	0	\$4.97
East Montgomery Cty Ind	719	37,981,478	3,437,316	3,696,245	9.7%	117,907	74,537	72,115	\$5.60
Gloucester County Ind	330	24,114,491	2,249,422	2,364,803	9.8%	821,934	0	0	\$4.32
Greater Northeast Ind	235	17,333,306	785,165	785,165	4.5%	514,540	0	0	\$5.15
I-81 Corridor Ind	249	21,904,992	4,463,580	4,563,580	20.8%	883,458	0	173,500	\$3.56
Kensington Ind	333	20,028,716	1,476,326	1,546,326	7.7%	(119,376)	0	0	\$3.68
Lehigh Valley Ind	531	46,267,757	6,317,729	6,317,729	13.7%	1,859,359	1,943,323	1,626,500	\$4.67
Lower North Philly Ind	469	27,345,438	5,452,536	5,452,536	19.9%	335,651	0	0	\$9.08
New Castle County Ind	294	17,901,255	1,903,677	2,115,325	11.8%	345,687	0	0	\$4.35
Northeast Philly Ind	238	12,132,205	2,263,564	2,263,564	18.7%	148,856	0	0	\$2.33
Northwest Philly Ind	94	6,021,265	360,820	360,820	6.0%	24,200	0	0	\$1.98
Southern New Jersey Ind	143	7,775,780	1,388,668	1,388,668	17.9%	136,239	61,700	0	\$5.05
Southwest Philly Ind	326	22,365,201	4,129,151	4,154,151	18.6%	(572,062)	215,000	0	\$4.90
Sussex County Ind	26	1,640,437	349,898	349,898	21.3%	(133,500)	0	0	\$3.33
West Montgomery Cty Ind	276	19,468,580	4,005,470	4,005,470	20.6%	(435,067)	0	184,000	\$3.65
Wilmington Ind	144	5,011,466	1,075,448	1,075,448	21.5%	123,011	0	0	\$3.67
<b>Totals</b>	<b>9,477</b>	<b>638,281,339</b>	<b>69,715,824</b>	<b>71,379,015</b>	<b>11.2%</b>	<b>9,499,953</b>	<b>3,657,831</b>	<b>5,204,139</b>	<b>\$4.52</b>

Source: CoStar Property 2005

Table 4-3 Total Industrial Market Statistics 2005

TOTAL INDUSTRIAL MARKET STATISTICS

Year-End 2005

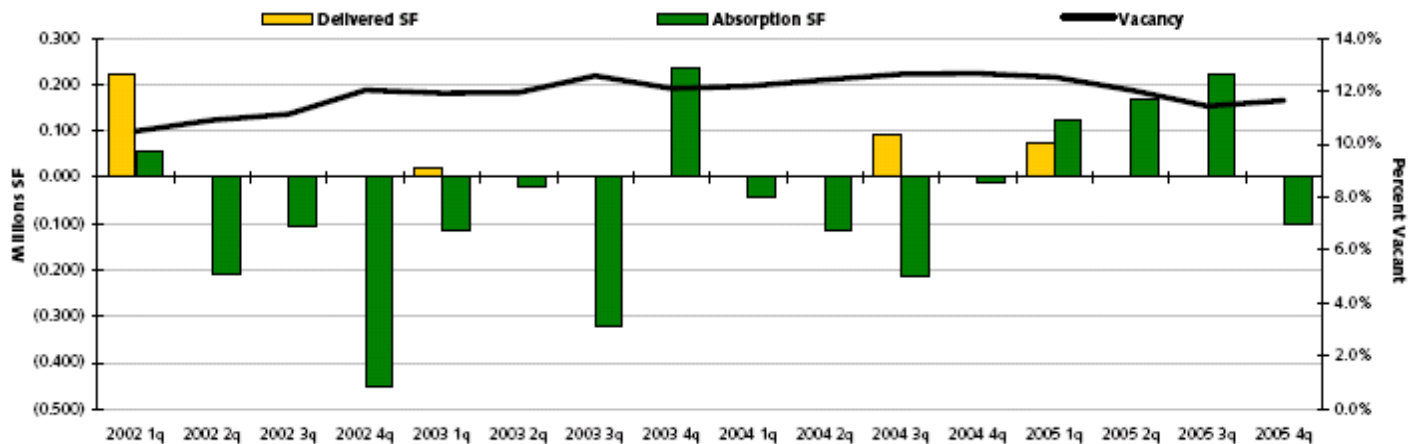
Market	Existing Inventory		Vacancy			YTD Net Absorption	YTD Deliveries	Under Const SF	Quoted Rates
	# Bldgs	Total RBA	Direct SF	Total SF	Vac %				
Berks Ind	264	16,039,856	2,955,888	2,999,046	18.7%	1,338,278	0	0	\$3.11
Bucks Ind	1,237	54,780,636	5,421,318	5,421,318	9.9%	1,734,933	219,015	1,471,660	\$4.77
Burlington Ind	633	36,969,230	3,462,194	3,589,591	9.7%	342,055	0	150,000	\$5.39
Camden County Ind	918	38,240,954	3,226,606	3,283,427	8.6%	552,137	84,777	0	\$4.43
Center City Ind	43	2,019,201	220,268	220,268	10.9%	(66,676)	0	0	\$5.07
Central Pennsylvania Ind	1,976	183,811,189	14,060,583	14,805,228	8.1%	1,341,686	1,026,134	1,827,500	\$4.06
Chester Ind	641	28,771,972	2,947,391	3,070,756	10.7%	106,699	95,094	193,664	\$7.38
Delaware County Ind	602	32,027,061	3,834,089	3,868,692	12.1%	(303,095)	97,766	9,000	\$5.85
East Montgomery Cty Ind	999	48,967,707	5,288,258	5,701,304	11.6%	414,802	74,537	72,115	\$6.84
Gloucester County Ind	378	25,524,905	2,434,554	2,549,935	10.0%	830,087	0	0	\$4.46
Greater Northeast Ind	255	18,134,841	820,603	820,603	4.5%	688,477	17,407	30,600	\$5.14
I-81 Corridor Ind	277	22,946,574	4,558,245	4,658,245	20.3%	913,537	0	173,500	\$3.60
Kensington Ind	341	20,135,110	1,476,326	1,546,326	7.7%	(357,376)	0	0	\$3.67
Lehigh Valley Ind	679	51,782,962	7,002,129	7,017,529	13.6%	2,014,412	2,011,808	1,626,500	\$5.16
Lower North Philly Ind	507	29,178,564	5,672,149	5,672,149	19.4%	1,213,461	1,500	0	\$12.15
New Castle County Ind	364	20,277,299	2,112,760	2,324,408	11.5%	557,252	80,000	0	\$4.58
Northeast Philly Ind	244	12,229,223	2,268,364	2,268,364	18.5%	148,856	0	0	\$2.33
Northwest Philly Ind	108	6,291,100	390,820	390,820	6.2%	31,100	0	0	\$2.36
Southern New Jersey Ind	181	9,057,723	1,533,825	1,533,825	16.9%	171,114	61,700	0	\$5.53
Southwest Philly Ind	345	22,841,396	4,160,051	4,185,051	18.3%	(526,062)	215,000	0	\$5.12
Sussex County Ind	29	1,688,358	349,898	349,898	20.7%	(133,500)	0	0	\$3.33
West Montgomery Cty Ind	325	21,853,408	4,245,098	4,245,098	19.4%	(316,507)	135,100	202,000	\$3.95
Wilmington Ind	182	5,707,688	1,109,608	1,109,608	19.4%	165,781	0	0	\$3.94
<b>Totals</b>	<b>11,528</b>	<b>709,276,957</b>	<b>79,551,025</b>	<b>81,631,489</b>	<b>11.5%</b>	<b>10,861,451</b>	<b>4,119,838</b>	<b>5,756,539</b>	<b>\$5.29</b>

Source: CoStar Property 2005

Figure 4-2 illustrates trends in new construction, absorption and vacancy rates within the East Montgomery County submarket over the last four years.

Figure 4-2 Industrial Market Deliveries, Absorption and Vacancy 2005

DELIVERIES, ABSORPTION & VACANCY Historical Analysis, Flex and Warehouse



Source: CoStar Property 2005

New construction in the East Montgomery County market has been limited in recent years. In spite of the delivery of nearly 75,000 square feet of new industrial space in the first quarter of 2005, with an additional 72,000 square feet currently under



construction, net absorption was a positive 414,802 square feet over the course of 2005. However, the submarket did realize nearly 100,000 square feet of negative net absorption in the fourth quarter of 2005. This is indicative of an industrial market which has been cooling off. Positive absorption in this submarket has been achieved at the sacrifice of lease rates which have declined over the past year. From a potential tenant perspective, declining lease rates, the space afforded by being outside of the center city of Philadelphia and the proximity to the PA Turnpike all continue to make this submarket attractive for industrial users.

#### **4.2.2 Office Market**

##### *Philadelphia Market*

Office market trends in the Philadelphia Market reflect the negative migration trends out of the city to more affordable markets mentioned in Section 2 of this report. Through the close of 2005, Class A net absorption inside the central business district (CBD) was nearly 176,000 square feet compared to the nearly 2.8 million square feet in the suburban markets. This discrepancy is similarly illustrated in the Class B market. However, vacancy rates are considerably higher outside of the CBD for both Class A and B space. This is a direct result of the steady delivery of new inventory in the suburban submarkets as migration continues to occur from the central city.

As defined by the Building Owners and Managers Association, an independent, tax-exempt research and educational foundation dedicated to advancing commercial real estate analytics, "Class A" buildings are the most prestigious buildings competing for premier office users with above average rental rates for the area along with high quality standard finishes, state of the art systems, exceptional accessibility and a definite market presence. "Class B" buildings are competing for a wide range of users with rents in the average range for the area. Building finishes are fair to good for the area and the systems are adequate, but the building does not compete with Class A at the same price. By contrast, "Class C" buildings are competing for tenants requiring functional space at rents below the average for the area. Although universal, there is an element of subjectivity in the delineation of Class A, B and C space.

