JOHNSTOWN-CAMBRIA COUNTY AIRPORT

DIGITAL AIRPORT SURVEILLANCE RADAR

ENVIRONMENTAL ASSESSMENT

FINAL

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EXECUTIVE SUMMARY

This environmental assessment (EA) has been completed as part of the National Environmental Policy Act (NEPA) process, in compliance with U.S. Air Force (USAF) instruction AFI 32-7061. According to this instruction, the EA provides analysis sufficient to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI) and to aid federal agencies in complying with NEPA when no EIS is required.

This EA describes the proposed project to install a Digital Airport Surveillance Radar (DASR) system at Johnstown-Cambria County Airport (JCCA) in Pennsylvania, a civilian airport with military units as tenants. This proposed action is part of the National Airspace System (NAS) Program, the aviation system capital investment plan developed by the Federal Aviation Administration (FAA) in cooperation with the Department of Defense (DoD) to modernize approach control systems in the United States and its territories. DASR is a DoD-lead contract to install airport surveillance radar equipment for both the DoD and FAA. Although the proposed activity will occur at a civilian airport, the project management, administration, and implementation is being provided by the Air Force Materiel Command Electronic System Center (ESC). Once installed, the ASR-11 radar system will be operated and maintained by the 258 Air Traffic Control Squadron, Pennsylvania Air National Guard.

The NAS program will comprehensively upgrade air traffic control systems infrastructure by systematically replacing analog systems with state-of-the-art, digital technology. The purpose of the DASR component of the NAS program is to detect and process aircraft position and weather conditions at airfields. The DASR system will use the ASR-11 radar to accurately locate aircraft, in terms of range, azimuth, and altitude; provide information regarding aircraft identification code; identify emergency conditions; and report six discrete weather precipitation levels. The ASR-11 is needed to enhance training of the Pennsylvania Air National Guard 258 Air Traffic Control Squadron, based at JCCA, and to improve radar availability. The ASR-11 would also provide additional weather data, and provide digital data input to proposed new digital automation system air traffic controller displays, taking advantage of significantly increased capabilities of digital technology.

The DASR facilities at JCCA would consist of: a 20-foot tall rotating radar antenna mounted on a 57-foot (Site 5) or 67-foot (Site 4 or Site 7) tower, a concrete radar equipment shelter, an emergency engine generator in a concrete shelter, utility cabling, electronic equipment grounding systems, and a 1,000 gallon aboveground fuel storage tank. Facility construction, including separate concrete foundations for the ASR-11 antenna tower, the equipment shelter, and the

engine generator shelter, fencing (if necessary), and security systems (see Figure 2-3 for a photograph of a typical ASR-11 facility), would be within a 0.60 acre site (160 feet by 160 feet). Additional site improvements would include an unpaved access road (if necessary), minor re-grading, installation of geotextile fabric beneath six inches of crushed stone, and up to 3,060 feet of new utility trenching to connect the site to existing utilities or communication links. Once the new DASR system is operational, the existing MPN-26 mobile radar system will be maintained by the Pennsylvania Air National Guard for future deployment and training.

Nine areas were initially identified and evaluated as potential ASR-11 sites. Three sites were eliminated from consideration due to their location on private property. Another site was eliminated due to signal screening problems caused by the air traffic control tower (ATCT). Two additional sites were eliminated due to conflicts with operational and construction criteria. The three remaining alternative sites for JCCA have been identified as potential locations for the ASR-11, based on operational, construction, and environmental siting criteria contained in the *National Airspace System Digital Airport Surveillance Radar Siting Plan* (USAF, 1995a) and the *Integrated Site Survey Report, John Murtha Johnstown – Cambria County Airport, Johnstown, PA* (USAF, 2002). The three remaining sites (4, 5, and 7) are evaluated in this EA.

Site 4 and Site 5 are located on the southern side of Fox Run Road, approximately 600 feet apart, along the edge of a grassy, triangular shaped, periodically mowed field. These proposed sites, located near the wooded airport property line, would accommodate potential future development, including a regional jet maintenance facility or airport industrial park. Site 7, located on the north side of Airport Road, is within a fenced area currently utilized by the PA Army National Guard (PA ARNG) as a motor pool for jeeps, tractor trailers, and heavy equipment. The site is adjacent to, and shares a paved access way with, the PA ARNG 876 Engineering Battalion's recently remodeled civil engineering (CE) building.

Issues that must be addressed during construction at any of the sites are elevated noise levels, increased dust, traffic and access disruption, groundwater and stormwater management issues, and biological resources. Potential impacts in these areas would be reduced using standard mitigation measures as outlined below:

- To minimize noise impacts during construction, mufflers would be used on construction equipment and vehicles. Noise barriers may also be used to reduce noise levels.
- All equipment and vehicles would be maintained in good condition so that emissions are minimized, thus reducing the potential for air quality impacts.
- Dust would be controlled on-site by using water to wet down disturbed areas.

- All areas disturbed for the DASR system construction would be seeded with a grass mixture or covered with a geotextile fabric and crushed stone to stabilize the disturbed soils, in order to minimize the potential for erosion and sedimentation.

- The proposed project would incorporate appropriate best management practices (BMPs), such as vegetative swales or buffer strips, to reduce the effects of stormwater runoff from the site and along access roads.

- Groundwater levels would be monitored and maintained as necessary. No discharge of groundwater from trenches during construction, if contaminants are known, would occur without prior consultation with the Cambria County Conservation District.

- All hazardous materials used during construction of the ASR-11 would be handled and disposed of in accordance with JCCA policies and protocols and all applicable state and federal regulations.

- Traffic management measures would be developed to facilitate traffic flow and pedestrian access.

Potential future impacts associated with operation of the ASR-11 facility would be minimized through use of mitigation measures including the following:

- All hazardous materials used during operation of the ASR-11 would be handled and disposed of in accordance with JCCA policies and protocols and all applicable state and federal regulations.

- Due to the potential for RFR hazards during operation, warning signs, indicating the safe distance from the operating radar, would be installed at the facility perimeter.

Site 4 and Site 5 are acceptable from an environmental perspective. Additional mitigation is required to reduce potentially significant visual aesthetic and/or noise impacts at Site 7. Because of the potentially significant impact at Site 7, and because there is a possibility that the current adjacent resident (approximately 125 feet from the site) is low income, environmental justice may be a concern for Site 7. Table ES-1 provides a summary of the potential environmental impacts associated with each of the alternative sites. Due to operational and other airfield considerations, the Air National Guard and JCCA have selected Site 5 as the preferred ASR-11 location; however, this EA identifies potential impacts associated with placing an ASR-11 at any of the alternative sites.

Table ES-1. Environmental Impact Summary Matrix for the Alternative ASR-11 Sites at JCCA.

Category	No Action Alternative	Installation of the ASR-11 at Site 4	Installation of the ASR-11 at Site 5	Installation of the ASR-11 at Site 7
Land Use	No Impact	Construction and operation of ASR-11 are anticipated to be compatible with adjacent land uses. ASR-11 would be sited so as not to obstruct future development projects. Project must be approved by Richland Township zoning board.	Construction and operation of ASR-11 are anticipated to be compatible with adjacent land uses. ASR-11 would be sited so as not to obstruct future development projects. Project must be approved by Richland Township zoning board. Site 5 would require a FAR Part 77 waiver.	Project must be approved by Richland Township zoning board. Tower assembly requires a zoning waiver. Construction and operation of ASR-11 are otherwise anticipated to be compatible with adjacent land uses. A FAR Part 77 waiver would be needed. The existing motor pool would be relocated. Tower would be approximately 125 feet from an adjacent private residence.
Socioeconomics	No Impact	Installation of ASR-11 expected to have short-term minor contribution to the local economy. No long-term impacts are expected at Site 4 or Site 5.		Installation of ASR-11 at Site 7 raises environmental justice concerns because abutting residence may be low income and would potentially be significantly impacted by changes to visual aesthetics and/or elevated nighttime noise levels.
Utilities and Transportation	No Impact	A minimal disruption of the electrical system may be expected during ASR-11 installation. Electrical facilities near Site 4 and Site 5 may need upgrading to accommodate ASR-11 load. Minor short-term impacts to airport traffic are possible during ASR-11 installation. The potential for impacts is expected to be greater as the distance from existing utilities increases.		
		Lengths of new utility connections: 600 feet of underground conduit and wire for electric; 775 feet for telephone; and 4,300 feet of fiber optic cable, of which 1,500 feet would require new underground duct banks. Access road: 775 feet.	Lengths of new utility connections: 1,000 feet of underground conduit and wire for electric; 100 feet for telephone; and 4,760 feet of fiber optic cable, of which 1,960 feet would require new underground duct banks. Access road: 100 feet.	Lengths of new utility connections: 1,000 feet of underground conduit and wire for electric; 100 feet for telephone; and 1,700 feet for fiber optic cable, all of which would require new underground duct banks. Access road: not required.
Noise	No Impact	Construction of the ASR-11 would not create any additional short-term noise impacts due to construction activities, compared to normal airport maintenance and operations activities. Operation of the ASR-11 system would not generate excessive or persistent levels of noise; therefore, no long-term impacts are anticipated.		Construction of the ASR-11 would not create any additional short-term noise impacts due to construction activities, compared to activities normally occurring at and around the airport. However, emergency operation, particularly at night, of the backup generator could contribute significantly to noise in the surrounding area, which includes a private residence approximately 125 feet to the northwest.
Air Quality	No Impact	Short-term impacts from installation of the ASR-11 are expected to consist of dust generated from construction activities and are anticipated to be minimal. Long-term impacts consist of evaporative fuel loss from aboveground storage tanks and emissions from the on-site emergency generator. Neither source is anticipated to represent a substantial impact to air quality.		
Geology and Soils	No Impact	Construction of the ASR-11 would not create any short-term or long-term impacts to geology. Contaminated soil, as discussed under Pollution Prevention, may be encountered at all three sites.		
Surface Water & Groundwater	No Impact	No surface water resources are located proximate to sites and therefore no impacts to surface water are anticipated. Groundwater may be encountered during excavation at Site 4 or Site 5. Groundwater is not expected to be encountered at Site 7. State and County procedures for dewatering and discharge of groundwater would be followed during construction activities. The proposed project would incorporate appropriate BMPs to reduce the effects of stormwater runoff from the site and along access roads. The proposed project would be waived from Richland Township stormwater discharge permitting requirements if runoff from a 25-year 24-hour storm is less than 0.2 cfs.		
Biological Resources	No Impact	Minimal clearing of vegetation would occur during staging, trenching, and construction. There is a potential for short term displacement of small wildlife.		No biological resources would be impacted because existing site consists of impervious or gravel surface and lacks significant vegetation or wildlife; utility trenches would be constructed along the existing road shoulder.
Aesthetic Resources	No Impact	Located on airport property, mostly out of view from off-airport locations. Views of ASR-11 from on-airport locations would also include the existing functional airport aesthetic provided by various structures along the flightline, such as hangars and weather stations. No significant impact is anticipated.		The ASR-11 would be within view of a single private residence, military buildings, and local traffic along Airport Road. The ASR-11 would potentially significantly impact views from the private residence.
Cultural Resources	No Impact	Based on cultural resource surveys for JCCA, cultural resources are not likely to be present within the proposed project areas for the three alternative sites.		
Pollution Prevention and Hazardous Waste	No Impact	Soil or groundwater contaminated by a former fuel tank farm may be encountered during construction. Hazardous materials used during facility operation would be handled in compliance with airport policies and regulations.		Petroleum contaminated soil may be encountered during construction. Hazardous materials used during facility operation would be handled in compliance with airport policies and regulations.
Electromagnetic Energy	No Impact	No impacts expected – due to the potential for RFR hazards during operation, warning signs, indicating the safe distance from the operating radar, would be installed at the facility perimeter.		No impacts expected – due to the potential for RFR hazards during operation, warning signs, indicating the safe distance from the operating radar, would be installed at the facility perimeter. Though the nearest inhabited structure is the private residence 125 feet away from the center of the tower, locations beyond 75 feet from the ASR-11 antenna will comply with the maximum permissible exposure for peak power density established by the IRPA.

1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The National Environmental Policy Act (NEPA; 42 United States Code Sections 4321-4347) is the basic national charter for protection of the environment (CEQ, 1978). NEPA establishes policy, sets goals, and provides the process for carrying out the policy and achieving the goals. NEPA procedures were established to ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. To implement NEPA, the U.S. Air Force (USAF) has issued internal instruction AFI 32-7061 (USAF, 1999) that contains policies, responsibilities, and procedures dictating how NEPA should be implemented for USAF projects.

This environmental assessment (EA) has been prepared in compliance with AFI 32-7061. According to this instruction, the environmental assessment is a written analysis which serves to (1) provide analysis sufficient to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI); and (2) aid federal agencies in complying with NEPA when no EIS is required. If this EA were to determine that the proposed action would significantly degrade the environment, significantly threaten public health or safety, or generate significant public controversy, then an EIS would be completed. An EIS involves a comprehensive assessment of project impacts and alternatives, and a high degree of public input. Alternatively, if this EA results in a FONSI, then the action would not be the subject of an EIS. The EA is not intended to be a scientific document. The level and extent of detail and analysis in the EA is commensurate with the importance of the environmental issues involved and with the information needs of both the decision-makers and the general public.

The proposed action addressed in this EA is the construction of a Digital Airport Surveillance Radar (DASR; specifically, an ASR-11) at Johnstown – Cambria County Airport (JCCA) in Johnstown, Pennsylvania. JCCA operates as a civilian airport with military units as tenants, currently consisting of units from the U.S. Army Reserves (USAR), Pennsylvania Air National Guard (PA ANG), Pennsylvania Army National Guard (PA ARNG), and Marine

Corps Reserves. This proposed action is part of the Department of Defense (DoD) National Airspace System (NAS) Program, which involves installation of new air traffic control equipment on U.S. Army, U.S. Navy, and USAF bases throughout the country and at overseas DoD installations. These radars are also being installed at commercial airports under the authority of the Federal Aviation Administration (FAA). Although the proposed activity will occur at a civilian airport, the project management, administration, and implementation is being provided by the Air Force Materiel Command Electronic Systems Center (ESC). The implementation of the NAS program at DoD bases was previously evaluated in a programmatic EA and FONSI (USAF, 1995a), which fully detail the need for the program. The programmatic EA and FONSI are available on the internet at http://www.hanscom.af.mil/ESC-BP/pollprev/products.htm.

The programmatic EA for the NAS program committed to completing site-specific NEPA documentation tiered from the programmatic EA for individual NAS sites. This EA addresses the site-specific impacts of locating an ASR-11 at Johnstown–Cambria County Airport, and evaluates the consequences of constructing and operating this ASR-11 system on the natural and man-made environments.

1.2 PURPOSE OF THE ACTION

The NAS program was developed to modernize military air traffic control systems in the United States and its territories. NAS is a component of the aviation system capital investment plan developed by the FAA in cooperation with DoD. DASR is a DoD lead contract to install airport survey radar equipment for both the DoD and FAA. Pursuant to the Program Management Directive (USAF, 1994), the DoD must provide services within its delegated airspace which are comparable to the services which FAA provides to civil aircraft in civilian airspace. These services include: flight following, separation, expeditious handling, radar approach control, and landing.

The purpose of the DASR component of the USAF NAS program is to detect and process aircraft position and weather conditions in the vicinity of USAF airfields. The DASR will serve to accurately locate aircraft, in terms of range, azimuth, and altitude; provide information regarding aircraft identification code; identify emergency conditions; and report

six discrete weather precipitation levels. The new radar facility at JCCA will not increase or decrease the current number of flights, change aircraft patterns, or otherwise alter existing airport operations.