In response to vacancy pressures, concessions and free rental agreements designed to attract tenants have driven down regional office lease rates. Average total lease rates for office space in the Philadelphia Market across all classes have fallen to approximately \$20.89 per square foot, down from \$22.18 in 2001. High demand and a relatively slim supply of quality Class A space outside of the CBD have moderated falling lease rates in the suburban markets for this class. However, with over 1.2 million square feet of Class A space currently under construction outside of the CBD, lease rates are expected to fall as inventories continue to climb.

Office market statistics for the Philadelphia Market at the closing of 2005 are further illustrated in the Tables 4-4, 4-5 and 4-6, broken down by Class A, Class B and Total Office statistics for the CBD and those submarkets falling outside of the central city (Suburban).

Table 4-4 Class A Market Statistics 2005

## CLASS A MARKET STATISTICS

Year-End 2005

Market	Existing Inventory		Vacancy			YTD Net	YTD	Under	Quoted
	# Bldgs	Total RBA	Direct SF	Total SF	Vac %	Absorption	Deliveries	Const SF	Rates
CBD	57	32,483,974	2,885,161	3,393,455	10.4%	175,786	0	1,238,000	\$23.32
Suburban	910	81,073,811	11,760,041	12,667,244	15.6%	2,792,795	1,818,987	2,291,635	\$23.56
<b>Totals</b>	<b>967</b>	<b>113,557,785</b>	<b>14,645,202</b>	<b>16,060,699</b>	<b>14.1%</b>	<b>2,968,581</b>	<b>1,818,987</b>	<b>3,529,635</b>	<b>\$23.50</b>

Source: CoStar Property 2005

Table 4-5 Class B Market Statistics 2005

## CLASS B MARKET STATISTICS

Year-End 2005

Market	Existing Inventory		Vacancy			YTD Net	YTD	Under	Quoted
	# Bldgs	Total RBA	Direct SF	Total SF	Vac %	Absorption	Deliveries	Const SF	Rates
CBD	175	14,432,010	1,203,368	1,255,398	8.7%	53,036	0	0	\$20.17
Suburban	3,217	86,922,297	12,759,922	13,551,381	15.6%	1,249,168	390,149	556,532	\$18.81
<b>Totals</b>	<b>3,392</b>	<b>101,354,307</b>	<b>13,963,290</b>	<b>14,806,779</b>	<b>14.6%</b>	<b>1,302,204</b>	<b>390,149</b>	<b>556,532</b>	<b>\$18.95</b>

Source: CoStar Property 2005

Table 4-6 Total Office Market Statistics 2005

## TOTAL OFFICE MARKET STATISTICS

Year-End 2005

Market	Existing Inventory		Vacancy			YTD Net	YTD	Under	Quoted
	# Bldgs	Total RBA	Direct SF	Total SF	Vac %	Absorption	Deliveries	Const SF	Rates
CBD	489	53,844,383	4,625,939	5,198,293	9.7%	314,545	0	1,238,000	\$21.99
Suburban	8,265	221,497,446	30,804,079	32,614,116	14.7%	4,117,162	2,221,136	2,848,167	\$20.68
<b>Totals</b>	<b>8,754</b>	<b>275,341,829</b>	<b>35,430,018</b>	<b>37,812,409</b>	<b>13.7%</b>	<b>4,431,707</b>	<b>2,221,136</b>	<b>4,086,167</b>	<b>\$20.89</b>

Source: CoStar Property 2005

### Suburban Philadelphia

For the purposes of analyzing the office submarket, CoStar Group, Inc. divided the Philadelphia market. Horsham/Willow Grove lies within the northern boundary of the suburban Philadelphia submarket, which is located immediately northwest of the Philadelphia CBD. This submarket will be referenced for the following analysis.

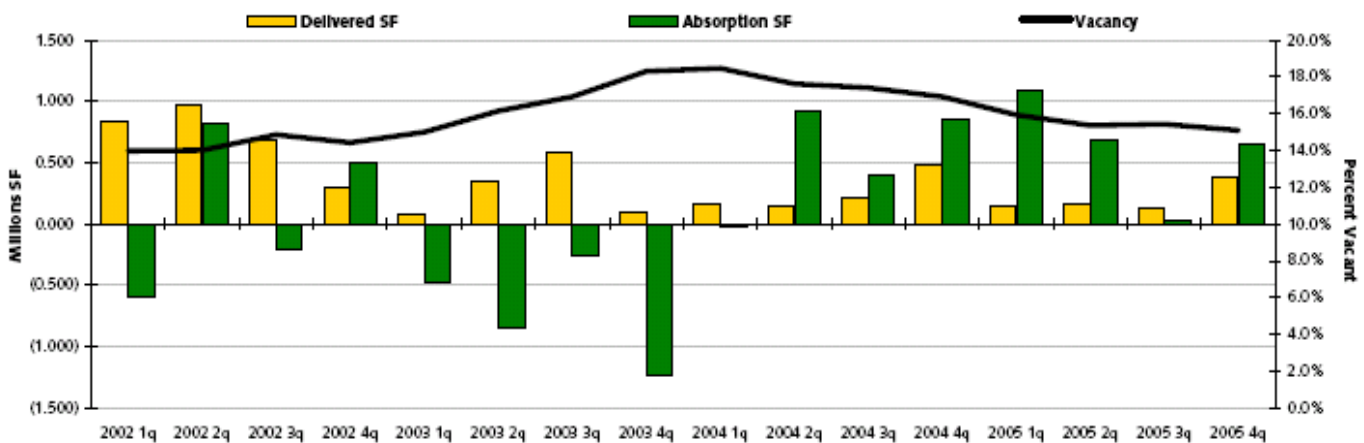
Note that the Suburban Philadelphia submarket differs geographically from the suburban statistics provided in the aforementioned Philadelphia Market review which delineated the CBD from the rest of the overall office market.

The demand for high quality office space outside of the Philadelphia CBD is resulting in increased activity in the Suburban Philadelphia submarket where over 1.3 million square feet of total new office space is currently under construction. Net absorption through the end of 2005 was close to over 2.4 million square feet, as vacancy rates have steadily declined since the end of 2003. Total vacancy rate in the Suburban Philadelphia submarket was 15.1% at the close of 2005 which, although higher than the larger market average, represents a 3.2% improvement from the end of 2003. Average lease rates in the Suburban Philadelphia submarket are currently \$22.83 per square foot which, although \$1.88 lower than they were in the beginning of 2002, are still the highest within the total market.

Figure 4-3 illustrates the trends in deliveries, net absorption and vacancy rates within the Suburban Philadelphia submarket over the past four years.

Figure 4-3 Office Market Deliveries, Absorption and Vacancy 2005

DELIVERIES, ABSORPTION & VACANCY Historical Analysis, All Classes



Source: CoStar Property 2005

Absorption rates in the Suburban Philadelphia submarket steadily trended downward over the first three quarters of 2005 as a result of continued new construction only to bounce back in the fourth quarter to finish 2005 at nearly 660,000 positive net square feet. Consequently, vacancy rates have been driven down over the same time frame; declining 0.8% over the course of 2005. Demand in the market is expected to remain high as migration out of the city of Philadelphia continues. However, concessions to attract tenants and steady new construction activity will continue to apply downward pressure on lease rates in the short term.

*Horsham/Willow Grove*

Horsham/Willow Grove contributes just over 11.3 million square feet of total office space to the more than 275 million square feet of inventory in the Philadelphia Market, 47.8% of which is Class A. Average quoted lease rates in the area were \$19.59 per

square foot at the end of 2005; a figure which was slightly lower than the total market and Suburban Philadelphia averages.

However, demand for office space in Horsham/Willow Grove is strong relative to the greater Philadelphia Market and neighboring suburban submarkets. Total vacancy rates were 5.5% lower than those of the Suburban Philadelphia submarket at the close of 2005. This drove net absorption to over 204,000 square feet through 2005, indicating a strong demand relative to the regional marketplace.

#### *Commonwealth Corporate Center*

The Commonwealth Corporate Center sits adjacent to the Property on the southwest. This office park currently contains four buildings of approximately 100,000 square feet, each constructed within the last 15 years. Currently, large corporate tenants such as Motorola, Bank of America and Centercorp occupy office space here. Lease rates for this Class A space vary between \$19 and \$21 per square foot. Discussions with Horsham Township officials indicate plans to construct two new similarly sized office facilities on the campus.

### **4.2.3 Retail Market**

#### *Northern Suburban Philadelphia*

Retail development in the Northern Suburban Philadelphia region has steadily grown in recent years as a result of increasing residential and office development. The suburbs to the north and west of Philadelphia are renowned for their retail density and options. Large shopping mall developments are particularly prevalent in these submarkets. The Property and Horsham/Willow Grove are located immediately north of the majority of these developments with good access via area highway and public transportation networks.

#### *Willow Grove Park Mall*

- Located approximately five miles south of the Property
- Direct service from the Property via SEPTA Metrobus
- Three stories containing over 130 retailers
- Mid to upper mid-scale retailers including Macy's, Sears and Bloomingdale's

#### *Plymouth Meeting Mall*

- Located approximately 12 miles west of the Property
- Direct service from the Property via SEPTA Metrobus exchange at Willow Grove Park Mall transit hub
- Two stories containing over 110 retailers and a 12 screen movie theater
- Mid-scale retailers including Boscov's and Strawbridge's

*King of Prussia Mall*

- Located approximately 16 miles west of the Property
- Direct service from the Property via SEPTA Metrobus exchange at Willow Grove Park Mall transit hub
- Four stories in two buildings containing over 400 retailers
- Upper-mid to upscale retailers including Macy's, Bloomingdale's, Lord & Taylor and Neiman Marcus

*Horsham/Willow Grove*

Big box retail such as Target, Best Buy, Wal-Mart and Lowe's Home Improvement can be found near the Property in the boroughs of Horsham Township, Warrington and Warminster. Although traffic congestion along Route 611, which provides frontage to the Property, has grown increasingly worse in recent years, large scale retail development can be found in Horsham/Willow Grove alongside the Pennsylvania Turnpike. However, to combat increasing space constraints and to alleviate existing traffic patterns, much of the new large-scale retail development is turning to other areas such as neighboring Bucks County in Warminster to the northeast and Plymouth Meeting to the west.