1.3 NEED FOR THE ACTION

The NAS program is comprehensively upgrading air traffic control systems infrastructure with state-of-the-art digital technology. The existing MPN-26 mobile radar and the air traffic control tower are operated by the PA ANG 258 Air Traffic Control Squadron (ATCS). In addition to supporting operations at the fixed control tower at JCCA, the mission of the 258 ATCS is to deploy, operate and maintain air traffic control and landing systems, and provide support in conjunction with operations. The addition of a fixed ASR-11 radar at JCCA would contribute to the 258 ATCS mission by allowing personnel to train with the state-of-the art radar equipment. In addition, the ASR-11 would improve radar presence at JCCA, provide additional weather data, and provide digital data input to proposed new digital automation system air traffic controller displays, taking advantage of significantly increased capabilities of digital technology.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

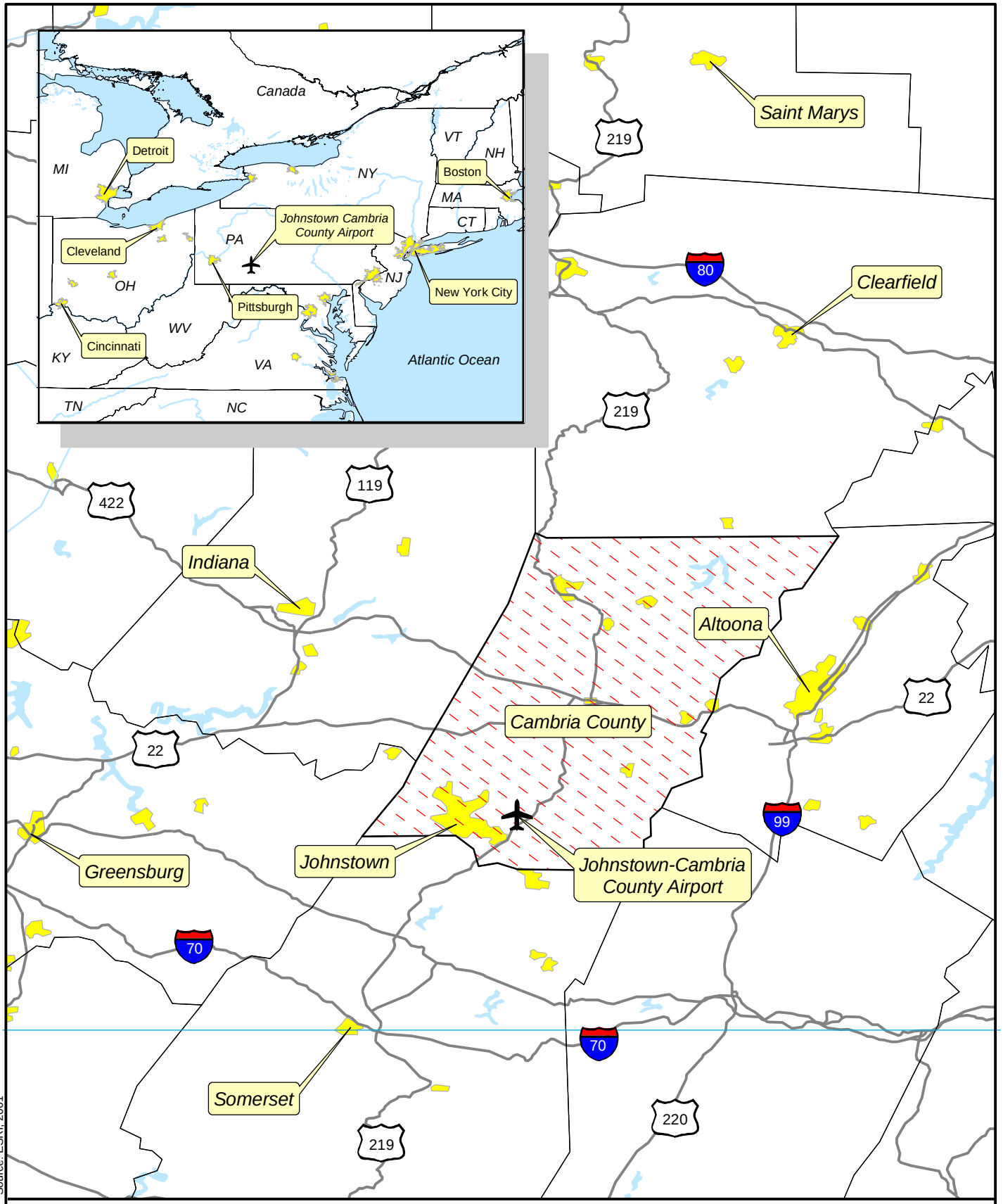
The proposed action is the installation of an ASR-11 at Johnstown – Cambria County Airport in Pennsylvania (Figure 2-1). In coordination with the Air Force, the Cambria County Airport Authority, and the 258 ATCS, a preferred site (Site 5) has been selected for the radar based on operational and airport considerations. Alternatives to the proposed action include no action, or installation of the ASR-11 at one of the alternative sites. The no-action alternative consists of **not** constructing the ASR-11 facility. Three alternative sites were identified for JCCA (Figure 2-2), in accordance with the NAS Siting Plan (USAF, 1995b) and *Primary/Secondary Terminal Radar Siting Handbook FAA Order 6310.6* (FAA, 1992), as well as site-specific criteria identified in the *John Murtha Johnstown – Cambria County Airport Integrated Site Survey Report* (USAF, 2002). This EA discusses and evaluates potential impacts associated with the placement of the ASR-11 at any one of the alternative sites and also summarizes the potential impacts associated with the no-action alternative.

2.1 PROPOSED ACTION: DASR AT JOHNSTOWN – CAMBRIA COUNTY AIRPORT

2.1.1 DASR System

The DASR system would detect and process aircraft position and weather conditions at the airfield. The DASR system would consist of two subsystems: the Primary Surveillance Radar and the Monopulse Secondary Surveillance Radar. The purpose of the subsystems would be to accurately locate aircraft, in terms of range, azimuth, and altitude.

The Primary Surveillance Radar would transmit electromagnetic waves in the form of radio frequency pulses, which backscatter from the surface of aircraft, or other "targets of opportunity." The radar would measure the time required for an echo to return and the direction of the signal in order to determine the target's range and azimuth, respectively. By comparing variations in returned signal parameters, such as phase differences between pulses,



Source: ESRI, 2001

LEGEND

- Populated Areas
- Surface Water Features
- Cambria County
- County Boundaries
- Major Roadways
- Airport Location

N
W E
S

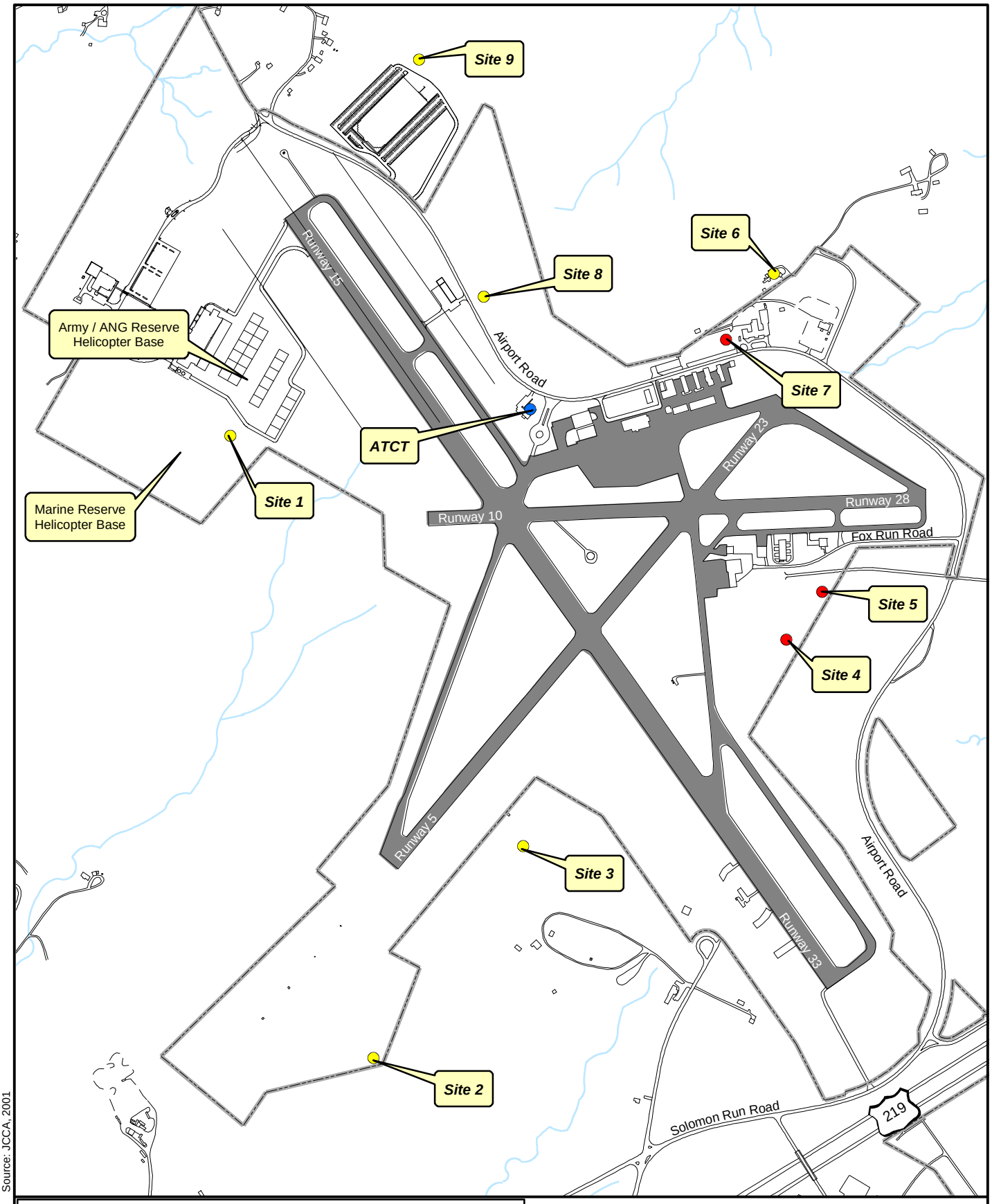
FIGURE 2-1
LOCATION OF JOHNSTOWN-CAMBRIA COUNTY AIRPORT

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR

Cambria County, Pennsylvania

10 5 0 10 20 Miles

JohnstownLocation.mxd



Source: JCCA, 2001

LEGEND

- Surface Water Features
- Airport Property Boundary
- Roads, Buildings, and Airport Features
- Runways and Taxiways
- ASR-11 Site Eliminated from Further Consideration
- Proposed ASR-11 Site
- Air Traffic Control Tower

N W E S

500 250 0 500 1,000 1,500 2,000 Feet

Figure 2-2
LOCATION OF PROPOSED ALTERNATIVE ASR-11 SITES

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

JohnstownSites.mxd

the radar could separate moving targets from stationary clutter, such as mountains and trees. The primary radar would also report six discrete weather precipitation levels (from mild to hazardous) via a processing channel dedicated to weather detection and reporting.

The Monopulse Secondary Surveillance Radar (also called the beacon radar) would be a cooperative system consisting of ground-based beacon interrogator/receiver systems and existing aircraft based transponders. The secondary radar would obtain additional information, such as identification code, barometric altitude, and emergency conditions, from an aircraft transponder. Various processing techniques would be used to decipher both overlapping responses from multiple aircraft (synchronous garble) and aircraft responses to other beacon systems (asynchronous interference). The beacon radar would also provide rapid identification of aircraft in distress. The Monopulse Secondary Surveillance Radar transmits at a frequency of 1030 MHz and receives at a frequency of 1090 MHz. The ASR-11 would have clutter rejection, target accuracy, and probability of detection that are equal to or better than the existing mobile MPN-26 radar. Operational characteristics of the new ASR-11 are shown in Table 2-1.

The DASR facilities at JCCA would consist of: a 20-foot tall rotating radar antenna mounted on a 57-foot (Site 5) or 67-foot (Site 4 or Site 7) tower, a concrete radar equipment shelter, an emergency engine generator in a concrete shelter, utility cabling, electronic equipment grounding systems, and a 1,000 gallon aboveground fuel storage tank. Facility construction would include separate concrete foundations for the antenna tower, the equipment shelter, and the engine generator shelter, fencing (if necessary); and security systems (see Figure 2-3 for a photograph of a typical ASR-11 facility). The facility would be contained within a 0.60 acre site (160 feet by 160 feet). Additional site improvements would include an unpaved access road (if necessary), minor re-grading, installation of geotextile fabric beneath six inches of crushed stone, up to 5,860 feet of fiber optic, telephone, and electrical cable to connect the site to existing utilities or communication links and up to 3,060 feet of utility trenching. The total structure height, including lightning rods on the antenna tower, would be 86 to 96 feet (depending on the site selected).

Figure 2-3. Typical ASR-11 Facility

Table 2-1. Operational Characteristics of Proposed ASR-11 Primary Surveillance Radar

	Proposed ASR-11
Frequency	2700-2900 MHz; 2 frequencies separated by at least 30 MHz
Power Peak	19.5 kW (1 microsec) 18.0 kW (89 microsec)
Average	1600 Watts (Solid state)
Pulse Repetition Frequency	720-1050 pulses/second

Sources: Belden, 1999; MITRE, 1997

Depending on the site chosen for the DASR facility, approximately 600 to 1,000 feet of utility trenching between the edge of the site and existing duct banks/manholes would be required to connect the ASR-11 radar systems to existing electric lines (USAF, 2002). The telephone connections and fiber optic connections may be made in a common utility conduit; however, the new telephone cable may connect to an existing cable at a different location within the utility conduit than the fiber optic connection. Between 1,500 and 1,960 feet of new fiber optic duct banks and between 1,700 and 4,760 feet of new fiber optic cable would be required to connect the ASR-11 to the ATCT, depending on the site chosen.

Once the new DASR system is operational, the existing MPN-26 would be maintained by the Pennsylvania Air National Guard for future deployment and training.

2.1.2 Alternative ASR-11 Sites

Three alternative sites have been identified as potential locations for the ASR-11, based on the siting criteria contained in the *John Murtha Johnstown – Cambria County Airport Integrated Site Survey Report* (USAF, 2002)(see Appendix B). The three sites evaluated in this EA were identified based on operational, construction, and environmental criteria. The operational criteria included the following (FAA, 1992):

- The site should not be located closer than 0.5 mile from the end of any existing or planned runway.
- The site should not be located closer than 0.5 mile from any point of required detection coverage.
- The site should not be located closer than 2,500 feet from any existing or planned electronic equipment installation or facility.
- The site should not be located less than 0.5 mile from National Weather Bureau radars and radiosonde equipment.
- The site should not be located closer than 1,500 feet to any aboveground object which would interfere or cause degradation in the ASR-11 operation.

Construction criteria included siting the ASR-11 in an area with a slope of less than 20 percent and away from occupied existing structures, railroads, highways, runways and taxiways, or power lines. The environmental criteria for siting included avoiding a number of sensitive resources, including: ecological/wildlife refuges, preserves, conservation areas and sanctuaries; wild and scenic rivers; prime and unique farmlands; historical, archaeological, and cultural sites; wetlands; threatened and endangered species habitat; designated hazardous waste sites; and floodplains. The details of the siting process are described in the *Integrated Site Survey Report* prepared by Raytheon Systems Company (USAF, 2002).

Initial site selection screening criteria applied in May/June 2001 identified nine sites (Sites 1 through 9, Figure 2-2). During the outbriefing meeting held as part of the data gathering process, Raytheon was directed to forgo the preliminary analysis on Sites 3, 6, 8, and 9 in order to concentrate analysis on the remaining five potential DASR sites. The DASR program office representatives, in agreement with local airport and PA ANG personnel, indicated that Sites 3, 6, and 9 were undesirable due to funding and scheduling problems associated with these sites being located off airport property. Additionally, all parties indicated that Site 8 would offer poor coverage due to screening by the ATCT and should not be investigated further.

Thus, fives sites remained as viable alternatives and were selected for further evaluation. A preliminary site selection (downselect) teleconference conducted on August 28, 2001 further reduced the number of alternative sites to three. Site 1, located near the U.S. Marine Corps Hangar, was dismissed from further consideration since it failed to provide missed approach point coverage for Runway 15/33, the main runway at JCCA. Site 2, located in a remote area off Runway 5/23, was dismissed due to its remoteness and corresponding prohibitive cost associated with the length of fiber optic cabling that would be required.

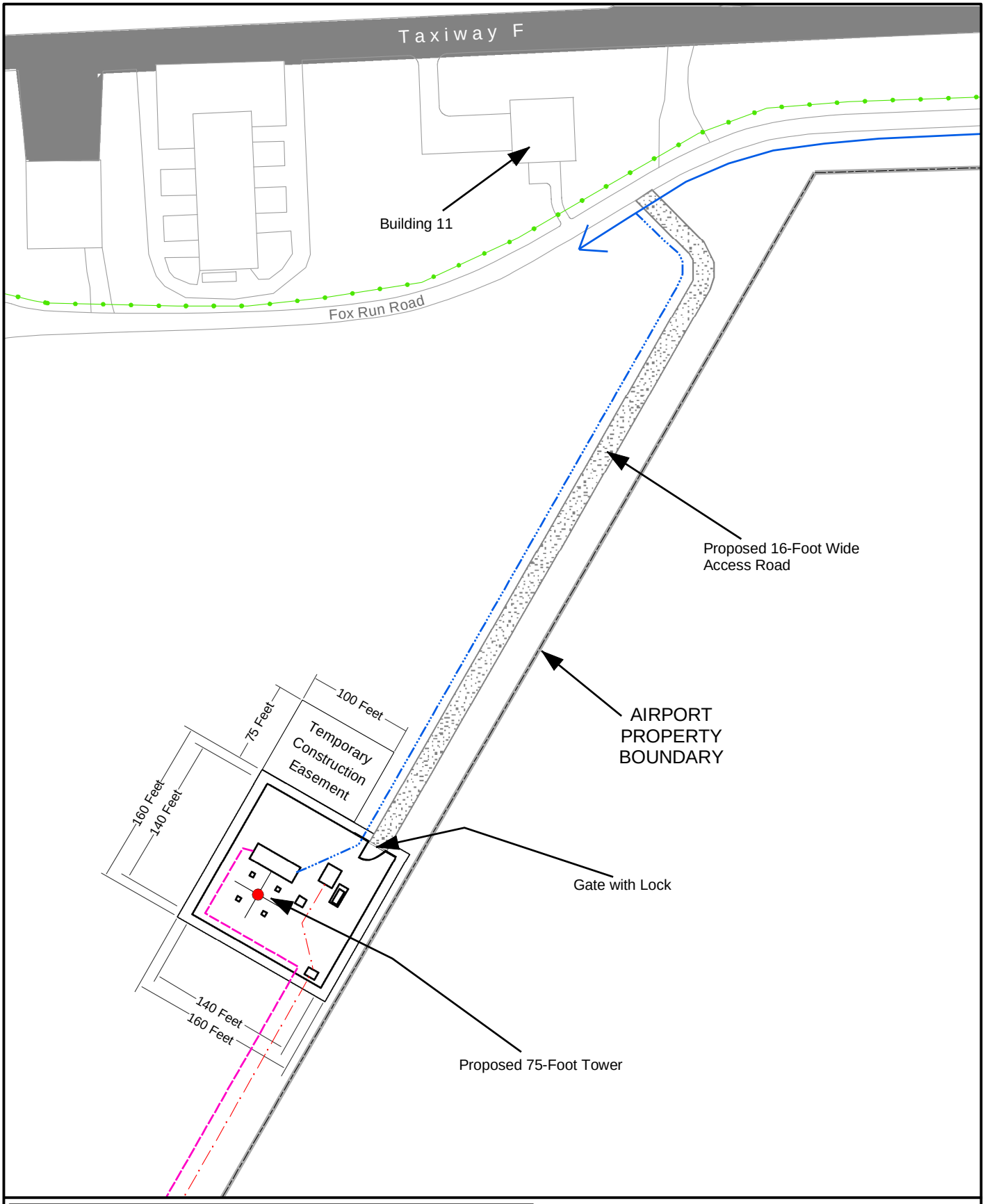
Following the downselect teleconference, three sites remained. These (Sites 4, 5, and 7) are discussed in detail in this environmental assessment, as they constitute the three alternative sites for the ASR-11 (Figure 2-2). **Site 4** and **Site 5** are located on the southern side of Fox Run Road, approximately 600 feet apart, along the edge of a grassy,

undeveloped, periodically mowed, triangular shaped field (Figure 2-4, Figure 2-5). These proposed alternative sites are located near the wooded airport property line to accommodate potential future development (possibly a regional jet maintenance facility or airport industrial park). **Site 7**, located on Airport Road, is within a fenced area currently utilized as a motor pool for jeeps, tractor trailers, and heavy equipment (Figure 2-6). The site is adjacent to, and shares a paved access way with, the PA ARNG 876 Engineering Battalion's recently remodeled civil engineering (CE) building.

2.2 NO ACTION ALTERNATIVE

Implementation of the No Action Alternative would deprive the 258 ATCS of state-of-the-art equipment for training. The No Action Alternative would deny JCCA of the improved technology (system reliability/performance, weather data) offered by the new DASR system, and would deny the 258 ATCS the opportunity to train on state-of-the-art equipment.

In this EA, conditions reflecting the No Action Alternative are discussed for each of the twelve main environmental parameters evaluated in Chapter Three. For each parameter, the No Action Alternative is characterized in the section addressing Future Baseline Without the Project.



Source: JCCA, 2001

LEGEND

- Existing Telephone Line
- Existing Gas Line
- Proposed Fiber Optic
- Proposed Telephone
- Proposed Underground Power
- Roads, Buildings, and Airport Features
- Airport Property Boundary
- Proposed Access Road
- Runways and Taxiways
- Proposed ASR-11 Tower

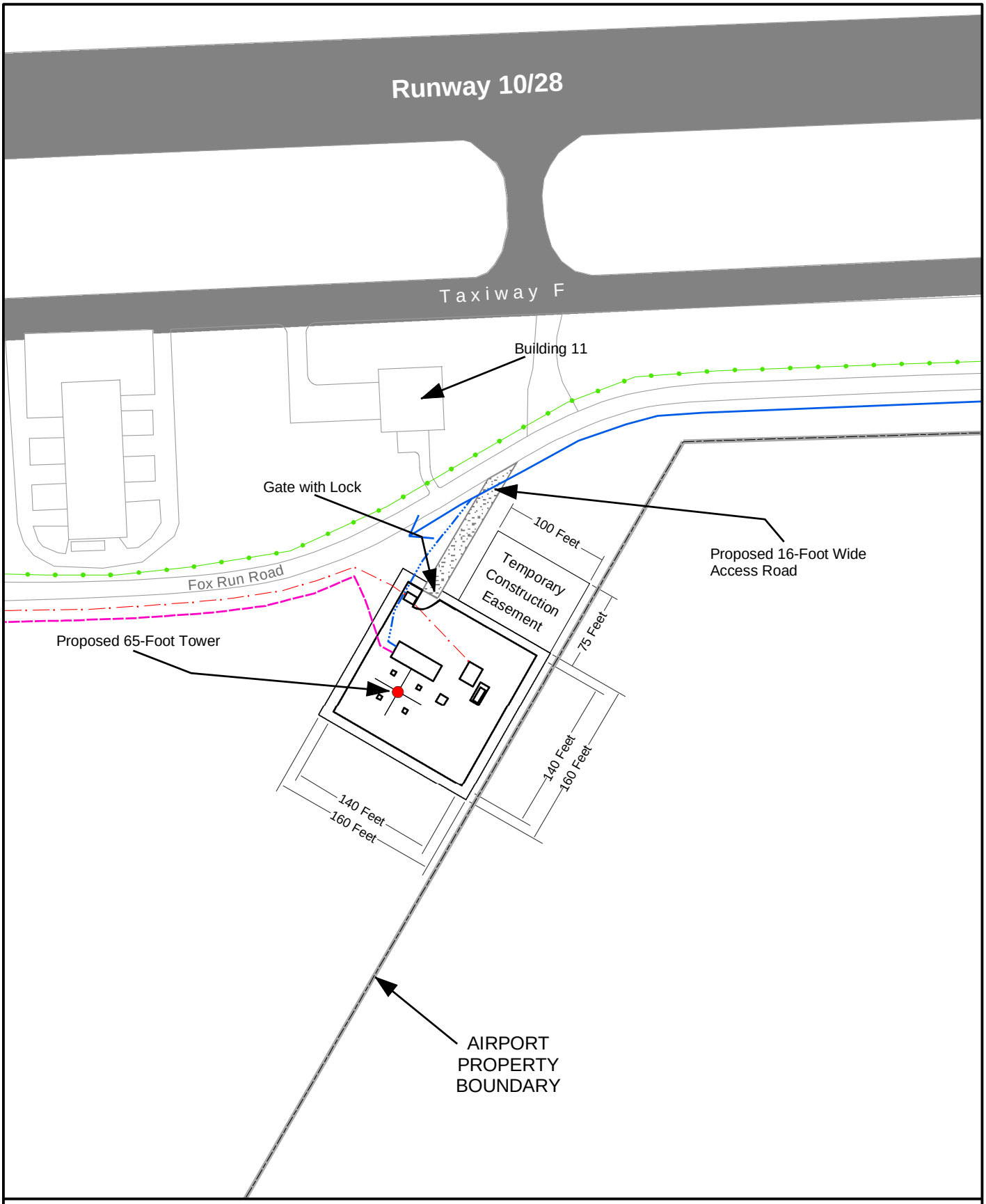
N W E S

50 25 0 50 100 150 200 Feet

Figure 2-4
ALTERNATIVE ASR-11 SITE 4

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

Site 4 Layout.mxd



Source: JCCA, 2001

LEGEND

- Existing Telephone Line
- Existing Gas Line
- Proposed Fiber Optic
- Proposed Telephone
- Proposed Underground Power
- Roads, Buildings, and Airport Features
- Airport Property Boundary
- Proposed Access Road
- Runways and Taxiways
- Proposed ASR-11 Tower

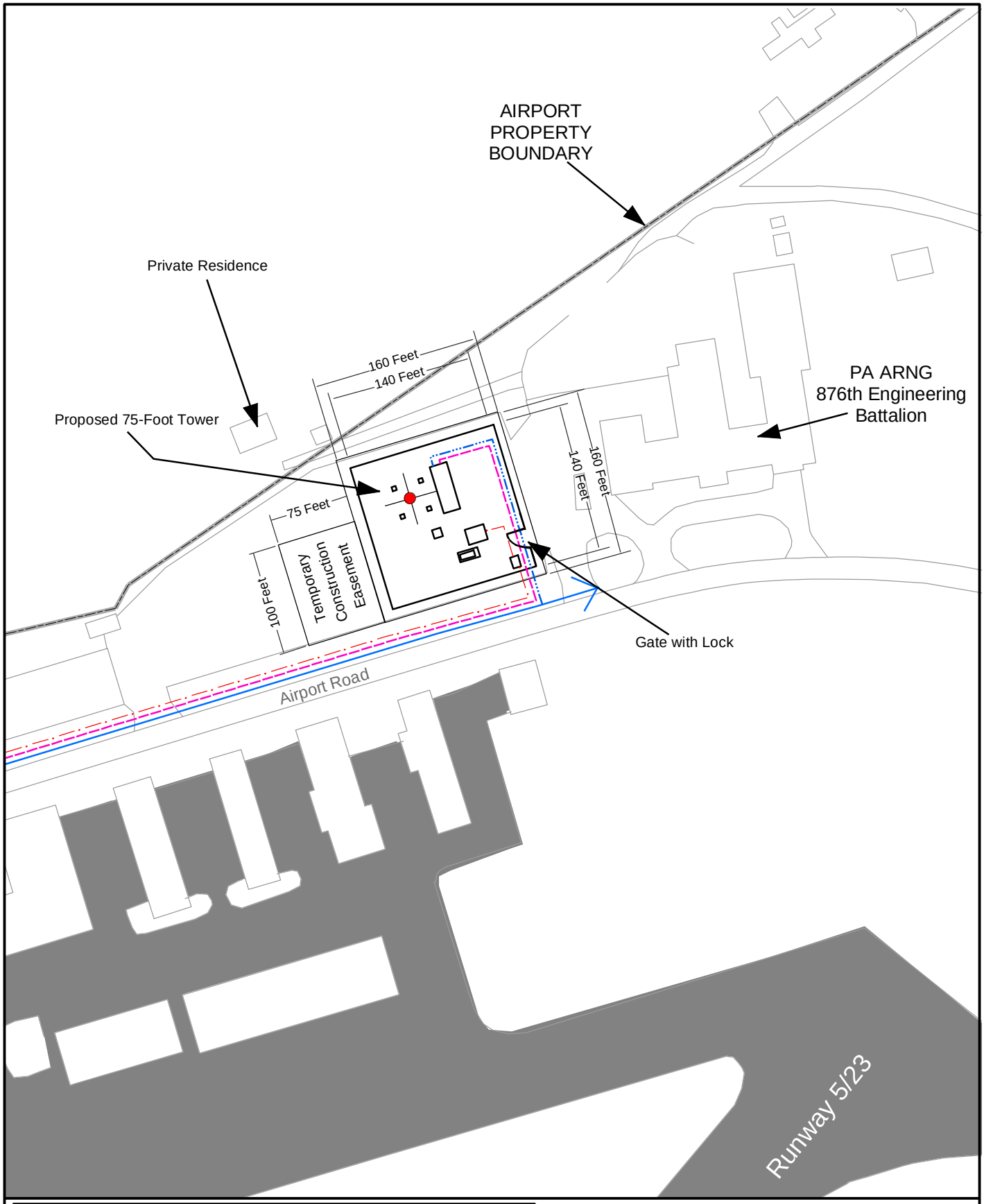
N W E S

Figure 2-5
ALTERNATIVE ASR-11 SITE 5

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

50 25 0 50 100 150 200 Feet

Site 5 Layout.mxd



Source: JCCA, 2001

LEGEND

- Existing Telephone Line
- Proposed Fiber Optic
- Proposed Telephone
- Proposed Underground Power
- Roads, Buildings, and Airport Features
- Airport Property Boundary
- Proposed Access Road
- Runways and Taxiways
- Proposed ASR-11 Tower

N W E S

Figure 2-6
ALTERNATIVE ASR-11 SITE 7

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

50 25 0 50 100 150 200 Feet

Site 7 Layout.mxd

3.0 AFFECTED ENVIRONMENT

The existing environmental conditions and future conditions without the project are described for each site in order to provide a baseline against which potential impacts related to construction and operation of the ASR-11 can be determined. General conditions on JCCA are presented for each of the parameters and site specific detail is included, as available. The following information was obtained from several documents and reports obtained from JCCA staff and supplemented with data collected during a site visit conducted in September 2001 and subsequent communications with the PA ANG 258 ATCS, the PA ARNG 876 Civil Engineering Battalion, civilian airport authorities, Richland Township Zoning Office, and Cambria County Offices.

3.1 LAND USE

The purpose of this section is to characterize land uses in the vicinity of JCCA. This section provides general information pertaining to the greater Johnstown-Cambria County area and more specifically addresses land use attributes in the locality of each of the alternative ASR-11 sites (Site 4, Site 5, and Site 7).