Retail lease rates in Horsham/Willow Grove vary a great deal depending on the age of the facility. Smaller retail centers near the Property are 25 to 50 years in age and lack the visibility, accessibility and parking inventories necessary to drive lease rates to match those of new regional development. Surveys taken from local developers indicate that the older retail outlets, which are typical of those found near the Property, are currently leasing between \$1.25 and \$1.50 per square foot. In contrast, the new movie theater and mixed retail development located immediately north of the Property is currently leasing between \$2.25 and \$2.50 per square foot.

Given the fact that retail developers prefer to cluster development close to one another, retail development opportunities on the Property may be limited to small lots alongside Route 611. Although there is a sizable complex developing north of the Property, it is buffered by residential development and 80 acres of open space with commercial zoning. This limits expansive retail development potential in the short term due to access and visibility issues. Long term retail desirability north of the Property will largely be influenced by the development of this open land, adjacent roadways to increase access and visibility, and the ability to develop public utilities.

#### **4.2.4 Hotel Market**

The hotel market in the city of Philadelphia differs greatly compared to the suburban submarkets, particularly as it pertains to metrics such as average daily rate and revenue per available room (RevPAR). To analyze the hotel market relevant to the Property, Northern Suburban Philadelphia submarket statistics from Smith Travel Research, an information entity specializing in providing comprehensive research for the hotel and lodging industry, were used. The Northern Suburban Philadelphia submarket represents the upper half of the Suburban Philadelphia submarket and is generally



bounded by the Pennsylvania Turnpike to the south and Interstate 476 to the west. It includes, among others, the communities of Plymouth Meeting and Pottstown to the south as well as Horsham/Willow Grove and Quakertown to the north.

The hotel inventory in the Northern Suburban submarket is comprised of 73 properties with a total of 5,109 rooms. Horsham/Willow Grove is home to ten of these hotels and 1,300 rooms which are clustered near each other, adjacent to the intersection of Route 611 and the Pennsylvania Turnpike. Hotels in Horsham/Willow Grove, much like the rest of the Northern Suburban Philadelphia submarket, are primarily economy and mid-scale chains that cater to the business traveler.

Occupancy rates within the Northern Suburban submarket averaged 66.8% over the past five years, which is approximately 6.3% higher than the national average. Occupancy has steadily increased since 2002, climbing to a five-year high in August of 2005. This can be attributed to the growing business sector in the suburbs surrounding Philadelphia and its subsequent lodging needs. New hotel construction in the Northern Suburban submarket has been limited enough over the same time period to avoid the potential disruption of positive occupancy trends.

Although limited, new hotel construction has not been stagnant over the past five years. Total supply in the Northern Suburban submarket has grown 20% since 2001, peaking at 1.8 million hotel nights in 2004. However, the bulk of this new supply (12.7%) was created in 2002. Since then, available hotel nights have grown steadily to match the pace of demand in the submarket.

Total revenues for the Northern Suburban submarket have also grown steadily since 2002, culminating at just over \$106 million in 2004. This, along with the similarly positive growth in occupancy, has translated into revenues per room available (RevPAR) which are currently \$6 higher than the national average. RevPAR is a common hotel metric that evaluates revenue per room available by dividing total revenue generated by room supply. The shock of inventory to the market in 2002 resulted in the only year of decreasing RevPAR in the past five, as prices in the market dropped as a result of short-term oversupply. Trends are expected to continue positively as the Northern Suburban submarket gains new residents and businesses relocating from the city of Philadelphia.

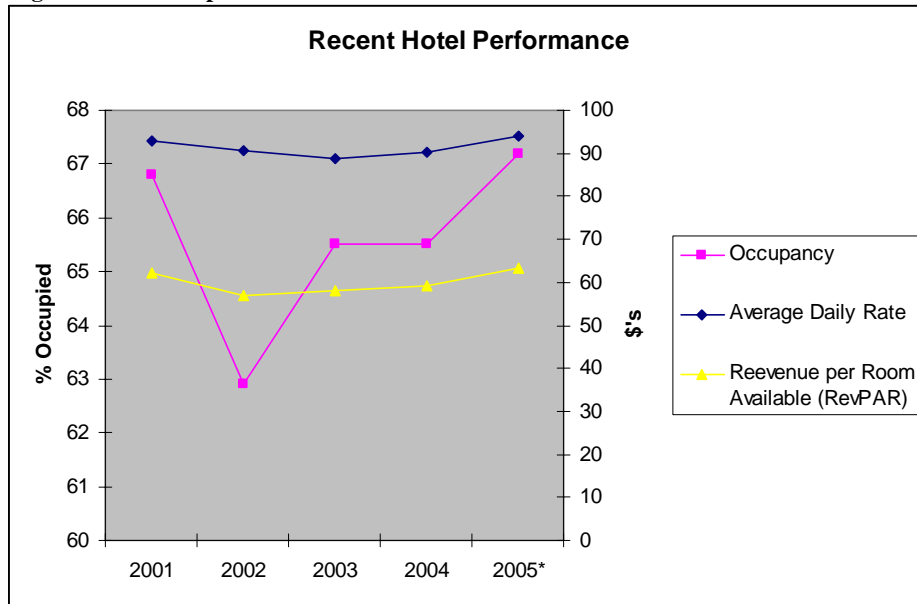
Table 4-7 and subsequent Figure 4-4 summarize the performance of the Northern Suburban submarket over the past five years with respect to occupancy, average daily rate and RevPAR. Note that year-to-date 2005 values are based on data available through the month of August 2005.

**Table 4-7 Philadelphia Northern Suburban - Key Hotel Market Indicators**

Year	Occupancy		Average Daily Rate		Revenue Per Available Room (RevPAR)	
	Overall Percentage	Percentage Change	\$	Percentage Change	\$	Percentage Change
2001	66.8	-	92.97	-	62.14	-
2002	62.9	- 5.8	90.57	- 2.6	56.94	- 8.4
2003	65.5	4.1	88.80	- 1.9	58.18	2.2
2004	65.5	0.0	90.44	1.8	59.24	1.8
2005*	67.2	2.6	93.93	3.9	63.12	6.5

Source: Smith Travel Research \*Note: 2005 only through August.

**Figure 4-4 Philadelphia Northern Suburban Hotel Market Performance**



Source: Smith Travel Research \*Note: 2005 only through August.

#### 4.2.5 Residential For-Sale Market

##### Montgomery County

Horsham/Willow Grove lies in the northern most region of Montgomery County which, according to the Montgomery County Planning Commission, is the wealthiest in the state of Pennsylvania. Due to the combined factors of the high area incomes with the space constraints caused by the proximity to Philadelphia and relative lack of undeveloped lands, median home values have risen dramatically over the past five years. Although Horsham/Willow Grove home values are slightly lower than those of

the county as a whole, its residential growth and demand trends are very similar and are indicative of a strong residential market.

2005 estimates from ESRI indicate that there are 311,111 total housing units in Montgomery County. This represents an approximate 1.0% average annual growth in housing over the past five years. Of these units, 71.6% are owned and 24.8% are rented. In addition, residential vacancy rates within the county are approximately 3.8%, a value much lower than the national average of 9.6%.

*Horsham/Willow Grove*

There are currently an estimated 12,661 housing units within the Horsham/Willow Grove submarket, representing an average annual growth of 1.2% in total residential inventory over the past five years. Of these units, 68.7% are owned and 29.0% are rented, with residential vacancy rates of approximately 2.4%. These low vacancies relative to the county are indicative of the strong residential housing demand of the submarket.

Development in recent years has resulted in less available quality land for new residential construction. This, when coupled with housing costs that are rising at a higher rate than the region, has resulted in a decrease in the rate of new construction activity over the past five years. As home prices continue to escalate in Horsham/Willow Grove to the point that some middle and lower income residents are being displaced, local planning agencies and officials are directing their efforts towards more clustered residential development. This will include more townhouse and condominium-type development which may apply to reuse plans on the Property.

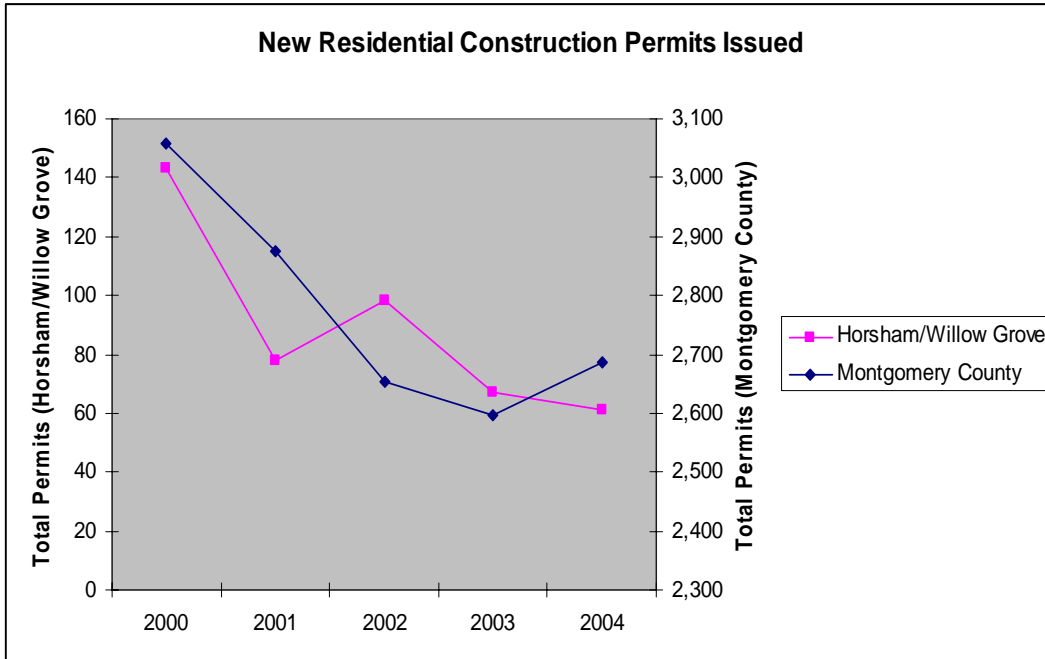
Table 4-8 summarizes new construction activity as a function of construction permits issued for Horsham/Willow Grove as well as the surrounding geographies of interest. Additionally, Figure 4-5 illustrates the trend in new construction activity from 2000 to 2004 for Horsham/Willow Grove relative to Montgomery County.