3.1.1 Existing Conditions

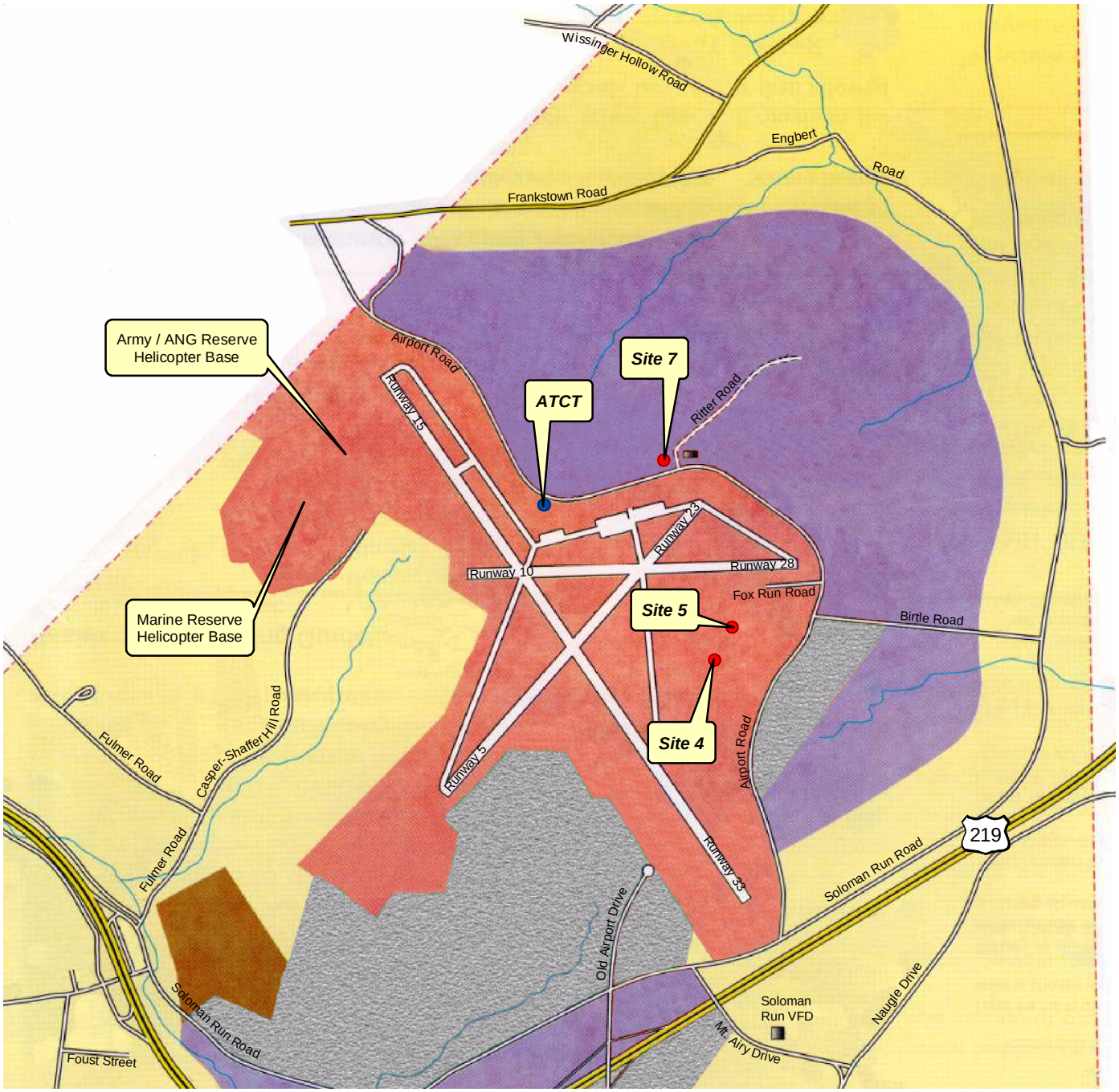
JCCA is located in southwestern Pennsylvania, almost entirely within Richland Township, in Cambria County. A very small unimproved section (less than five percent) of the airport property to the northwest lies in Conemaugh Township. The airport is approximately five miles east of the city of Johnstown and 55 miles east of Pittsburgh.

Cambria County covers approximately 690 square miles, of which more than half (54 percent) is undeveloped. Twenty percent of the county's land area is in agricultural use and the remaining 26 percent is urbanized (CCPC, undated). County land use policies facilitate maintaining and promoting the economic prominence of agricultural and industrial

enterprises, determining appropriate urban development centers and encouraging their economic development, protecting the existing character of rural and recreational communities and areas, and preserving the unique natural and cultural resources of the region.

Most of the land immediately adjacent to JCCA is undeveloped or used for agriculture, although several home improvement stores and hotels have been recently constructed within one-half mile of the airport. Terrain is characterized by rolling hills dominated by deciduous hardwood forest interspersed with small farms and single-family residential homes. Several large warehouses, distributorships, restaurants, and additional hotels are located within five miles of the airport. Johnstown, once a major steel manufacturing center located in the extreme southwestern corner of Cambria County, is the nearest large community to the airport, although the closest major residential area to the airport is located within Richland Township, southwest of the airport. Scattered residential homes can be found closer to the airport to the west and northwest. The airport and some land adjacent to the airport were recently consolidated into a new zoning district, Airport Zoning District A, specifically for the airport (Richland Township, 2001c). Land surrounding the Airport Zoning District to the north, east, and south is primarily zoned for general commercial, light industrial, or manufacturing (Figure 3.1-1). Residentially zoned areas also abut the airport predominantly to the west, although a small residentially-zoned area abuts the airport at the southeastern end of Runway 15/33 (Richland Township, 1999).

JCCA is situated on a 550-acre site, located approximately one mile north of the intersection of US Highway 219 and State Route 56. Topographically, JCCA is situated on top of a plateau in the Allegheny Mountains; the land slopes down in all directions from the airport (USAF, 2002). JCCA is primarily utilized for commercial passenger and cargo transport services. JCCA operates as a civilian airport with military units as tenants, currently consisting of units from the US Army Reserves, PA Air National Guard (258 ATCS), PA Army National Guard (876 Engineering Battalion), and Marine Corps Reserves (104th Airborne). JCCA has three runways: 15/33, 5/23, and 10/28. The major



Source: JCCA, 2001; Richland Township, 2001

LEGEND

- General Commercial
- Manufacturing
- Light Industrial
- Airport
- Single Family Residential
- Proposed ASR-11 Site
- Air Traffic Control Tower

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Figure 3.1-1
ZONING DISTRICTS IN THE VICINITY OF JOHNSTOWN CAMBRIA COUNTY AIRPORT

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

600 300 0 600 1,200 1,800 2,400 Feet

JohnstownZoning.mxd

runway, 15/33, runs southeast/northwest and is 7,000 feet long by 150 feet wide. Runway 5/23 runs northeast/southwest, and 4,500 feet long by 100 feet wide. Runway 10/28 runs west/east and is 3,700 feet long and 100 feet wide.

The majority of land within airport boundaries is categorized into the following land use classifications: aircraft operations/maintenance, existing structures, open or cleared areas, and natural open space (PA ANG, 2000). The majority of existing facilities, totaling approximately a dozen buildings, are located in the northeast portion of the airfield complex; a cleared buffer area surrounds the airfield. The airport terminal complex includes the terminal building, aircraft apron, restaurant, flight service station, crash-fire-rescue building, hangar, fuel farm, and automobile parking lot. Notable within the airport are a number of ongoing or recently completed projects, such as the Air National Guard training facility, a U.S. Marine hangar facility, and an Air Traffic training facility.

The alternative ASR-11 sites are generally located along the boundary of the airport property. **Site 4** and **Site 5** are located on the eastern side of the airport property, south of Runway 10/28, off Fox Run Road. These sites are within a triangular shaped clearing, framed by Fox Run Road to the north, a taxiway to the west, and a privately-owned wooded lot to the east. There are no buildings within the triangular parcel. Airplane hangers are located approximately 600 feet from Site 4 and 350 feet from Site 5, on the northern side of Fox Run Road. A National Oceanographic and Atmospheric Administration (NOAA) weather station is 1,000 feet southwest of the proposed sites. Site 4 and Site 5 are presently undeveloped, and semi-routinely mowed, maintained as a grassy clearing. Both Site 4 and Site 5 are located within Airport Zoning District A.

Site 7, located within the airport property boundary approximately 800 feet northwest of Runway 5/23, is within a fenced area currently owned by JCCA but leased to the PA ARNG for use as a motor pool and storage area for jeeps, tractor trailers, and heavy equipment. The parking area is a combination of paved and gravel surface. The site is adjacent to, and shares a paved access way with, the PA ARNG 876 Engineering Battalion's recently remodeled civil engineering building (to the east). At the western

end of the parking lot is the PA ARNG's operations and maintenance shop (OMS). Site 7 is approximately 125 feet from a private two-story residence, 400 feet from the OMS, and 200 feet from the CE building. The site, as well as the private residence, is located just beyond the Airport Zoning District A (which is bounded by Airport Road) and is zoned as Light Industrial.

3.1.2 Future Baseline Without Project

JCCA has recently experienced a number of additions/renovations, and this trend is anticipated to continue in the near future. The Airport Authority has plans for various commercial/industrial development options for land within, or immediately adjacent to, JCCA. The Cambria County Industrial Development Corporation (CCIDC) has promoted the idea of developing an airport industrial park; the CCIDC recently published a feasibility study evaluating approximately 14 different locations (one of which encompasses Site 4 and Site 5) in the airport vicinity (CCIDC, 2000). The airport executive director has indicated that a regional jet maintenance facility currently has an option on the 13-acre triangular area which encompasses Site 4 and Site 5, as well as the neighboring three acre parcel on which the NOAA weather station is located. The airport executive director indicated that plans were still in the conceptual stage; thus, actual building locations and dimensions are uncertain, but he suspected that hangars could be up to 50 feet high. The airport executive director also has indicated that the existing PA ARNG motor pool, as well as the adjacent OMS, will be relocated to a 17-acre parcel in another section of the airport, as part of a planned land swap. Architectural and engineering design of the replacement OMS building is currently ongoing. Thus, there are a number of proposed development activities planned in the future that may alter the land use patterns of JCCA and its vicinity in the absence of the ASR-11 project.

3.2 SOCIOECONOMIC CONDITIONS

3.2.1 Existing Conditions

This section addresses the population, employment, general economic condition, and housing of the study area. Socioeconomic data specific to the alternative ASR-11 site locations do not exist. However, there are data for the general area of JCCA, Cambria County, and Richland Township.

3.2.1.1 Population. While the population of the State of Pennsylvania has increased by 3.4 percent over the last decade, the population in Cambria County and Richland Township has decreased by 6.4 percent and 1.4 percent, respectively, since 1990 (Table 3.2-1).

Table 3.2-1. Population Trends within Pennsylvania, Cambria County, and Richland Township

Area	1990 Census	2000 Census	% Change	Future Without Proposed Action	
				2010 Estimate Predicted	% Change[1]
Pennsylvania	11,881,643	12,281,054	3.4	12,407,523	1.0
Cambria County	163,029	152,598	-6.4	141,545	-7.2
Richland Township	12,777	12,598	-1.4	NA	NA

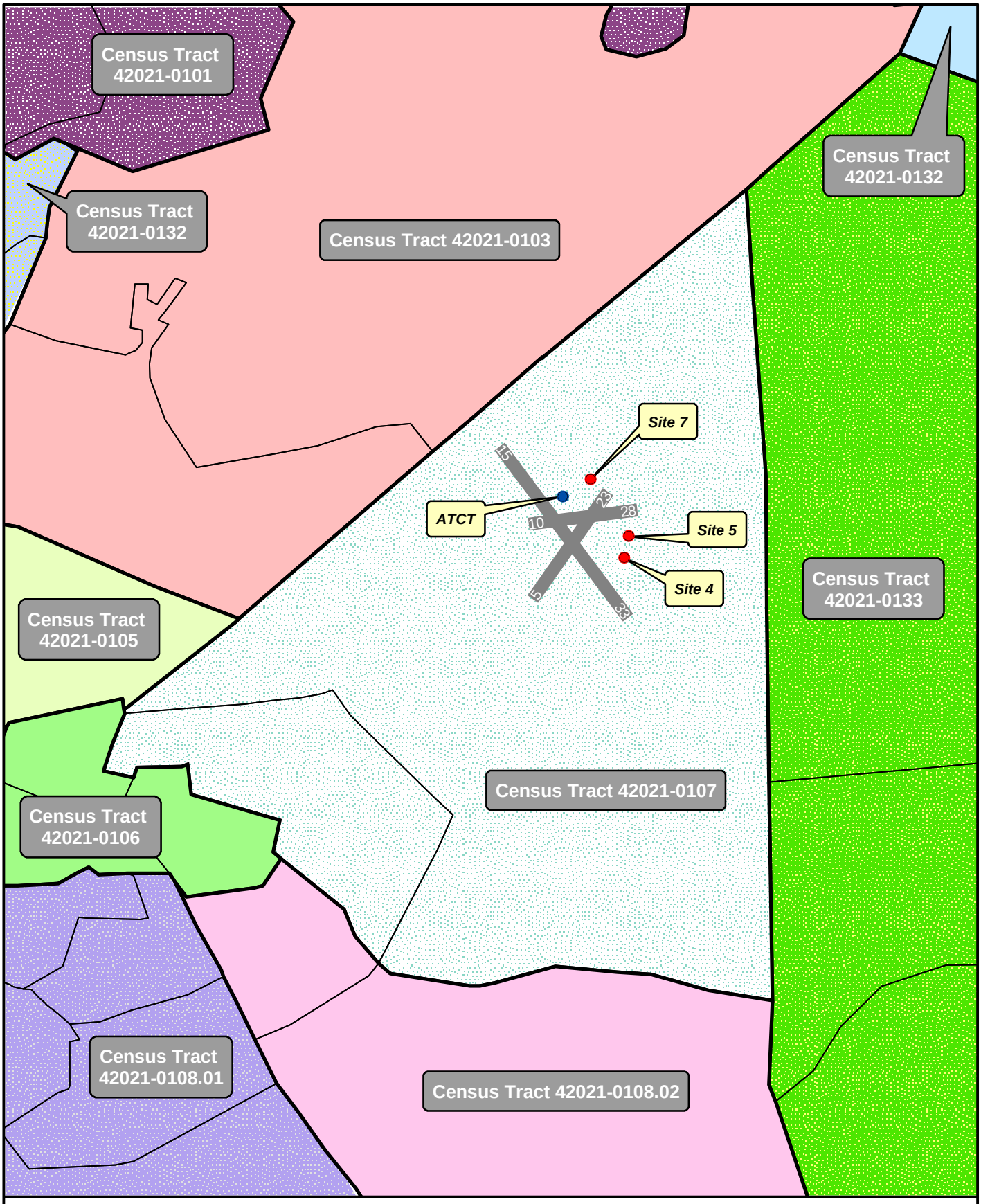
Source: U.S. Bureau of the Census (USBC), 1990 & 2000; PA State Data Center (based on 1990 data)
1. Predicted percent change from 2000 to 2010, USBC Average of Series A & Series B estimates.
NA: Not available.

Table 3.2-2. Income and Ethnicity Statistics for Pennsylvania, Cambria County, Richland Township (Cambria) and Census Tracts Containing and Surrounding JCCA

	Pennsylvania	Cambria County	Richland Township	Census Tracts: 42021-[1]					
				0107[2]	0103	0105	0106	0108	0133
Total Persons	12,281,054	152,598	12,598	3,054	2,501	3,951	2,555	9,544	6,495
Number of Households	4,777,003	60,531	4,741	1,249	995	1,832	1,105	3,492	2,521
Percent Below Poverty Level[3]	11.1	14.0	7.5	7.2	7.6	8.6	4.1	7.4	10.7
Persons Below Poverty Level[3]	1,283,629	2,1928	830	231	210	363	113	599	727
Land Area (sq. mi.)	44,817	688	19.5	9.1	11.4	3.6	1.1	11.1	46.6
ETHNICITY PERCENTAGES									
White	84.1	95.2	96.8	98.5	98.1	97.8	97.5	96.2	98.4
Black	9.8	2.8	0.7	0.2	0.8	0.8	0.4	0.9	0.0
American Indian – Alaska Native	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2
Asian	1.8	0.4	1.4	0.5	0.2	0.3	1.4	1.7	0.1
Native Hawaiian – Pacific Islander	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Hispanic	3.2	0.9	0.5	0.4	0.6	0.7	0.3	0.6	0.8
Other	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Two or more races[4]	0.9	0.6	0.4	0.3	0.3	0.3	0.4	0.5	0.4

SOURCE: USBC, 1990 & 2000

[1] Statistics based on the 2000 Census Tract data. 2000 Census data for Block Groups not currently available.
[2] JCCA is nearly entirely contained within this Census Tract (42021-0107).
[3] Poverty data taken from 1990 census data.
[4] Percent responding as belonging to two races (e.g. white & hispanic).



Source: U.S. Bureau of the Census, 2000b

LEGEND

- Census Tract Boundaries
- Census Block Group Boundaries
- Runways
- Proposed ASR-11 Site
- Air Traffic Control Tower

N
W E
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1.0 0.5 0 1.0 Mile

Figure 3.2-1
CENSUS TRACTS IN THE VICINITY OF THE ALTERNATIVE ASR-11 SITES

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

JohnstownCensus.mxd

The percentage of persons below the poverty level in Richland Township is roughly half that of Cambria County as a whole, and a third lower than the overall percentage of persons below the poverty level within Pennsylvania (Table 3.2-2). The general ethnicity proportions throughout Cambria County and Richland Township are comparable; however, the state has a higher overall black population and a higher percentage of hispanics. In the region immediately surrounding the airport, the white population is greater than 95 percent, while statewide the number drops to approximately 84 percent (USBC, 1990; 2000).

JCCA lies almost entirely (greater than 95 percent) within Census Tract 42021-0107, while five other census tracts surround the main airport (Figure 3.2-1). For the purpose of this assessment, census tract data are used because block group level data are not yet available for the 2000 census. Additionally, only the airport area and surrounding Census Tracts are identified. A variety of conditions exist throughout the census tracts of the JCCA area. Among the six tracts, populations range from 2,501 through 9,544, while tract areas range from 1.1 to 46.6 square miles. The largest population belongs to tract 42021-0108 (11.1 square miles) south of the airport; while the smallest belongs to tract 42021-0103 (11.4 square miles), located to the northwest of the airport. The percentage of persons below the poverty level throughout the census tracts that surround and include JCCA vary between 4.1 and 10.7 percent; however, all are below the county (14.0 percent) and state (11.1 percent) averages. Tract 42021-0107 has approximately 7.2 percent of its population below the poverty level, the second lowest percentage among the blocks surrounding JCCA. Ethnicity percentages are generally consistent among the census tracts; the white population comprises the majority (greater than 95 percent) of all census tracts, with only small numbers of persons of other ethnicities present (USBC, 1990; 2000).

All three alternative sites (**Site 4, Site 5** and **Site 7**) are located within census tract 42021-0107. The private residence located approximately 125 feet from Site 7 is also located within tract 42021-0107. The closest neighboring census tracts to the three alternative sites are census tracts 42021-0103 and 42021-0133.

3.2.1.2 Employment. As of September 2001, the civilian labor force totaled 6,079,308 in the state of Pennsylvania, 65,950 in Cambria County, and 9,467 in the city of Johnstown (Table 3.2-3). Unemployment rates for Cambria County and the city of Johnstown are slightly higher than the rate for Pennsylvania. Although the state unemployment rate has remained relatively constant during 2001, city and county unemployment rates decreased during 2001. In 2001, Cambria County employment levels grew by 1,882 jobs, representing a 3.1 percent growth rate (U.S. Department of Labor, 2001). Between 1990 and 1997 (the last economic census), the fastest growing sectors have been services and retail trade. All other sectors have remained relatively steady, expect for mining which suffered a 77 percent decrease (U.S. Bureau of Economic Analysis, 2001).

Table 3.2-3. Labor Force, Employment, and Unemployment Data for Pennsylvania, Cambria County, and Johnstown City[1] for the Month of September 2001[2]

Area	Labor Force	Employed	Unemployed	Unemployment Rate (percent)
Pennsylvania	6,079,308	5,807,209	272,099	4.5
Cambria County	65,950	62,378	3,572	5.4
Johnstown City	9,467	8,852	615	6.5

Source: US Department of Labor, Bureau of Labor Statistics, November 2001

[1] Richland Township data not available. Johnstown City is located approximately 5 miles southwest of JCCA.

[2] Data not seasonally adjusted.

3.2.1.3 Expenditures of JCCA. JCCA, classified as a scheduled service airport by the Pennsylvania Bureau of Aviation, is home to 90 based aircraft and experiences over 43,000 annual operations. The airport's direct economic impacts are attributable to the employment, payroll and spending from the airport's tenants. In 1994, there were 14 aviation-related tenants on the airport, supporting 140 employees, with an estimated annual payroll of $4.5 million. In addition to the on-airport tenants, two categories of visitors are directly responsible for the majority of economic impacts or benefits: visitors traveling via scheduled service airlines, and visitors traveling via general aviation aircraft. Airport management data indicates that approximately 9,625 visitors arrived via scheduled service airlines in 1994. Scheduled service visitor-related spending supported an additional 111 full time employees earning a total of $1.4

million (PennDOT, undated). Spending by 10,700 general aviation visitors supported an additional 34 full-time employees earning a total of $439,400 (PennDOT, undated).

3.2.1.4 Housing. In 2000, there were 65,796 housing units in Cambria County, representing slightly more than one percent of the total housing units in the state of Pennsylvania (USBC, 2000; Table 3.2-4). Cambria County had a housing occupancy rate of 92.0 percent, roughly the same as the state of Pennsylvania, which had an occupancy rate of 91.0 percent.

In 2000, there were 4,994 housing units in Richland Township, where JCCA is located, with an occupancy rate of 94.9 percent. Because there is no housing at the airport, military and civilian personnel, as well as airport employees, live in the surrounding communities.

Table 3.2-4. Housing Units and Vacancy Status in Pennsylvania, Cambria County and Richland Township (Cambria) in 2000

Area	Total Housing Units	Occupied			Vacant	
		By Owner	By Renter	Percent Occupied	Empty	Seasonal
Pennsylvania	5,249,750	3,406,337	1,370,666	91.0	324,517	148,230
Cambria County	65,796	45,271	15,260	92.0	4,639	626
Richland Township	4,994	3,591	1,150	94.9	253	22

Source: U.S. Bureau of the Census, 2000

3.2.2 Future Baseline Without Project

The projected population growth from 2000-2010 for Pennsylvania indicates an almost stagnant one tenth of one percent annual growth rate. The number of people living in Cambria County is anticipated to continue declining, at a slightly higher rate than experienced in the previous decade (USBC, 1990, 2000; PA State Data Center, 2001). No information is currently available regarding local township population projections. It is anticipated that the economic link between the airport and the local economy will grow as the number of visitors, operations, and based

aircraft at JCCA increases (PennDOT, undated). If proposed development, such as the airport industrial park or the regional jet maintenance facility are built, a corresponding benefit to local employment and income levels would be expected.

3.3 UTILITIES AND TRANSPORTATION

3.3.1 Existing Conditions

The utility service at JCCA, including availability in the vicinity of the alternative ASR-11 sites, is discussed in this section. The utilities include water, wastewater, solid waste, electricity, communications, and natural gas. Transportation is described in section 3.3.1.7.

3.3.1.1 Water Supply. Drinking water is supplied to JCCA by the Highland Sewer and Water Authority. The source of this drinking water is primarily Beaverdam Reservoir (Scott, 2000). This 360-acre impoundment in Cambria County is located within the Ohio River drainage basin.

Site 4 is located approximately 500 feet east from the nearest water distribution line. The water distribution line closest to **Site 5** is approximately 700 feet to the west. **Site 7** is less than 50 feet from the nearest water distribution line.

3.3.1.2 Wastewater. The sanitary sewer system for the airport was recently reconstructed (PA ANG, 2000). Wastewater generated at JCCA is treated at the regional wastewater treatment plant located in South Fork. The sanitary sewer collection line closest to **Site 4** is approximately 375 feet to the north, adjacent to Fox Run Road. The sanitary sewer collection line closest to **Site 5** is located within 25 feet to the north, also adjacent to Fox Run Road. The nearest sanitary sewer collection line to **Site 7** is approximately 250 feet to the north.

3.3.1.3 Solid Waste. Solid waste on JCCA is transported to an off-site landfill by a private contractor. Per Richland Township Recycling Ordinance, JCCA must recycle aluminum, corrugated cardboard, and high-grade office paper (Richland Township, 2001a).

3.3.1.4 Electricity. Electricity is provided to the greater Johnstown area by GPU Incorporated and Somerset Rural Electric Cooperative, though it is purchased from local sources (PA ARNG, 2000).

For both **Site 4** and **Site 5**, the closest electrical distribution line is an underground electric line. Site 4 is located approximately 375 feet east of the nearest electrical distribution line. The electrical distribution line closest to Site 5 is approximately 630 feet to the west. **Site 7** is less than 25 feet from the nearest electrical distribution line; this line is an overhead electric line.

3.3.1.5 Communications. The distances from **Site 4** and **Site 5** to the nearest fiber optic connection at the MPN-26 site approximately 1,130 feet and 1,380 feet, respectively, to the southwest. The closest fiber optic line to **Site 7** is at the air traffic control tower approximately 1,700 feet to the west. The distances from Site 4 and Site 5 to the nearest telephone lines are approximately 650 feet and 100 feet, respectively, northeast along Fox Run Road. The closest telephone line to Site 7 is approximately 50 feet south along Airport Road.

3.3.1.6 Natural Gas. Natural gas is supplied to the greater Johnstown area by Columbia Gas of Pennsylvania, a subsidiary of NiSource Inc., and Dominion Peoples, a subsidiary of Dominion Resources, Inc. (NiSource, 2001; Dominion, 2001). **Site 4** is located approximately 250 feet to the east of the closest gas line and **Site 5** is located 25 feet south of the closest gas line. **Site 7** is located slightly more than 100 feet from the closest gas line.

3.3.1.7 Transportation. There are three primary highways that provide regional access to the greater Johnstown area. Access to the Johnstown area from the north and south is provided by US 219, which is a four-lane divided highway. Access to the Johnstown area from the east and west is provided by US 22 and US 30, which are two-lane highways. US 219 links the Johnstown area to Interstate 76 (the Pennsylvania Turnpike). Interstate 76 is located 25 miles to the south and provides direct access to Pittsburgh in the west and Harrisburg to the east. Access to JCCA is provided via collector roadways, SR 3033 (Solomon Run Road), SR 3031 (Airport Road), and SR 3024 (Frankstown Road). US 291 and SR 56 also both come within one mile of JCCA. Airport Road provides primary access to JCCA, and serves as a main local route

connecting Richland Township to Johnstown. Airport Road provides access to **Site 7.** Fox Run Road, which runs perpendicular to Airport Road, provides access to **Site 4** and **Site 5.** Site 4 is approximately 350 feet from Fox Run Road. Site 5 is approximately 100 feet from Fox Run Road.

Railroad transportation in the greater JCCA area is provided by the Conrail and Baltimore & Ohio railway system. The main line passes through the city of Johnstown but does not provide access to JCCA (PA ARNG, 2000).

3.3.2 Future Baseline Without the Project.

JCCA is currently in the process of revising its master plan. Information on proposed changes or improvements to utility and transportation infrastructure was not available at the time of preparation of this EA.

3.4 NOISE

The existing general noise environment of JCCA is discussed in this section, as well as the noise environments of the three alternative ASR-11 sites. Many federal agencies use the day-night average sound level (DNL) to describe noise and to predict community effects from long-term exposure to noise. In addition, this noise level classification system is used to determine the appropriateness of a given use of specific land (land use compatibility) relative to the average level of environmental noise experienced at the location. These guidelines are described in the *Air Installation Compatible Use Zone (AICUZ) Program Handbook* (USAF, 1991). Noise levels below 65 decibels are considered to be compatible with residential land use. Residential land use is discouraged in areas with a noise level between 65-70 decibels, strongly discouraged in areas with sound levels between 70 and 75 decibels, and considered generally unacceptable for areas with noise levels exceeding 75 decibels.

3.4.1 Existing Conditions

Noise generated during military and civilian flight operations are the loudest noise source at JCCA (PA ARNG, 2000). Noise generated independently of aircraft flight, such as maintenance and shop operations, ground traffic, and construction, is comparable to the noise generated in the surrounding developed areas of Richland Township.

The associated airport noise contours generally reflect proximity to the runways. The area of highest readings (70-75 DNL and higher) is in the immediate vicinity of the runways. Extended areas of higher level noise occur along the aircraft approach and departure corridors. In general, the extended areas of higher noise surrounding the airport extend further on the northwest and southeast side of the airport than they do on the northeast or southwest side of the airport, apparently due to the orientation of the major runway (15/33), which handles the larger and louder aircraft. The relatively level topography on JCCA does not provide any barrier to noise; therefore, the noise distribution is relatively symmetrical around runways.

All three proposed alternative sites are located east of Runway 15/33. **Site 4, Site 5** and **Site 7** are located outside of the 65 DNL contour, and thus are generally characterized by noise levels below 65 dBA. Where noise levels of 65 DNL or higher do occur, they are almost entirely on airport property (PA ARNG, 2000). There are currently no 24-hour operations near any of the sites which would generate noise; most flights occur during daylight hours.

3.4.2 Future Baseline Without the Project

As noted previously, the Airport Authority has many plans and ongoing actions for various commercial/industrial development options for land within or immediately adjacent to JCCA. The CCIDC has promoted the idea of developing an airport industrial park, although a specific location has not been chosen, making it difficult to assess the potential impact of the industrial park on ambient noise levels in the vicinity of the three alternative ASR-11 sites. A regional jet maintenance facility currently has an option on the 13-acre triangular parcel which encompasses Sites 4 and 5; should this facility be constructed, it is likely that the immediate area proximate to the facility may experience an increase in ambient noise levels as a result of the new activity associated with the jet maintenance facility. The existing use of the Site 7 (the PA ARNG motor

pool), as well as the adjacent OMS, will be relocated to a parcel in another section of the airport. The relocation of these facilities is not anticipated to result in a significant reduction in ambient noise levels since the current uses do not contribute significantly to the ambient noise levels dominated by the aircraft operations and local traffic along Airport Road.

3.5 AIR QUALITY

Air quality data specific to the alternative ASR-11 site locations do not exist. However, information compiled from regional data is expected to describe site specific characteristics.

The U. S. Environmental Protection Agency (EPA) defines ambient air in 40 CFR 50 as "that portion of the atmosphere, external to buildings, to which the general public has access." In compliance with the 1970 Clean Air Act and the 1977 and 1990 Clean Air Act Amendments, EPA has developed ambient air quality standards and regulations. The National Ambient Air Quality Standards (NAAQS) were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, EPA has issued NAAQS for six criteria pollutants (Table 3.5-1): carbon monoxide (CO), sulfur dioxide (SO_2), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), and particulates (e.g., PM-10, particles with a diameter less than or equal to 10 μm). National primary standards are set to protect human health with an adequate margin of safety for even the most sensitive portion of the human population. Secondary standards are set for some pollutants to protect against damage to plants, animals, and materials. According to guidelines, an area with air quality better than NAAQS for a specific pollutant is designated as being "in attainment" for that pollutant. A "nonattainment" designation means that a NAAQS has been exceeded more than three discontinuous times in 3 years.

The regulatory authority for air quality in Pennsylvania is the Pennsylvania Department of Environmental Protection (PA DEP); applicable air quality regulations are set forth in Title 25, Environmental Resources, Chapters 121 through 143, Air Resources of the Commonwealth of Pennsylvania.

3.5.1 Existing Conditions

Richland Township and JCCA are located in an area characterized by a moderate climate (PA State Climatologist, 2000). Annual minimum and maximum temperatures average about 40 and 62 degrees Fahrenheit (°F), respectively. Daily high temperatures average in the middle 80s °F during the summer months and in the high 30s °F during winter months. The local meteorological conditions in the greater Johnstown area include an annual mean wind speed of 4.6 m/sec (10.7 miles per hour). Winds generally come from the west and bring most of the weather disturbances affecting the state from the interior of the continent (PA State Climatologist, 2000).

The Johnstown area, encompassing Cambria and Somerset counties, is classified as in attainment for all criteria pollutants except ozone; the area around JCCA is classified as a marginal nonattainment area for ozone (US EPA, 2001). The marginal nonattainment classification is based on the 1-hour ozone standard; EPA has not yet designated areas for the 8-hour standard. The Johnstown monitoring station had five exceedances of the 8-hour standard in summer 2001, with a maximum concentration of 96 parts per billion (ppb) (PA DEP, 2001a). PA DEP has recommended to the EPA that the Johnstown area be designated as transitional/nonattainment for the 8-hour standard. PA DEP is proposing that most of Pennsylvania be designated 'transition' areas because pollution coming into the state from the west and south causes violations of the ozone standard (PA DEP, 2001b).

Estimated annual aircraft emissions for flight operations associated with JCCA are presented in Table 3.5-2; since aircraft emissions are the dominant mobile pollutant source in an airfield environment, other minor sources of emissions such as personnel commuting are not included. Aircraft engine emissions were calculated utilizing the Calculation Methods for Criteria Air Pollutant Emission Inventories (Armstrong Aerospace Medical Research Laboratory, 1994), Aircraft Engine Emissions Estimator ESC-TR85-14, and the USAF Aircraft and Engines Supplement A to Compilation of Air Pollutant Emission Factors Volume II: Mobile Sources (EPA, 1995).