**Table 4-8 New Residential Construction Permits Issued**

	2000	2001	2002	2003	2004	Total
Horsham/Willow Grove	143	78	98	67	61	447
Montgomery County	3,058	2,874	2,653	2,598	2,687	13,870
Bucks County	2,678	2,171	2,815	3,215	2,560	13,439
Philadelphia MSA	16,421	15,040	15,752	17,582	17,996	82,791

Source: U.S. Census Bureau 2005

Figure 4-5 New Residential Construction Permits Trend



Source: U.S. Census Bureau 2005

#### 4.2.6 Apartment Rental Market

According to the U.S. Census Bureau, there were approximately 3,902 rental units in Horsham/Willow Grove in 2000, 3.8% of which were vacant. Rising home prices and the lack of affordable new construction in the buyer’s market has driven the demand for rental housing within the submarket in recent years. As a result, residential rents have risen at a greater rate than both state and national averages over the past five years, up \$154 from 2000 rates to approximately \$1,016 in 2005.

There will be few possibilities to reuse the BEQ, Barracks and BOQ facilities on the Property as rental property given their condition and communal living design. However, privatization of the Shenandoah Woods housing enclave may accommodate the growing area need for affordable rental housing as low vacancies and increasing costs in the for-sale market drive demand.

**Appendix A:  
NAS JRB Site  
Improvement List**

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Figure A-1 NAS JRB Site Improvement List appears on the following pages.



Appendix A

**NAS JRB Willow Grove, PA - Site Improvement List**

Facility Number	Facility Name	Facility Use	Area (Square Feet)
	Base Directory	Misc	
	Base Monuments - Base Signs	Misc	
	Main Gate Billboard/Marquee	Misc	
	Aircraft Mooring Display	Misc	
	Billboard Markers	Misc	
	Approach Light R/W33 South	Misc	
	Fit Trail	Misc	
	Transformer for Bldg 615	Industrial	
	Transformer for Bldg 616	Industrial	
	Interior Fence for Bldg 616	Misc	
	Interior Fence at Fuel Farm	Misc	
	Interior Fence at MABS	Misc	
	Interior Fence at PW Compound	Misc	
	Interior Fence at PW Disp	Misc	
	Interior Fence at Pool	Misc	
	Int Fence at RESASWTRACEN	Misc	
	Interior Fence at Bunkers	Misc	
	Interior Fence at Admin Ball Field	Misc	
	Interior Fence at Bldg 3	Misc	
	Vasi Lights	Misc	
	Substation 20 - Behind HG. 20	Industrial	
	Distr Substa 15B - Near S. End	Industrial	
	Substation 6 - Near Bldg 6	Industrial	
	Interior Fencing - LOX Farm	Misc	
	Swg Ind Wst Pum Sta for B192	Industrial	
	Admin/Former Steam Plant	Admin	
	Transformer - N.E. Corner B/175	Industrial	
	Transformer - S.E. Corner B/175	Industrial	
	Lighting Army Res Trng Bldg	Misc	
	Int Fence Army Res Trng Bldg	Misc	
	Substation for A171	Misc	
	Wind Velocity Indicator	Misc	
	Morest Gear - Arresting Gear	Misc	
	Approach Lighting	Misc	
	Elec Distrib Family Housing	Industrial	
	Driveways Family Housing	Misc	18,621
	Water Distri Lines/Fam Housing	Industrial	
	Sanitary Sewer/Family Housing	Industrial	
	Substation/Family Housing	Industrial	
	Drainage Ditch	Misc	
	Street Lighting	Misc	
	Boundary Fence	Misc	
	Taxiway Lighting	Misc	
	Runway Arresting Gear - North	Misc	
	Runway Arresting Gear - South	Misc	
	Taxiway LTG R-W/15/33	Misc	
	Pipelines/Heating Oil Storage	Industrial	
	Communications Lines	Misc	
	Water Dist Sys Potable	Industrial	
	Roads Stabilized	Misc	80,793
	Airfield Aprons B-80/20	Industrial	1,145,340
	Taxiway 15/33	Industrial	1,068,750
	Parking Area Bldg 29	Misc	9,450
	Parking Area Bldg 5	Misc	38,214
	Parking Area Bldg 13	Misc	16,254
	Parking Area Bldg No 3	Misc	10,404
	Parking Area Bldg No 2	Misc	62,730
	Parking Area Bldg 29	Misc	5,535
	Parking Area Bldg 22	Misc	2,862
	Parking Area Bldg 43	Misc	33,930
	Parking Area Bldg 80	Misc	90,513
	Parking Area Bldg 6	Misc	918
	Parking Area Bldg 22	Misc	2,394
	Parking Area Bldg 43	Misc	9,423
	Parking Area 137	Misc	57,636
	Parking Areas 78	Misc	65,070

US Navy Reserves

Army

Marines

Pennsylvania Air National Guard

Facility Number	Facility Name	Facility Use	Area (Square Feet)
	Parking Area Main Gate	Misc	5,922
	Parking Area Bldg 1	Misc	22,905
	Parking Area Bldg 8	Misc	1,179
	Parking Area Barracks #6	Misc	1,197
	Parking Area Bldg 22	Misc	15,471
	Parking Area Hangar 80	Misc	2,448
	Parking Area Bldg 65	Misc	4,104
	Parking Area Bldg 118	Misc	4,428
	Parking Area Bldg 159	Misc	8,478
	Parking Area Bldg 159	Misc	4,185
	Parking Area for A171	Misc	10,620
	Parking Area for Bldg 180	Misc	11,250
	Parking Area for Bldg 175	Misc	35,748
	Parking Area to Bldg 171	Misc	67,995
	Parking Area for Bldg 192	Misc	15,570
	Housing Transformer Gate	Misc	50
	Taxiway	Misc	371,250
	Parking Apron - Aircraft	Misc	720,000
	Parking Lot for/PSD	Misc	12,285
	Taxiway 10/28 - Juliet	Misc	559,998
	Paving Fuel Farm No 2	Industrial	20,160
	Taxiway 6-24 Golf	Misc	799,992
	Mag Area Parking	Misc	61,515
	Blast Pavement	Misc	172,494
	Trailer Parking 140	Misc	6,966
	Tow Way	Misc	14,670
	Mobile Engine Run-Up Stand	Misc	4,500
	Access Apron	Misc	659,997
	Open Storage Area/Bldg 6	Misc	63,000
	Generator Pad for PAR	Misc	207
RAMPS	Aircraft Apron-Hangar 175	Misc	37,746
RUNWAY	Airfield Runway 15-33	Misc	177,777
FIRE	Fire Protect Pipeline B/180		
ELECSYS	Electric Distr Lines		
RNWYLT	Runway Lighting	Misc	
SIDEWALKS	Sidewalks	Misc	153,972
ROADS	Roads Bitumnous	Misc	1,229,895
STORM	Storm Sewage	Industrial	
SEWAGE	Sanitary Sewer	Industrial	
Gate 1	Gate 1 Mech Barrier System	Misc	20
A15	Boiler House #2 (Southend)	Industrial	1,729
B15	Electrical Voltage Plant	Industrial	374
1	Administration Building	Admin	12,828
2	Recreation Building	Admin	38,039
3	Child Care Facility	Admin	19,170
Gate 3	Gate 3 Mech Barrier System	Misc	20
5	Bachelors Officers Quarters	Living	36,225
6	Boiler House	Industrial	10,140
7	Welding Shop	Industrial	900
8	Sewage Plant Building	Industrial	1,736
13	Auto Hobby Shop	Industrial	11,687
15	Storage	Storage	1,700
21	PW Shop	Industrial	3,212
22	Warehouse	Storage	8,601
24	Pump House-Switch Room	Industrial	1,777
29	Storage-Aviation	Storage	18,071
30	Chlorinating House	Industrial	110
31A	Well House #1	Industrial	77
32A	Well House #2	Industrial	77
38	Chapel	Misc	5,000
39	Gate House (Main)	Admin	1,213
43	Information-Recruiting	Admin	2,623
49	NEX Fast Food (Subway)	Misc	1,040
54	Magazine	Storage	465
55	Magazine	Storage	465
56	Garbage House BOQ	Storage	225
63	Maintenance Warehouse	Storage	5,100
65	Training Building	Admin	5,100
68	Fire House Oil Storage	Industrial	90
70	Transformer House	Industrial	819
74	Substation	Industrial	49

Facility Number	Facility Name	Facility Use	Area (Square Feet)
75	Storage	Storage	625
78	Public Works Building	Admin	31,024
80	Aircraft Maintenance Hangar	Industrial	129,014
81	Separator House Fuel Farm 2	Industrial	540
82	Magazine	Storage	130
87	Ready Ammo Locker	Storage	132
88	Ready Ammo Locker	Storage	132
89	Flagpole	Misc	
90	Station Swimming Pool	Recreation	
94	Softball Field	Recreation	
106	Reservoir Water No 1	Storage	
107	Reservoir Water No 2	Storage	
109	Public Quarters F	Living	2,691
110	Quarters B	Living	2,543
111	Quarters C	Living	2,354
112	Quarters D	Living	2,967
113	Quarters E	Living	3,186
114	Quarters F (Command Quarters)	Living	4,882
117	Electric Switching Station	Industrial	72
117A	Substation-Near Bldg 117	Industrial	75
118	Transmitter Building	Industrial	3,240
119	Flammable Storehouse	Storage	1,824
121AW	ATM Machine - Shenandoah Woods	Misc	100
125	Antenna Poles	Misc	
126	Emergency Generator Facility	Industrial	496
127	Dispatcher building	Admin	384
128	Automotive Main Bldg/USAF	Industrial	720
129	Liquid Oxygen Transfer Building	Industrial	884
131	Detached Garage Quarters D	Living	446
133	Detached Garage Quarters F	Living	484
137	Dispensary	Misc	14,890
139	Approach Lightning Vault	Industrial	680
140	REASASWTRACEN Applied Instr.	Admin	59,260
142	Aircraft Compass Calibration Pad	Industrial	1,257
146	Equipment Shelter	Industrial	96
147	Lube Oil Storage Tank	Industrial	
159	Filling Station	Industrial	1,616
160	Bathhouse/BOQ Snack Bar	Recreation	1,290
161	Swimming Pool #2	Recreation	
165	High Explosives Magazine	Storage	1,225
166	Small Arms Magazine	Storage	1,225
167	Family Services Center	Admin	3,840
170	Hockey Court	Recreation	
171	Supply Warehouse	Storage	24,764
172	BEQ #5	Living	33,464
173	High Explosives Magazine	Storage	100
174	Enlisted Dining Club	Misc	11,290
175	Aircraft Maintenance Hangar	Industrial	107,768
175A	Line Shack A	Misc	400
175B	Line Shack B	Misc	400
179	Indoor Playing Courts	Recreation	989
180	Avionics/Engine Shop	Industrial	32,224
181	Aircraft Washrack Pavement	Industrial	20,997
182	Storage Tanks Grnd LVL Potable	Industrial	
183	Fire Pumping Station	Industrial	2,604
184	Utility Bldg	Industrial	600
188	General Storage Shed	Industrial	300
190	Electrical Distribution Shed	Industrial	144
191	Transformer/Pad/Fence 330 KV	Industrial	
192	Bowling Alley	Recreation	6,232
193	Bus Shelter - Gazebo	Misc	75
197	EM Outdoor Tennis Courts	Recreation	
198	Wading Pool (Depth 18")	Recreation	
199	Picnic Grove Shelter	Recreation	800
252	Well/Deep/No5	Misc	
264	Septic Tank	Misc	
441	Bus Shelter	Living	585
601	Reserve Training Building	Admin	18,024
603	Concrete Pad - MATCU Site	Misc	792
604	Public Works Shed	Storage	400
605	Navy Exchange Retail Store	Admin	19,200
608	Fire and Rescue Station	Industrial	12,720
609	Barracks #6	Living	31,000
610	Transformer House (Vacant)	Storage	100
611	Heat Plant Bldg (Pool)	Industrial	132
612	Heat Plant Bldg (BOQ)	Industrial	208
613	Ordnance Assembly Area	Industrial	480
615	Maintenance Support Fac Pad	Misc	6,993
616	Maint Support Fac Pad - AIMD	Misc	9,126
618	Radar Operational Fac Pad	Misc	1,120
619	Precision Approach Radar Pad	Industrial	1,593

Facility Number	Facility Name	Facility Use	Area (Square Feet)
622	Vehicle Wash Rack Bldg 7	Industrial	950
624	Transient Line Flight Shack	Storage	525
625	Concession Stand	Misc	495
626	Galley	Living	14,250
627		Misc	400
629	Outdoor Basketball Court	Recreation	5,916
637	Foam House - Fuel Farm	Industrial	
640	Salt Storage	Storage	1,620
641	Recycle Center	Storage	2,400
642	Hazardous Waste Bldg	Storage	2,400
643	Public Works Storage	Storage	2,400
644	Transportation Storage	Storage	1,500
645	Aircraft Rinse Facility	Industrial	21,375
646	Jet Engine Runup Stand	Misc	27,000
647	Southend Lift Station	Industrial	506
648	Family Housing Office	Admin	2,200
649	MWR Pavillion	Recreation	1,386
650	Haz/Flammable Material Bldg	Storage	8,364
651	Dog Kennel	Misc	1,840
652	Ground Support Equip Shed	Industrial	14,220
653	ASR II Radar (FAA Owned)	Misc	
654	Public Works Carpenter Shop	Storage	8,364
655	Dog Kennel	Misc	1,840
656	Garage Quarters B	Living	300
657	Garage Quarters E	Living	300
658	Equipment Maint Bldg.	Industrial	1,500
660	Navy Lodge	Living	36,000
661	Guard House	Admin	112
662	Guard House	Admin	64
677	Personel Support Activity	Admin	20,000
681	Pump House, Marine Hangar	Industrial	2,982
682	Water Tank - Marine Hangar	Industrial	962
683	Water Tank - Marine Hangar	Industrial	962
685	Bus Shelter (Housing)	Living	50
686	Guard House - Main Gate	Admin	49
780	Ops Passenger Terminal	Admin	19,087
A171	Supply Administration Building	Admin	6,879
176	Army Reserve Training Center	Admin	45,670
177	Maintenance Hangar Army	Industrial	18,950
178	Auto Vehicle Maint Non Comb Army	Industrial	4,583
164	MACS Admin Bldg	Admin	1,860
606	Marine General Warehouse	Storage	16,098
630	MATCS Motor Transport	Industrial	2,336
631	Communications One	Admin	640
632	Communications Two	Admin	640
633	Hazardous Waste Bldg	Storage	3,300
634	Marine Flight Line Bldg	Admin	480
635	Ground Support Equip Bldg	Industrial	10,117
636	Marine Training Building	Admin	1,000
638	Marine Training Center	Admin	27,717
639	Marine Maintenance Garage	Industrial	4,425
680	Marine Hangar	Industrial	58,251
346	PAANG Weapons and Release	Industrial	11,287
348	PAANG Aircraft Maint Composite	Industrial	17,037
370	PAANG Munitions & Support Fac	Storage	10,198
371	PAANG Fire Pump Station	Industrial	
375	PAANG Munitions Storage Facility	Storage	4,000

**Appendix B:  
NAS JRB Site  
Improvement Map**

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Figure B-1 NAS JRB Site Improvement Map appears on the following page.



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

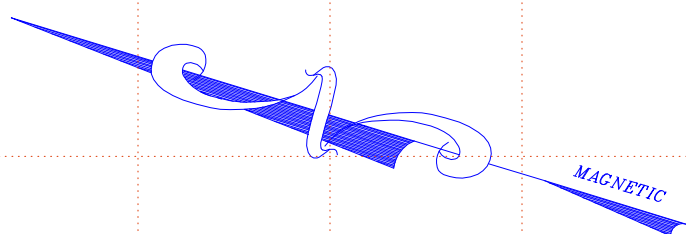
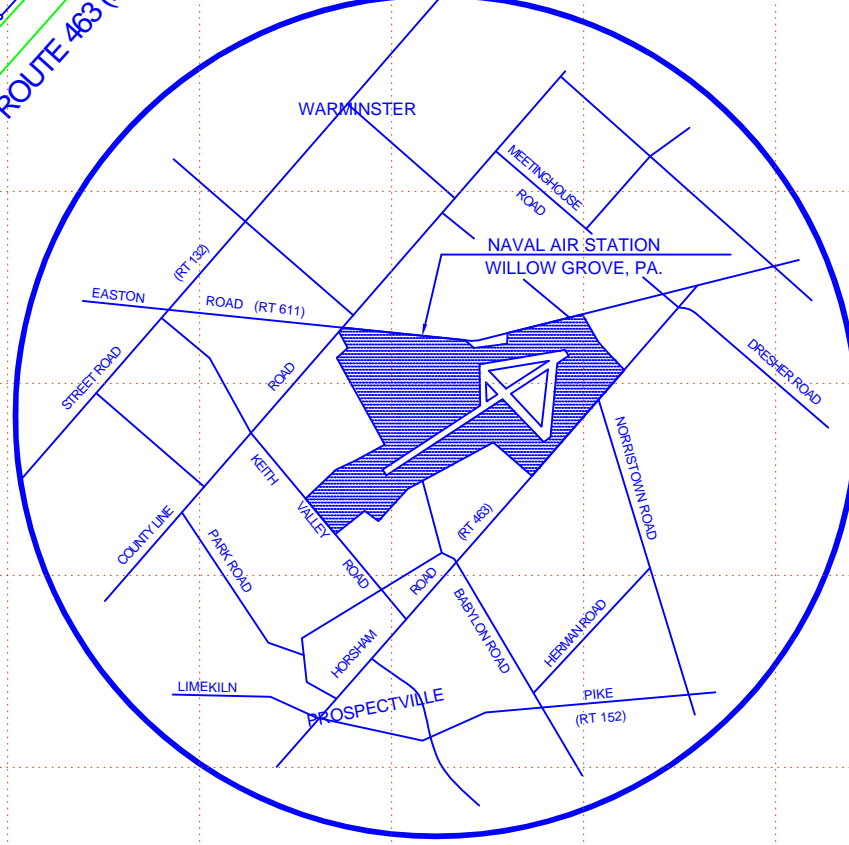
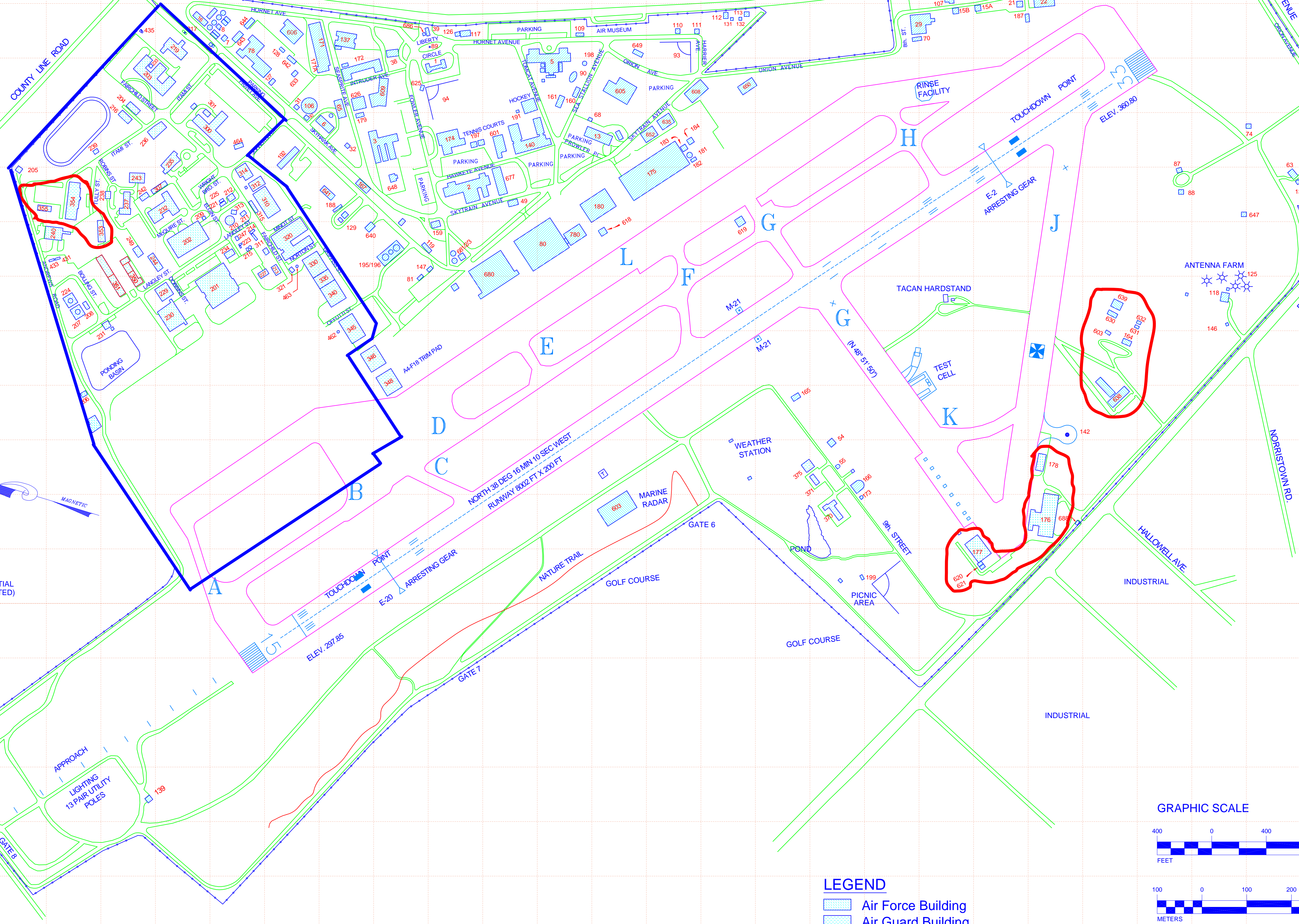
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4 MILES TO PENNA TURNPIKE