3.5.2 Future Baseline Without the Project

Without the project, air quality within the greater Johnstown area is anticipated to remain in attainment for all parameters with the exception of ozone. Improvements in Cambria County's ozone status are dependent upon air emissions generated in states to the south and west, such as Ohio and West Virginia. The state of Pennsylvania is anticipated to continue monitoring automobiles, power plants, and industry, all of which contribute to the existing and future air pollution problem. Incremental improvements, however, may be off-set by increased automobile use. Construction of new airport facilities, such as the industrial park or regional jet maintenance facility, currently under consideration, could also contribute to higher localized pollutant levels through increases in aircraft or other vehicular emissions. Changes in airport use, either by commercial aircraft or by its military tenants, could also result in changes in localized emissions, such as those described in the *Environmental Assessment of Changes in Helicopter Operations by the Pennsylvania Army National Guard at Johnstown Cambria County Airport* (PA ARNG, 2000), summarized in Table 3.5-2.

3.6 GEOLOGY AND SOILS

3.6.1 Existing Conditions

General characteristics of soils and geology at JCCA are discussed in this section. Site-specific data relevant to the three alternative ASR-11 sites are provided, as available.

3.6.1.1 Geology. JCCA is located on a plateau in the Allegheny mountains, which are part of the Appalachian Range. This region is also geologically known as in the Appalachian Plateau Physiographic Province. The terrain surrounding the airport is a combination of steep slopes and rolling hills. To the south and west, the topography slopes off steeply towards the Solomon Run drainage. To the north and east are gently rolling hills (PA ANG, 2000).

The underlying bedrock at JCCA consists of layered siltstone, sandstone, shale, and claystone. The upper 50 feet of the profile under the airport typically consists of 0-13 feet of overburden, 11 feet of siltstone, and 8.5 to 29.8 feet of sandstone. Deeper into the profile is the Glenshaw Formation, a regional geologic limestone and shale formation. The depth to the Glenshaw

Table 3.5-1. National and Pennsylvania Ambient Air Quality Standards

NATIONAL AMBIENT AIR QUALITY STANDARDS		
Air Pollutant	**Time Averaging**	**Concentration**
Ozone (O_3)	Max Daily 1-hour	125 ppb
	Max Daily 8-hour	85 ppb
Respirable particulate matter of diameter less than 10 microns (PM_{10})	24-hour	150 $\mu g/m^3$
	Annual	50 $\mu g/m^3$
Fine Particulate matter of diameter less than 2.5 microns ($PM_{2.5}$)	24-hour	65 $\mu g/m^3$
	Annual	15 $\mu g/m^3$
Carbon Monoxide (CO)	1-hour	35 ppm
	8-hour	9 ppm
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm
Lead (Pb)	Max Quarterly	1.5 $\mu g/m^3$
Sulfur Dioxide (SO_2)	24-hour	0.14 ppm
	Annual	0.03 ppm
ADDITIONAL PENNSYLVANIA AMBIENT AIR QUALITY STANDARDS		
Air Pollutant	**Time Averaging**	**Concentration**
Beryllium	30-day	0.01 $\mu g/m^3$
Fluorides	24-hour	5 $\mu g/m^3$
Hydrogen Sulfide	1-hour	0.1 ppm
	24-hour	0.005 ppm

Source: EPA 2001a; PA DEP, 2001b

National standards, other than for ozone and those based on annual average or annual arithmetic means, are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
ppb = parts per billion
ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter

Table 3.5-2. Estimated Annual Aircraft Emissions for JCCA Associated Flight Operations

Pollutants	Total Emissions (tons/year)		
	1996	Interim (estimate)[1]	2005 (estimate)[1]
Carbon Monoxide	312.53	349.02	341.46
Volatile Organic Compounds	30.52	41.29	42.07
Nitrous Oxides	26.58	37.88	38.18
Sulfur Oxides	2.38	3.19	3.32
Particulate Matter (PM_{10})	0.81	0.81	0.81

Source: EPA, 1995; Armstrong, 1994; as cited in PA ARNG, 2000

1. The PA ARNG is in the process of replacing the existing 24 AH-1F Cobra helicopters over a five year period. The interim estimate is based on an interim helicopter unit consisting of 14 AH-1F Cobras, 8 OH-58 Kiowas, and 2 UH-1H Iroquois. The year 2005 estimate is based on a final unit composition of 10 AH-64 Apaches, 10 RAH-66 Comanches, and 10 UH-60 Blackhawks. by 2005 (PA ARNG, 2000). Additionally, the PA ARNG anticipates the assignment of 8 BH-47D aircraft to JCCA (PA ARNG, 2000).

Formation is usually greater than 69 feet (PA ANG, 2000). The airport lies in a Seismic Zone 1 Region, indicating a low earthquake hazard (USAF, 2002).

The subterranean surface of the southwestern part of Pennsylvania, particularly the area of Cambria and Somerset Counties, contains some of the most abundant bituminous coal seams in the United States. These coal seams are exposed in numerous river and stream valleys, which has made them easy to extract. Drift or slope mines have been driven into many of the valley walls near the level of the coal, providing easy access to the coal without the need to resort to complicated and expensive lifting apparatus. There are five minable seams in the area, including the Upper and Lower Freeport, and the Upper and Lower Kittanning, which generally range in thickness from 2.5 to 5 feet. The underlying Brookville seam has not been extensively mined, but may have future commercial importance. There is a vast network of mine tunnels approximately 300 to 500 feet beneath large portions of the airport property. A mining inspection report indicates that this pillar and cavern network of mine tunnels extends beneath **Site 4** and **Site 5**, and although the map does not fully cover **Site 7**, the mine network also appears to extend in that direction (Rampside Collieries, 2001). The Airport Authority has not reported any land subsidence attributable to historic or ongoing mining activity.

3.6.1.2 Soil Resources. Most of the soils at JCCA have been disturbed by human activity related to the airport. The majority of the airport originally consisted of the Cookport-Hazelton-Laidig Association of soils, which naturally occupy nearly level to steep slopes and are well to moderately drained upland soils. The areas towards the ends of the runways still contain soils from this association as well as several other soil types. However, around **Site 4, Site 5,** and **Site 7** the soils are all Urban land-Udorthents Complex. Having been altered, the properties of the soils may vary, but are generally considered to be shallow to deep, excessively drained to somewhat poorly drained, rapidly to slowly permeable soils on upland areas (PA ANG 2000; USAF, 2001). The soils are not considered to be prime farmland.

3.6.2 Future Baseline Without the Project

Barring any significant natural or human event in the area of JCCA, no changes in geologic formations or existing soil types are anticipated on JCCA in the future without the project.

3.7 SURFACE WATER AND GROUNDWATER

3.7.1 Existing Conditions

The characteristics for surface water and groundwater at the airport are discussed in this section and are expected to generally describe the area around the three alternative ASR-11 sites.

3.7.1.1 Surface Water. The area surrounding JCCA is laced with several ephemeral creeks and streams, none of which come within 1,000 feet of any of the proposed ASR-11 sites. These ephemeral creeks include Sandy Run, Solomon Run and Clapboard Run, each of which becomes a perennial stream approximately one to two miles downgradient of the airport. The Little Conemaugh River, Stonycreek River, Bens Creek, and Hinckston Run are perennial rivers located three to four miles from JCCA; all are tributaries to the Conemaugh River, which itself flows within approximately five miles of JCCA (PA ANG, 2000).

Most of the drainage at JCCA occurs as overland sheet flow, with relatively little reliance on drainage channels or other engineered stormwater management structures (PA ARNG, 2000). A narrow drainage channel parallels the northern side of Fox Run Road, and crosses beneath the

roadway just east of **Site 5**, ultimately draining into the wooded area off airport property. No surface water or drainage features are evident in the immediate vicinity of **Site 4**. Stormwater at **Site 7** appears to drain via a combination of sheet flow across impermeable surfaces and infiltration through the gravel. Although there are no catch basins located within the existing motor pool, the nearby parking lot for the PA Army National Guard CE building was upgraded to include catch basins and storm drains at the time of the recent CE building remodeling (JCCA, 2001a). The Airport Authority maintains a Stormwater Pollution Prevention Plan, which requires adequate site drainage and implements BMPs to reduce any adverse effects associated with stormwater discharge. Stormwater management for proposed projects is reviewed on a local level by the Richland Township Planning Commission as part of site plan approval.

A small wetland area occurring several hundred feet from Site 4 and Site 5 is discussed in further detail in Section 3.8.1.2.

3.7.1.2 Groundwater. The primary water-bearing deposits in the region surrounding JCCA are sandstone units contained in the Conemaugh Formation, which is part of the larger Pennsylvania Aquifer. The sandstone has moderate primary porosity and high secondary porosity. Yields of more than 50 gallons per minute (gpm) can be expected from sandstones within the Conemaugh Formation (PA ANG, 2000). The general movement of groundwater in the region is from areas of high head (usually at high elevation) to areas of low head (usually in low-lying areas).

Three natural springs are located on the northwest side of airport, two of which have outlets near residential homes and are currently used as potable water sources. Water samples collected at these springs in December 1990 indicated that the water produced by these springs was of very high quality (JCCA, 1990). There are no groundwater seeps, springs, or wells located at any of the three alternative ASR-11 sites.

Geologic borings in the vicinity of Runway 15/33 indicate groundwater at the airport is approximately 23 feet below ground surface, and is probably representative of conditions at **Site 7** (Kimball, 1991). However, wetland vegetation near **Site 4** and **Site 5** suggests that groundwater may occur close to ground surface near those two locations.

3.7.2 Future Baseline Without the Project

No substantial changes to surface water or groundwater conditions are expected to occur in the future without the proposed action. The existing aquifer can support high water yield (PA ANG, 2000). Continued implementation of BMPs during normal activities at the airport will help to reduce both point and non-point source pollution from stormwater, which should protect the overall quality of the groundwater.

3.8 BIOLOGICAL RESOURCES

This section contains descriptions of biological resources, including vegetation, wetlands, wildlife, and endangered species for JCCA and its vicinity, including the alternative ASR-11 sites.

3.8.1 Existing Conditions

3.8.1.1. Vegetation. Much of the natural vegetation has been removed from JCCA to accommodate development of facilities associated with airport operations; thus, the majority of vegetation found onsite consists of maintained landscaping. No sensitive plant species exist on or in the vicinity of the airport (U.S. Army Corps of Engineers, 1994).

The area surrounding the airport is wooded and interspersed with residential properties. The woodlands primarily consist of second- and third-growth forest comprised of northern red oak (*Quercus rubra*), yellow poplar (*Liriodendron tulipifera*), white ash (*Fraxinus americana*), sugar maple (*Acer saccharum*), black walnut (*Juglans nigra*), and black cherry (*Prunus serotina*).

Site 4 and **Site 5** are located in an open field characterized by upland grasses, clover (*Trifolium* sp.), dandelion (*Taraxacum officinal*), and yarrow (*Achilles millefolium*), among other species. The adjacent wood lot is characterized primarily by black locust (*Robina pseudo-acacia*) and cherry in the canopy layer and a viburnum (*Viburnum* sp.) shrub layer. Because **Site 7** lies within a partially paved, partially gravel-covered parking lot, it provides very little opportunity for vegetative establishment. Dandelions and upland grass species have colonized some of the

cracks in the asphalt and gravel. Canopy vegetation on the top of the slope to the east is primarily black locust and birch (*Betula* sp.); the understory includes goldenrod (*Solidago* sp.) and other upland herbaceous vegetation. The area adjacent to the CE parking lot has been landscaped and includes spruce trees (*Picea* sp.) approximately six feet tall.

3.8.1.2 Wetlands. According to the United States Fish and Wildlife Service (USFWS) National Wetland Inventory Map and a site delineation performed prior to the Runway 15/33 expansion, approximately 19 acres of wetlands occur on, or in the immediate vicinity of, the airport (USFWS, 1977; JCCA, 1991). A large wetland area located to the southeast of the airport is characterized as palustrine, scrub-shrub and forested wetland complex, with dominant vegetation consisting of arrowwood (*Viburnum dentatum*), soft rush (*Juncus effusus*), red maple (*Acer rubrum*), northern red oak, and American beech (*Fagus grandifolia*).

The small wetlands located on the airport property tend to be categorized as palustrine emergent, with dominant vegetation consisting of soft rush and tearthumb (*Polygonum sagitatum*) (PA ANG, 2000). One of the small on-airport wetlands occurs within the grassy triangle formed by Fox Run Road, a taxiway from Runway 15/33, and the southeast property boundary. This is the same grassy triangle in which **Sites 4** and **5** are located; however, the alternative sites are several hundred feet east of this wetland. No wetlands occur in the vicinity of **Site 7**. No floodplains are located on JCCA property (PA ANG, 2000); therefore, none of the three alternative ASR-11 sites are located within a floodplain.

3.8.1.3 Wildlife. Mammal species commonly found in Cambria County and the vicinity of the airport include white-tailed deer (*Odocoileus virginianus*), eastern gray squirrel (*Sciurus carolinensis*), red fox (*Vulpes vulpes*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), and striped skunk (*Mephitis mephitis*) (USACE, 1994).

Reptiles and amphibians occurring in the area include the eastern box turtle (*Terrapene carolina*), northern fence lizard (*Sceloporus undulatus hyacinthinus*), eastern garter snake (*Thamnophis sirtalis sirtalis*), red-spotted newt (*Notophthalmus viridescens*), and American toad (*Bufo americanus*) (PA ANG, 2000).

Bird species common in the area, associated with eastern deciduous forests, include purple finch (*Carpodacus purpureus*), warbling vireo (*Vireo gilvus*), black-throated blue warbler (*Dendroica caerulescens*), chestnut-sided warbler (*Dendroica pensylvanica*), American redstart (*Setophaga ruticilla*), northern cardinal (*Cardinalis cardinalis*), song sparrow (*Melospiza melodia*), white-throated sparrow (*Zonotrichia albicollis*), wild turkey (*Meleagris gallopavo*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and great horned owl (*Bubo virginianus*) (PA ANG, 2000). These species are generally mobile and commonly found in forest edges and open fields, as well as developed disturbed locations, and therefore may utilize habitat in the vicinity of **Site 4**, **Site 5**, and **Site 7**.

3.8.1.4 Threatened and Endangered Species. Except for occasional transient species, no federal or state-listed or proposed threatened and endangered species are known to exist in the vicinity of JCCA (PA ARNG, 2000). Review of the *Pennsylvania Natural Diversity Index* confirms the lack of any rare species at JCCA, as cited in PA ANG, 2000. Thus, no threatened or endangered species are anticipated to occur in the vicinity of the alternative ASR-11 sites.

3.8.2 Future Baseline Without the Project

As noted previously, JCCA has plans for various commercial and industrial development options for land within, or immediately adjacent to, JCCA. Should development, such as the airport industrial park or the regional jet maintenance facility occur, it is likely that there would be some associated clearing of either grass or forest vegetation and potential temporary displacement of wildlife.