MAIN STATION ENTRANCE

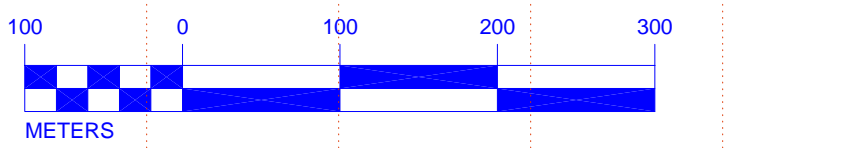
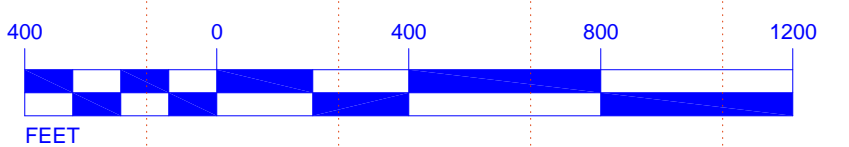
ROUTE 611 (EASTON RD.)

ARMY RESERVE BUILDING



RESIDENTIAL (CULTIVATED)

GRAPHIC SCALE



- LEGEND**
- Air Force Building
  - Air Guard Building
  - Army Building
  - Marine Building
  - Navy Building

**Appendix C:  
Horsham Township  
Zoning and Land Use Map**

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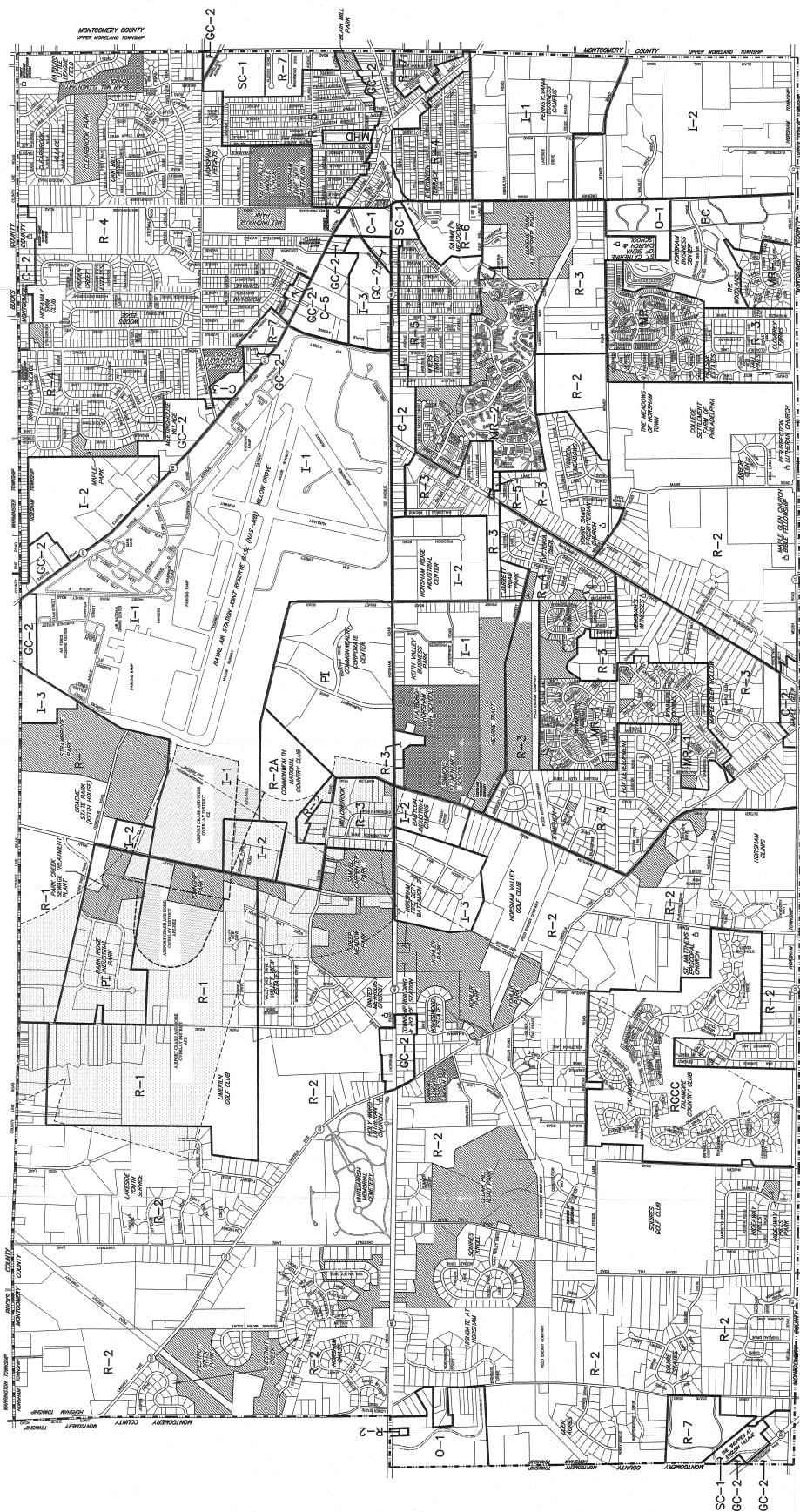
Figure C-1 Horsham Township Zoning and Land Use Map appears on following page.



# ZONING MAP

## HORSHAM TOWNSHIP

### MONTGOMERY COUNTY, PENNSYLVANIA



## DEVELOPMENT REGULATIONS

ZONING DISTRICT	MINIMUM SETBACK	MINIMUM FRONT YARD SETBACK	MINIMUM SIDE YARD SETBACK	MINIMUM REAR YARD SETBACK	MINIMUM FRONT YARD SETBACK	MINIMUM SIDE YARD SETBACK	MINIMUM REAR YARD SETBACK	MINIMUM FRONT YARD SETBACK	MINIMUM SIDE YARD SETBACK	MINIMUM REAR YARD SETBACK	MINIMUM FRONT YARD SETBACK	MINIMUM SIDE YARD SETBACK	MINIMUM REAR YARD SETBACK
R-1	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
R-2	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
R-3	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
I-1	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
I-2	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
I-3	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
C-1	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
C-2	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
CC-2	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
SC-1	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
SC-2	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
O-1	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
BC	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
R-7	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
R-2A	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
PI	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'
R-4	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'	10'	5'	10'

## LEGEND

- SOLID BLACK RECTANGLE: ZONING DISTRICT
- CIRCLE WITH NUMBER: PUBLIC STREET
- CIRCLE WITH LETTER: PRIVATE STREET
- CIRCLE WITH NUMBER: UTILITY LINE
- CIRCLE WITH NUMBER: EASEMENT
- CIRCLE WITH NUMBER: EASEMENT
- CIRCLE WITH NUMBER: EASEMENT
- CIRCLE WITH NUMBER: EASEMENT



ZONING MAP

HORSHAM TOWNSHIP  
PREPARED FOR  
MONTGOMERY COUNTY, PENNSYLVANIA

THE TOWNSHIP OF HORSHAM  
HORSHAM, PENNSYLVANIA 19044

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DATE	4-24-97	CADD FILE	7256100
JOB NO	87-22583	SHEET	1 OF 3 SHEETS
		DRAWING NUMBER	1-0080

## Appendix D: Clear Zone Delineation Map

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Figure D-1 Clear Zone Delineation Map appears on following page.



LEGEND

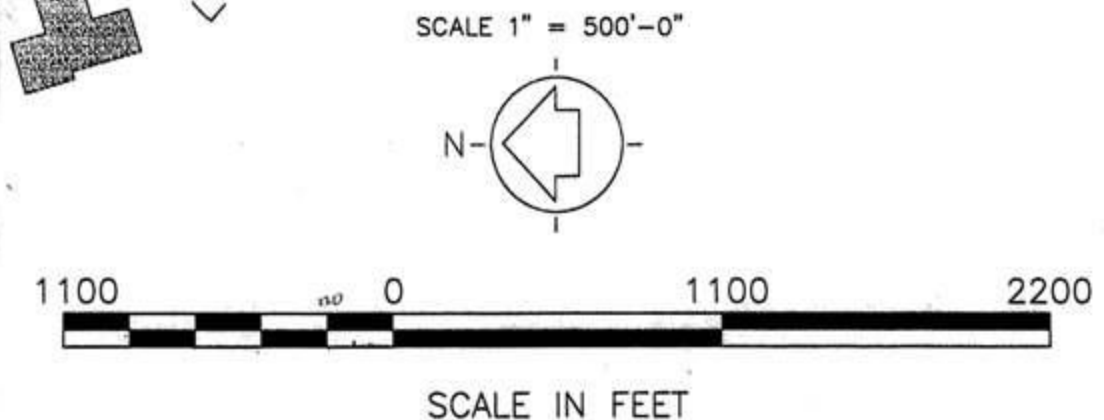
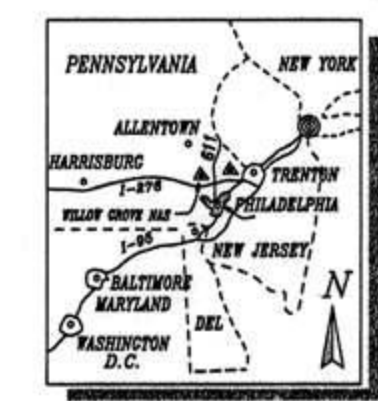
- BUILDING
- RUNWAYS
- TAXIWAYS AND APRONS
- EXPLOSIVE SAFETY CLEAR ZONE
- RIVER, LAKE, POND
- CLEAR ZONE
- AIR STATION BOUNDARY
- ROAD

LAT 40-12'-05.367" NORTH  
LONG 75-08'48.105" WEST

LAND AREA/OWNERSHIP  
U.S. NAVY 843.06 ACRES  
U.S. AIR FORCE 161.76 ACRES



VICINITY MAP - NO SCALE



PREPARED BY PLANNING 17 FEB 98  
UIC N00158  
CPV \$119,293,000

PLANNING	E. TEJADA	THIS DRAWING SUPERSEDES DRAWING NO.							
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ENG DIR	1/15/98	SYMBOL							

DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
ALEXANDRIA, VIRGINIA  
  
U.S. NAVAL AIR STATION WILLOW GROVE, PENNA 19090  
GENERAL DEVELOPMENT MAP  
U.S. NAVAL AIR STATION WILLOW GROVE  
PENNSYLVANIA 19090



DRAWING SIZE: D  
SCALE: 1"=500 FT  
DATE 17 NOV 97  
DRAWING NO. DISCIP  
GEN DEVELOPMENT  
SHEET 1 OF 1

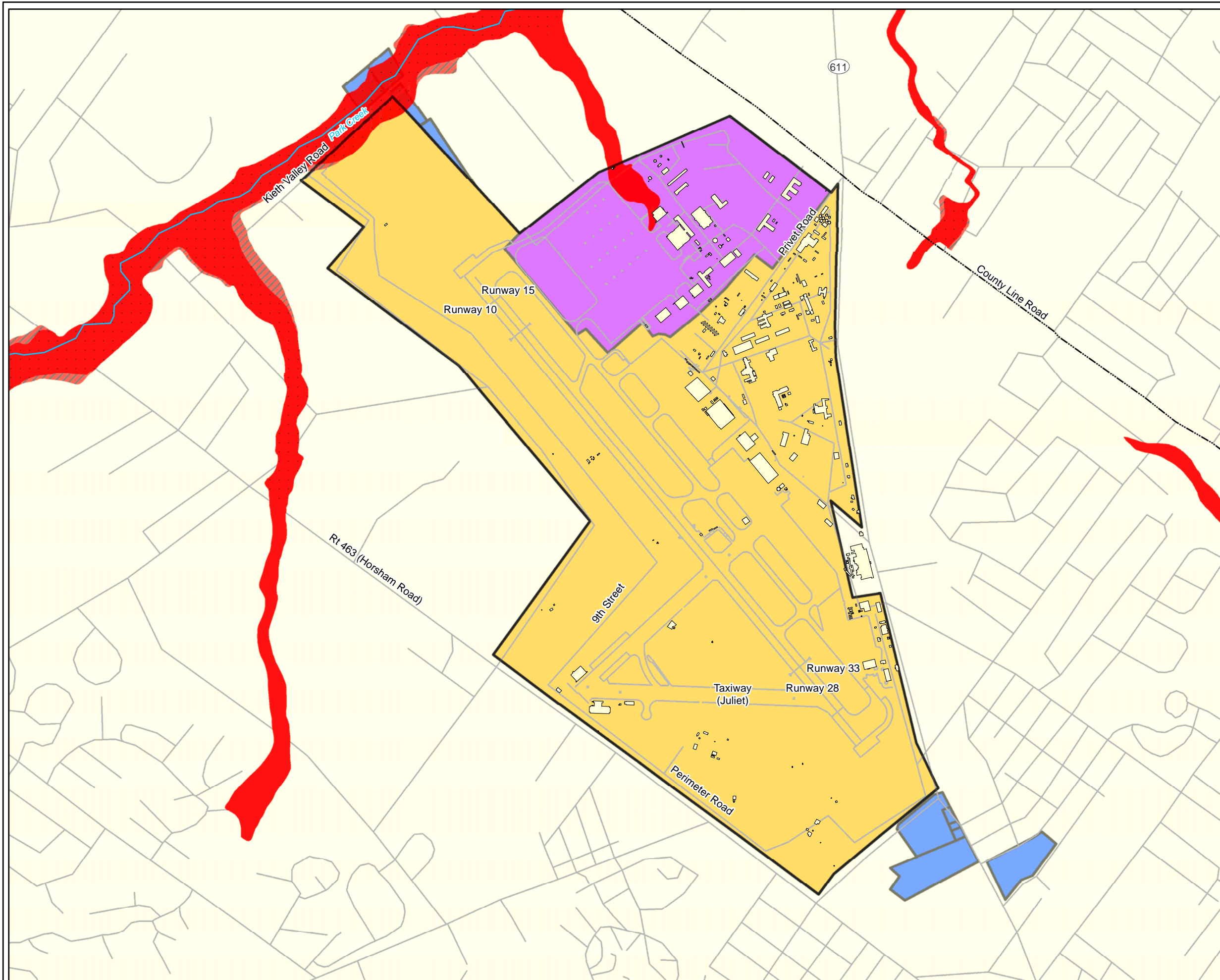


## Appendix E: FEMA Floodplain Maps

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Figure E-1 FEMA Floodplain Map – NAS JRB Main Base and Figure E-2 FEMA Floodplain Map – Off-Site Housing Assets appear on following pages.





**TITLE**

**FEMA FLOOD MAP**

NAS-JRB Willow Grove  
Horsham Township, PA

**LEGEND**

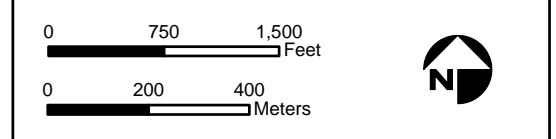
**FEMA Q3 Zones**

- Area inundated by 100-year flooding, for which no Base Flood Elevations have been determined
- An area inundated by 100-year flooding, for which Base Flood Elevations have been determined
- 500-year
- County Line
- Roads
- Buildings
- NAS JRB Willow Grove
- U.S. Navy owned
- Willow Grove Air Reserve Station owned