3.9 AESTHETICS

The purpose of this section is to characterize the aesthetic resources of the project area in order to provide a framework for determining the potential changes that could occur as a result of the construction and operation of the ASR-11 at the alternative sites. Photographs were taken during the site survey in September 2001 to help characterize the aesthetic setting of each alternative

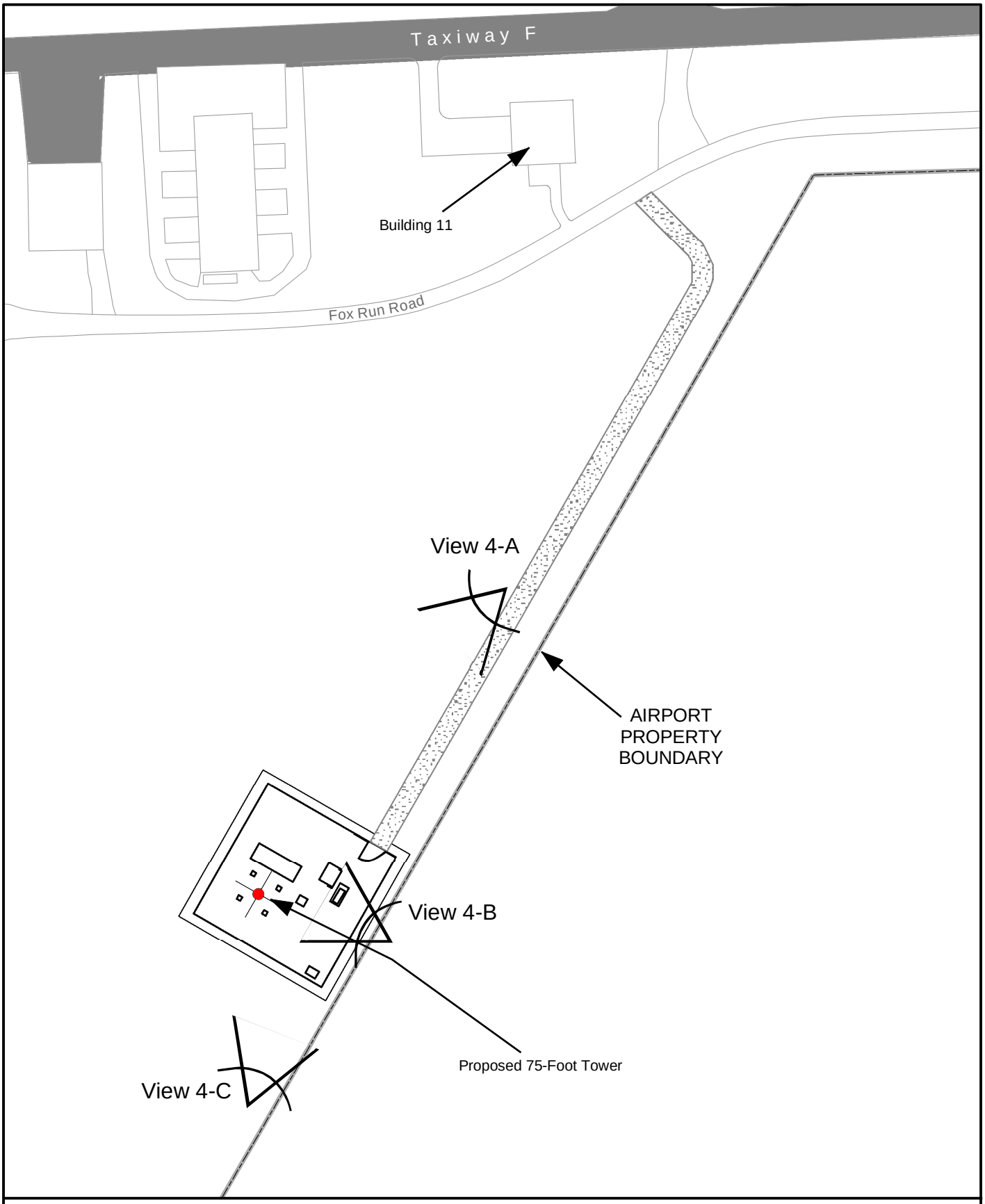
site. Figures 3.9-1 though 3.9-6 show those photographs and the locations from which photographs were taken.

3.9.1 Existing Conditions

JCCA is built on one of the highest hills in the area and its airfield, hangars, ATCT, and military buildings comprise the dominant components of the local viewshed. The visual environment of the airport is characteristic of a small, rural airport built predominantly in the 1950s and 1960s, with recent modernizations. Airport buildings tend to vary in style and construction materials. The existing terminal building is one-story, and generally blends with the surrounding natural features. A number of larger buildings associated with aircraft maintenance operations dominate the visual landscape along Airport Road.

Site 4 and **Site 5** are located on the eastern side of the airport, near the property boundary. The private property to the east, between the sites and Airport Road, is wooded, and presents a visual screen to those driving along Airport Road. Hangars are located approximately 350 to 600 feet northwest of Site 4 and Site 5, between Fox Run Road and Runway 10/28. The areas to the south and west of Sites 4 and 5 are relatively flat, mowed areas, that surround Runway 15/33 (Figure 3.9-2 and Figure 3.9-4).

Site 7 is located on airport property north of Airport Road. The site is presently characterized by a flat, partially paved, partially gravel-covered motor pool, in which a variety of military vehicles and equipment is stored. Approximately 200 feet to the east is the CE building. A two-story private residence is located approximately 125 feet west of Site 7, on a lightly wooded lot, and has an unobstructed view of Site 7. The OMS shop is 400 feet west of Site 7 and is at least 40 feet tall. South of Site 7, on the opposite side of Airport Road, are a number of airport hangers, which partially obstruct ground level views toward Runways 5/23 and 10/28 (Figure 3.9-6). A number of utility poles are also located near the site.



Source: JCCA, 2001

LEGEND

- Photograph View Angle
- Roads, Buildings, and Airport Features
- Airport Property Boundary
- Proposed Access Road
- Runways and Taxiways
- Proposed ASR-11 Tower

Figure 3.9-1
VIEW ANGLES FOR PHOTOGRAPHS TAKEN AT ALTERNATIVE ASR-11 SITE 4

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

N W E S

50 25 0 50 100 150 200 Feet

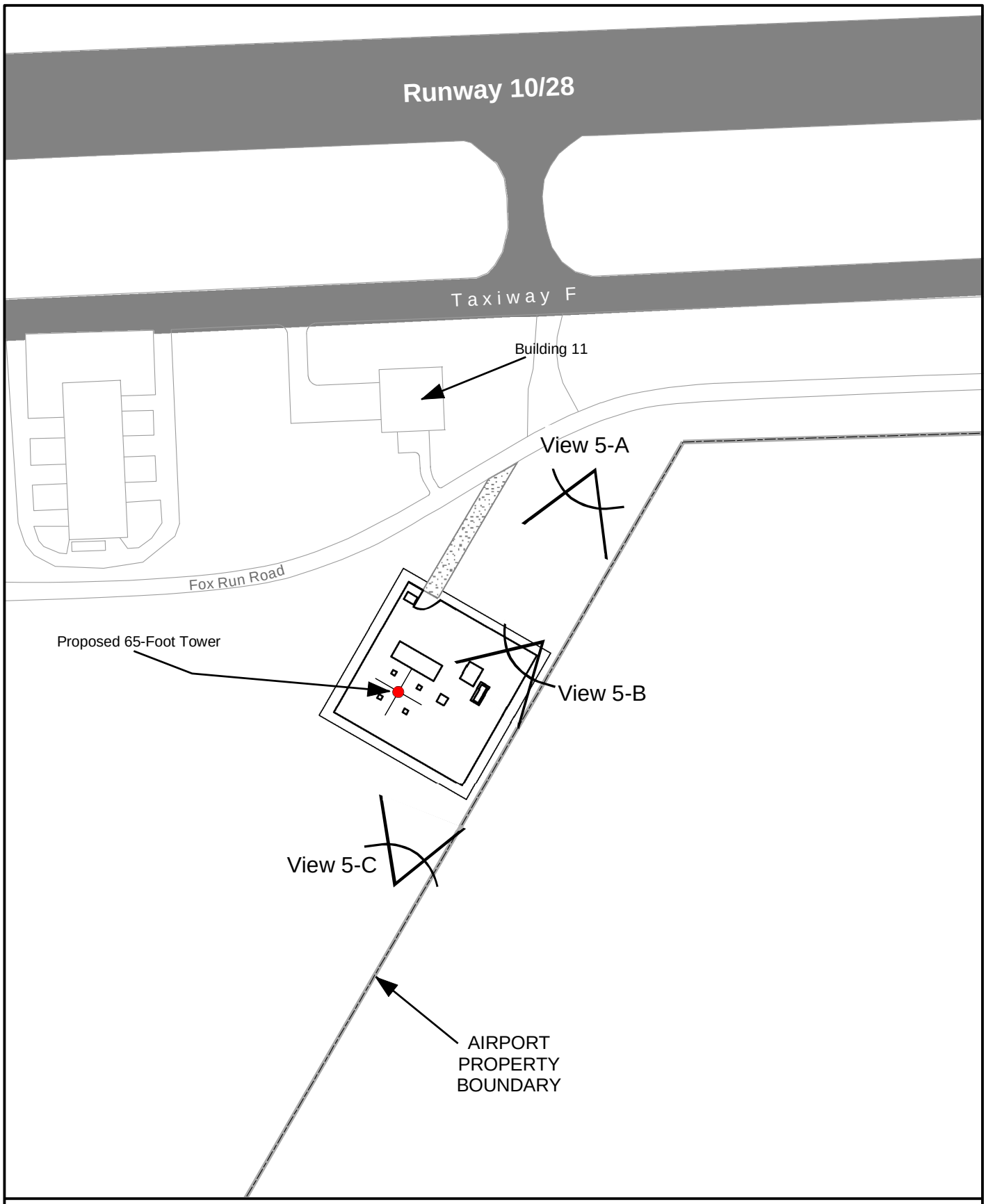
Site 4 Angles.mxd

View 4-A
Looking southwest toward Site 4. (Site 5 is to photographer's back). The treeline which roughly corresponds to the airport property boundary is visible to the east, and the NOAA weather station trailer is visible in the background.

View 4-B.
Looking west toward Site 4. The large hangars (the nearest of which are Buildings 12 and 13) are prominent features on the landscape. Smaller structures visible to the west are associated with the NOAA weather station.

View 4-C.
Looking northeast toward Site 4. The treeline which roughly corresponds to the airport property boundary is visible to the east. The large hanger (Building 11) is visible in background, on opposite side of Fox Run Road.

Figure 3.9.2. Photographs of Site 4, Taken During the September 2001 Site Visit



Source: JCCA, 2001

LEGEND

- Photograph View Angle
- Roads, Buildings, and Airport Features
- Airport Property Boundary
- Proposed Access Road
- Runways and Taxiways
- Proposed ASR-11 Tower

N W E S

Figure 3.9-3
VIEW ANGLES FOR PHOTOGRAPHS TAKEN AT ALTERNATIVE ASR-11 SITE 5

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

50 25 0 50 100 150 200 Feet

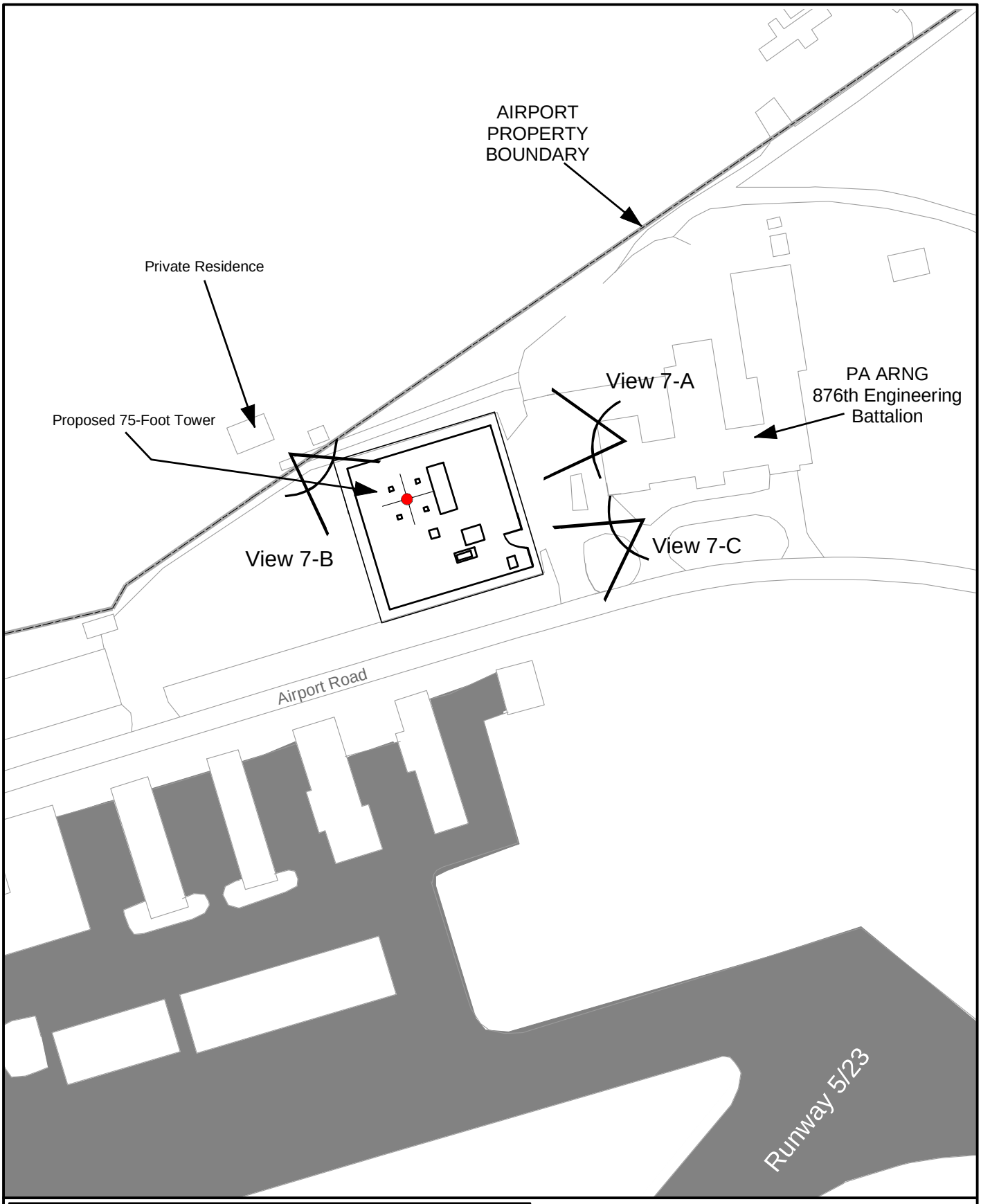
Site 5 Angle.mxd

View 5-A.
Looking southwest toward Site 5 (Site 4 is in the distant background). The treeline which roughly corresponds to the airport property boundary is visible to the east, and the NOAA weather station equipment is visible in the background.

View 5-B.
Looking southwest toward Site 5. The large hangars (the nearest of which are Buildings 12 and 13) are prominent features on the landscape. Smaller structures visible to the west are associated with the NOAA weather station.

View 5-C.
Looking northeast toward Site 5. The treeline, which roughly corresponds to property boundary, is evident to the east. The corner of a large hanger (Building 11) is visible to the northwest, on opposite side of Fox Run Road.

Figure 3.9.4. Photographs of Site 5, Taken During the September 2001 Site Visit



Source: JCCA, 2001

LEGEND

- Photograph View Angle
- Roads, Buildings, and Airport Features
- Airport Property Boundary
- Proposed Access Road
- Runways and Taxiways
- Proposed ASR-11 Tower

N
W E
S

Figure 3.9-5
VIEW ANGLES FOR PHOTOGRAPHS TAKEN AT ALTERNATIVE ASR-11 SITE 7

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

50 25 0 50 100 150 200 Feet

Site 7 Angle.mxd

View 7-A.
Looking west toward Site 7.
The private residence (a white house) is visible just beyond the fenced boundary. Existing motorpool operations are evident in foreground; operations and maintenance shop located at rear of parcel.

View 7-B.
Looking southeast toward Site 7. The new 876th Armory building is visible to the east. Also evident is a hangar (Building 1) located on the opposite side of Airport Road.

View 7-C.
Looking west from just southeast of the access road to Site 7 (The 876th Armory is to the photographer's back). Hangars (Buildings 1, 2, 3, 4, and 5) are evident on the south side of Airport Road. The ASR-11 site is located on the north side of the road, hidden from view by the bush.

Figure 3.9.6. Photographs of Site 7, Taken During the September 2001 Site Visit

3.9.2 Future Baseline Without the Project

The proposed development of a regional jet maintenance facility in the vicinity of Sites 4 and 5 has the potential to alter the aesthetic character of the area in which Site 4 and Site 5 are located. The proposed buildings could be up to 50 feet high. Although visibility of these hangars is likely to be screened by the wooded lot between the sites and Airport Road, views from within the airport property itself, especially from adjacent hangers, would be altered.