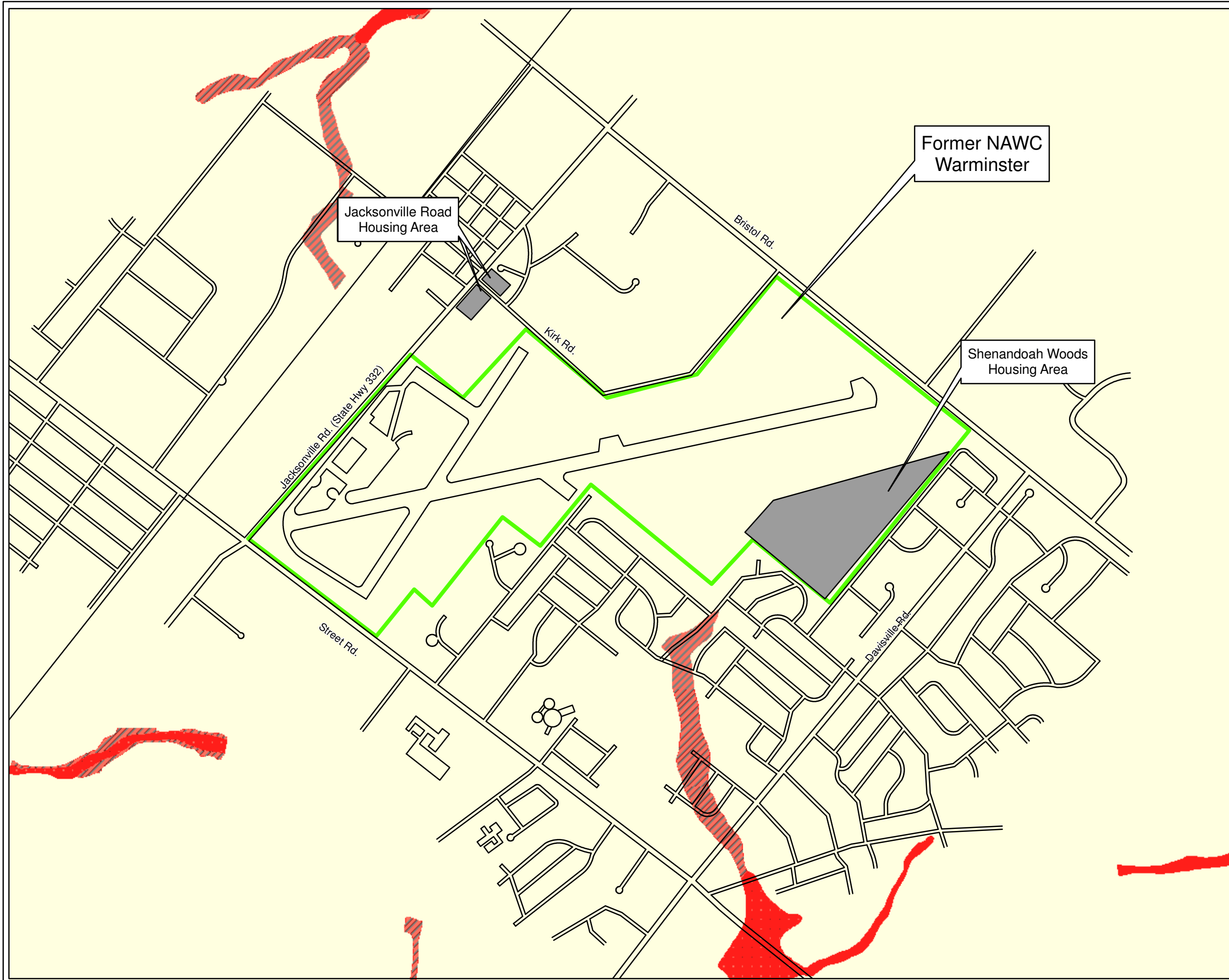


**NOTES & SOURCES**

Coordinate System: NAD 83, UTM Zone 18  
Data Sources: T1NUS 2004  
FEMA - Q3 Flood Data



**FIGURE**  
4-9



**TITLE**

**FEMA FLOOD MAP**

Off-Site Housing Areas  
 NAS JRB Willow Grove  
 Warminster, PA

**LEGEND**

**FEMA Q3 Zones**

- Area inundated by 100-year flooding, for which no Base Flood Elevations have been determined
- An area inundated by 100-year flooding, for which Base Flood Elevations have been determined
- 500-year

- NAWC - Former Naval Air Warfare Center Warminster
- Housing Areas

**SITE LOCATION MAP**



**NOTES & SOURCES**

Coordinate System: NAD 83, UTM Zone 18  
 Data Sources: TINUS 2004, USDA 2005



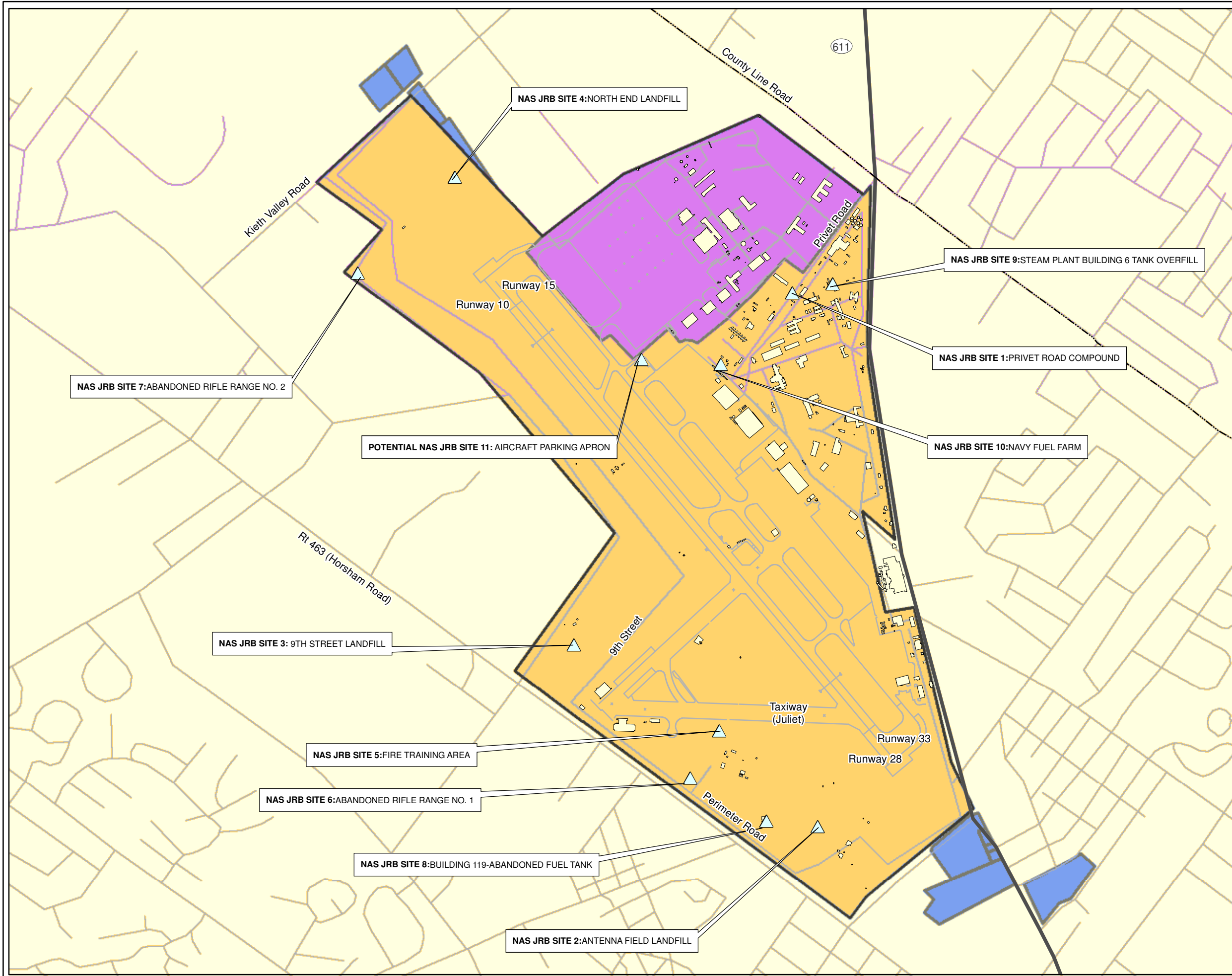
**FIGURE**  
 4-3

## Appendix F: CERCLA Sites Map

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Figure F-1 CERCLA Sites Map appears on following page.





**TITLE**

**CERCLA SITE LOCATIONS**

NAS JRB Willow Grove  
Horsham Township, PA

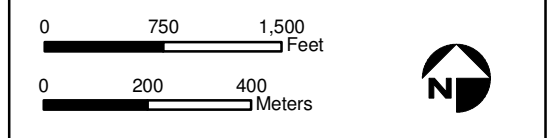
**LEGEND**

- CERCLA Sites
- County Line
- Roads
- Buildings
- NAS JRB Willow Grove
- U.S. Navy owned
- Willow Grove Air Reserve Station owned



**NOTES & SOURCES**

Coordinate System: NAD 83, UTM Zone 18  
Data Sources: TINUS 2004



**FIGURE**

4-1

## Appendix G: Bibliography

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## Appendix H: Glossary of Acronyms

ANG	Air National Guard
BEQ	Bachelor Enlisted Quarters
BOQ	Bachelor Officer's Quarters
BRAC	Base Realignment and Closure
CBD	Central Business District
CERCLA	Comprehensive, Environmental Response, Compensation, and Liability Act
DoD	Department of Defense
DVRPC	Delaware Valley Regional Planning Commission
ECP	Environmental Condition of Property
EPA	Environmental Protection Agency
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
GSBC	Great Southern Bank Corporation.
IR	Installation Restoration
LRA	Local Redevelopment Authority
MHHI	Median Household Income
MMRP	Military Munitions Response Program
MSA	Metropolitan Statistical Area
NAS JRB Willow Grove	Naval Air Station Joint Reserve Base Willow Grove
NAWC	Naval Air Warfare Center
NFA	No Further Action
NPL	National Priorities List
PA	Pennsylvania

**NAS JRB Willow Grove**

PCB	Polychlorinated Biphenyls
PCE	Perchloroethylene
PECO	Philadelphia Electric Company
PHI	Philadelphia
POL	Petroleum, Oil and Lubricant
PPM	Parts per Million
RCRA	Resource Conservation and Recovery Act
REIS	Real Estate Investment Society
RevPAR	Revenue per Available Room
ROD	Record of Decision
s.f.	Square Foot
SEPTA	Southeastern Pennsylvania Transportation Authority
SIOR	Society of Industrial and Office Realtors
TCE	Trichloroethylene
UST	Underground Storage Tank
WGARS	Willow Grove Air Reserve Station
YTD	Year to Date