The motor pool, currently based at Site 7, is anticipated to be relocated in the future, regardless of whether an ASR-11 is constructed. The removal of jeeps, trucks, tractor-trailers and other military equipment from this site has the potential to alter the aesthetic nature of this area. Hangars on the opposite side of Airport Road may appear more prominently if the motor pool, which presently screens part of the view, is removed. However, the relocation of the motor pool may be perceived as an improvement to the local aesthetic character of the area.

3.10 CULTURAL RESOURCES

3.10.1 Existing Conditions

This section discusses cultural resources that have been identified at JCCA and indicates if any known resource areas are located in the vicinity of the alternative ASR-11 sites.

3.10.1.1 Archaeological Sites. Previous environmental assessments conducted for the Pennsylvania Air National Guard (PA ANG, 2000) and Pennsylvania Army National Guard (PA ARNG, 2000) have incorporated review of National Register of Historic Places (NRHP) files, personal interviews, site visits, and a review of the Pennsylvania Archaeological Site Survey (PASS) maps. The Pennsylvania Historical and Museum Commission (PA HMC) indicated that no NRHP-eligible or listed archaeological resources exist on JCCA (PA HMC, 1997). Review of the PASS maps indicated the nearest prehistoric sites to be located approximately two miles east of the airport (USAR, 1993). The Native American people of the Delaware, Shawnee, and Seneca tribes have been contacted in the past regarding activities at JCCA and have expressed no concern (PA ANG, 2000). A cemetery containing graves dating to the early 1900s is located just

west of Runway 15/33, near the Army Aviation Support Facility at the northwestern corner of the airport. Another small, family cemetery (Lehman cemetery) containing four graves (dated 1861) was identified during the Runway 15/33 extension excavation activities; these graves were subsequently exhumed and the remains were re-interred at the Richland Cemetery (USAR, 1993). **Site 4**, **Site 5**, and **Site 7** are all generally located in the northeastern or eastern portions of the airport property, and thus are more than 3,600 feet from the cemeteries noted above. No archaeological resources are known to occur in the vicinity of Site 4, Site 5, or Site 7.

3.10.1.2 Historic Structures. Federal regulations define historic properties as prehistoric and historic sites, buildings, structures, districts, or objects included in, or eligible for inclusion in, the NRHP, as well as artifacts, records, and remains related to such properties (United States Department of the Interior, 2001). To qualify for inclusion in the National Register, properties must be important to American history, architecture, archaeology, engineering, or culture. An architectural Phase 1-A survey was conducted in 1992 to investigate architectural resources in the immediate vicinity of JCCA. The survey consisted of the review of NHRP files and the Cambria County Historic Site Survey (CCHSS), personal interviews, and site reconnaissance (USAR, 1993). The review of NRHP files revealed that no significant architectural resources exist within a one-mile radius of the airport; the nearest NRHP-listed site is the Downtown Johnstown Historic District, approximately four miles to the west of the airport (USAR, 1993). The CCHSS reviewed over 80,000 existing structures, from which it identified approximately 1,300 buildings and structures that are historically and architecturally significant to the region's overall development. Out of the 1,300 properties, a total of 175 structures met the eligibility criteria of the NRHP and were nominated by the Site Advisory Review Board as primary examples of Cambria County's historical resources. The only nominated property within one mile of the airport is a two-story, brick, early vernacular-style house located on Frankstown Road, approximately 0.5 mile from the northern boundary of the airport (USAR, 1993). PASS maps indicate the only historic site near JCCA is the Portage Railroad Tunnel site along the Conemaugh River, approximately 1.5 miles northwest of the airport.

Site 4, **Site 5**, and **Site 7** are located within the boundary of JCCA, and therefore, are not located in proximity to identified historic properties.

3.10.2 Future Baseline Without the Project

It is not anticipated that there would be any substantial change in cultural resource conditions at the alternative ASR-11 sites in the future without the project due to the absence of cultural resources in the respective areas.

3.11 POLLUTION PREVENTION AND HAZARDOUS WASTE

3.11.1 Existing Conditions

The following sections describe current conditions and practices at JCCA with regard to pollution prevention and hazardous waste.

All hazardous materials used at the airport, including all herbicides and pesticides, are stored in the hazardous materials storage rooms located in the aircraft hangar building (PA ARNG, 2000). All hazardous wastes generated onsite are stored in these storage rooms as well. Hazardous wastes are stored at the airport for a maximum of 90 days until they are removed and transported to an authorized hazardous waste disposal facility. All handling, storage, and disposal of hazardous materials and waste is done in accordance with applicable state and federal regulations. Several aboveground storage tanks (AST) used to store various types of fuel and chemical de-icing agents are also located on the airport property.

Because JCCA is not a military-owned installation, no Installation Restoration Program (IRP) site investigations have been performed at the airport. According to Landview III, a software database distributed by the EPA and U.S. Census Bureau, no known hazardous waste sites exist at or near JCCA. Consultation with the PA DEP during initial data collection activities indicated that there are no hazardous waste sites or capped landfills in the vicinity of the alternative ASR-11 sites (USAF, 2002). Consultation with the Airport Executive Director indicated that a former fuel tank farm had once been located in the vicinity of **Site 4** and **Site 5**. Anecdotal evidence suggests that soil contamination was not encountered during tank removal activities in the early 1970s but no written records were found to confirm this evidence. Visual evidence of fluid leaks from vehicles stored in the motor pool can be seen in the proximity of **Site 7**. Small areas of staining were observed on the paved and gravel ground surface during the September 2001 site

visit. A large AST containing diesel fuel and a fuel pump are located on the northwestern side of the motor pool parking area but did not show any visible signs of leaking.

3.11.2 Future Baseline Without the Project

It is anticipated that conformance with state and federal hazardous materials and hazardous waste storage and disposal regulations will continue. However, construction of a jet maintenance facility or industrial park would introduce additional hazardous materials storage and hazardous waste generation issues during construction and operation of such facilities.

3.12 ELECTROMAGNETIC ENERGY

3.12.1 Existing Conditions

Electrical currents and components generate electrical fields and magnetic fields. These may be stationary or dynamic. Depending on the equipment, electromagnetic radiation that propagates outward may be created. Electromagnetic radiation, electrical fields, and magnetic fields are localized effects. The electromagnetic environment at a particular location and time is the sum of all the localized electric and magnetic fields plus electromagnetic radiation arriving from both natural and manmade sources. Electric fields, magnetic fields, and electromagnetic radiation are of interest here because of the potential for health effects from some frequency ranges and the potential for electromagnetic interference on other electronic equipment. Electromagnetic radiation is discussed first in this introduction.

Electromagnetic radiation travels at a uniform speed (3×10^8 m/sec in a vacuum; the speed of light). It is often useful to consider electromagnetic radiation as a wave, and to describe it in terms of frequency (where 1 Hz means 1 cycle per second and 1 kHz means 1000 cycles per second). Some parts of the electromagnetic spectrum are more commonly described in terms of wavelength, which is inversely related to frequency.

The spectrum of electromagnetic radiation includes visible light, which has frequencies on the order of 5×10^{14} Hz [specifically, wavelengths from 400 nanometers (nm) to 760 (nm)]. Electromagnetic radiation frequencies higher than that of visible light include ultraviolet light,

X-rays, and gamma-rays. These types of electromagnetic radiation are described as "high energy" and have the potential to "excite" electrons, to thereby ionize molecules, and to thus affect body chemistry. Especially in high absorbed doses, high frequency electromagnetic radiation can adversely affect health (NSC, 1979).

Electromagnetic radiation with frequencies lower than that of visible light include infrared light and radio waves. Frequencies below 10^{12} Hz (10^{6} MHz) are categorized as radio waves. These include frequencies used for AM radio; short-wave, television, and FM broadcast bands; pagers; cellular telephones; mobile radios; radar; and microwave technologies. These frequencies are non-ionizing, and have the following known health effects: (1) effects caused by directly heating body tissues and (2) electromagnetic interference with electronic medical devices such as pacemakers.

The heating of tissues caused by exposure to radio frequency radiation (RFR) at relatively low incident power densities can normally be accommodated. However, in some tissues, heat produced at higher radiation intensities may exceed temperature regulating mechanisms so compensation for heat gain may be inadequate. Thus, exposure at high intensities can cause thermal distress or irreversible thermal damage. Eye tissues are particularly vulnerable (NSC, 1979).

Electromagnetic interference with medical devices has become an issue because medical devices increasingly use sensitive electronics at the same time that RFR and other electromagnetic sources are proliferating (FDA, 1996). Medical equipment which may be susceptible to interference from RFR includes cardiac pacemakers, defibrillators, ventilators, apnea monitors, and electric wheelchairs (VT DPS, 1996; IEEE, 1998). Medical device manufacturers are expected to design and test their products to ensure conformance with standards for protection against radio frequency interference (IEEE, 1998). Nevertheless, users of medical devices are generally advised to keep RFR emitters as far away from their devices as is practical (IEEE, 1998).

There is currently considerable interest on the part of some researchers, the news media, and the public regarding the possibility of other health effects from non-ionizing radiation (and/or other electrical or magnetic fields). However, there is no scientific consensus that non-ionizing radiation presents any other health risks (USAF, 1995a) and no consensus about a mechanism by

which non-ionizing radiation could have any such effects (i.e., effects other than those associated with heating of tissue and interference with medical devices). A 1996 National Academy of Science report, *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields*, concluded that:

> The current body of evidence does not show exposure to these fields presents a human-health hazard. Specifically, no conclusive and consistent evidence shows that exposures to residential electric and magnetic fields produce cancer, adverse neurobehavioral effects, or reproductive and developmental effects. (National Academy of Science, 1996).

Existing sources of RFR at JCCA include components of the MPN-26 radar system. When operating, the MPN-26 mobile radar system emits electromagnetic radiation in the radio frequency range. Locations close to the antenna are considered unsafe when the radar is operating, on the basis of the potential for heating of body tissues. Similarly, the tower immediately below the antenna is considered unsafe. The intensity of the radar energy diminishes with distance, so there would be less tissue heating at greater distances.

Within electronic systems for radar, any high-voltage tubes capable of emitting X-rays are typically shielded with lead, and shielding on other equipment is typically adequate to limit transmitted radiation to acceptable levels. While there are unshielded components present at the MPN-26 site, such as incandescent light bulbs, there is no indication or expectation that significant levels of electromagnetic radiation other than RFR are emitted into the environment by the MPN-26 system.

Magnetic fields and electric fields other than electromagnetic radiation are also created by electrical equipment. In everyday situations, high-voltage power lines, televisions, computer monitors, fluorescent lights, light dimmer controls, improperly grounded equipment, and appliances used with non-polarized extension cords create measurable electric fields. Transformers, alternating current (A/C) adapters, motors (e.g., analog clocks and kitchen appliances), power lines, vehicles, and old electric blankets create measurable magnetic fields.

3.12.2 Future Baseline Without the Project

Without the project, the future electromagnetic field conditions in the vicinity of the three proposed ASR-11 sites are expected to remain similar to those currently present. However, construction of a regional jet maintenance facility or industrial park could also provide numerous new sources.

4.0 ENVIRONMENTAL CONSEQUENCES

The No Action alternative would involve no alteration to any of the three proposed alternative ASR-11 sites at JCCA; therefore the No Action alternative would result in no impact to environmental resources. Thus, the environmental consequences of the No Action alternative would result in identical conditions to those identified in Section 3.0, Future Baseline Without the Project. However, selecting the No Action alternative would leave JCCA without its own fixed radar, and would deny the 258 ATCS the opportunity to train on state-of-the-art equipment.

The proposed action would involve the construction of a new ASR-11 facility. Potential impacts associated with the action alternative involve those resulting from construction (short-term) and operation (long-term) of the DASR systems. The potential impacts are described in this section for each of the alternative ASR-11 sites (Site 4, Site 5, and Site 7). Impacts are presented by environmental parameter. Mitigation measures that may be required to reduce impacts are described in Section 6.0.

4.1 LAND USE

4.1.1 Short-term Impacts

Short-term effects associated with the construction of the ASR-11 would include temporary disruption of land uses due to elevated noise levels, increased dust, interference with roadway access, and visual effects. Construction of the ASR-11 facilities would also include the installation of a temporary construction staging area approximately 75 feet by 100 feet adjacent to the ASR-11 site. This staging area would be used by construction personnel to store equipment for use during construction of the ASR-11.

Site 4 and **Site 5** are located on undeveloped clearings within the airport property line, approximately 600 feet and 350 feet, respectively, from the aircraft hangers, and 1,000 feet from the NOAA weather station. Noise and dust impacts during construction are anticipated to be minimal and not likely to cause significant disruption or disturbance to these surrounding land uses. **Site 7** is located within a fenced area currently owned by JCCA but leased to the PA

ARNG for use as a motor pool and storage area for jeeps, tractor trailers, and heavy equipment. The site is adjacent to the PA ARNG 876 Engineering Battalion, the PA ARNG OMS, and a private two-story residence. Construction of an ASR-11 at Site 7 would require relocating the motor pool. Noise and dust impacts during construction of an ASR-11 at Site 7 would not impact occupants at the private residence, or personnel in nearby buildings for reasons discussed below in Section 4.4 and Section 4.5. Nevertheless, coordination with occupants of the private residence should be initiated to minimize the potential for creating nuisances during construction.

The installation of utilities, such as power, telephone, and fiber optic cables to each of the sites could temporarily affect land uses along the proposed alignment routes. While specific alignments would not be defined until final design, it is anticipated that land uses along the alignments could be temporarily affected by elevated noise levels and increased dust associated with open trench excavation.

Although the total length of new utility trenches could be up to 3,060 feet (depending on the site chosen), the installation of these utilities would occur within the same general locations as the alternative ASR-11 sites, and would largely be confined to alignments along existing or proposed roadways and duct banks.

4.1.2 Long-term Impacts

Site 4 and **Site 5** are within Airport Zoning District A, and are located along the property line so as not to obstruct future commercial airport development within the triangle, such as the proposed jet maintenance facility. Thus, Site 4 and Site 5 are not expected to significantly impact land use. However, local zoning bylaws limit the height of structures in the Airport Zoning District A to 60 feet (Richland Township, 2001c) and require a setback of 50 feet from adjoining property or public road right-of-way (Richland Township, 2001c). If the final site designs do not conform to these standards, the local zoning board must be petitioned for a variance. The proposed project must be approved by the Richland Township zoning board whether or not a waiver is required.

Site 7 is located on land owned by JCCA but leased to the PA ARNG for use as a storage area and motor pool. Construction of the ASR-11 would necessitate relocating the motor pool to a new location, a move which is being planned regardless of whether the site is selected for the ASR-11. Site 7 is located just beyond the Airport Zoning District A, which is bounded by Airport Road, and is zoned as Light Industrial. Although operation of the ASR-11 would support JCCA operations, the local zoning board would need to review the proposed project. The ASR-11 could be permitted in a Light Industrial zone by special exception as a communication tower because it is transmitting and receiving signals (Richland Township, 2001d). The proposed tower may significantly impact the visual aesthetic at the adjacent private residence (see Section 4.9) but would not impact land use.

Since the proposed ASR-11 would be constructed in navigable airspace, compliance with Federal Aviation Regulation (FAR) Part 77 will be required. Notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing the adverse effects to the safe and efficient use of navigable airspace. The tower height of 57 feet at **Site 5** would violate Federal Aviation Regulation (FAR) Part 77 by 36 feet (USAF, 2001; USAF, 2002). The tower height of 67 feet at **Site 7** would violate FAR Part 77 by 21 feet. Thus, a FAR Part 77 waiver would be needed for either Site 5 or Site 7; the incorporation of marking and lighting in the project design is generally considered acceptable to mitigate the potential hazard. The tower height of 67 feet at **Site 4** would not violate FAR Part 77.

4.2 SOCIOECONOMICS

4.2.1 Short-term Impacts

Construction of the ASR-11 at any of the three alternative sites would require similar work efforts, and would therefore have similar effects on socioeconomic conditions around the airport and the surrounding area. Construction at **Site 4, Site 5,** or **Site 7** would not adversely impact the socioeconomic conditions at JCCA. A slight short-term increase in the revenue generated in the surrounding area would occur due to construction employees patronizing local businesses for supplies and personal use. During the construction period, the work crew would consist of approximately 10 persons.

4.2.2 Long-term Impacts

The new radar facility would not be staffed. Therefore, no effect on socioeconomic conditions is anticipated.

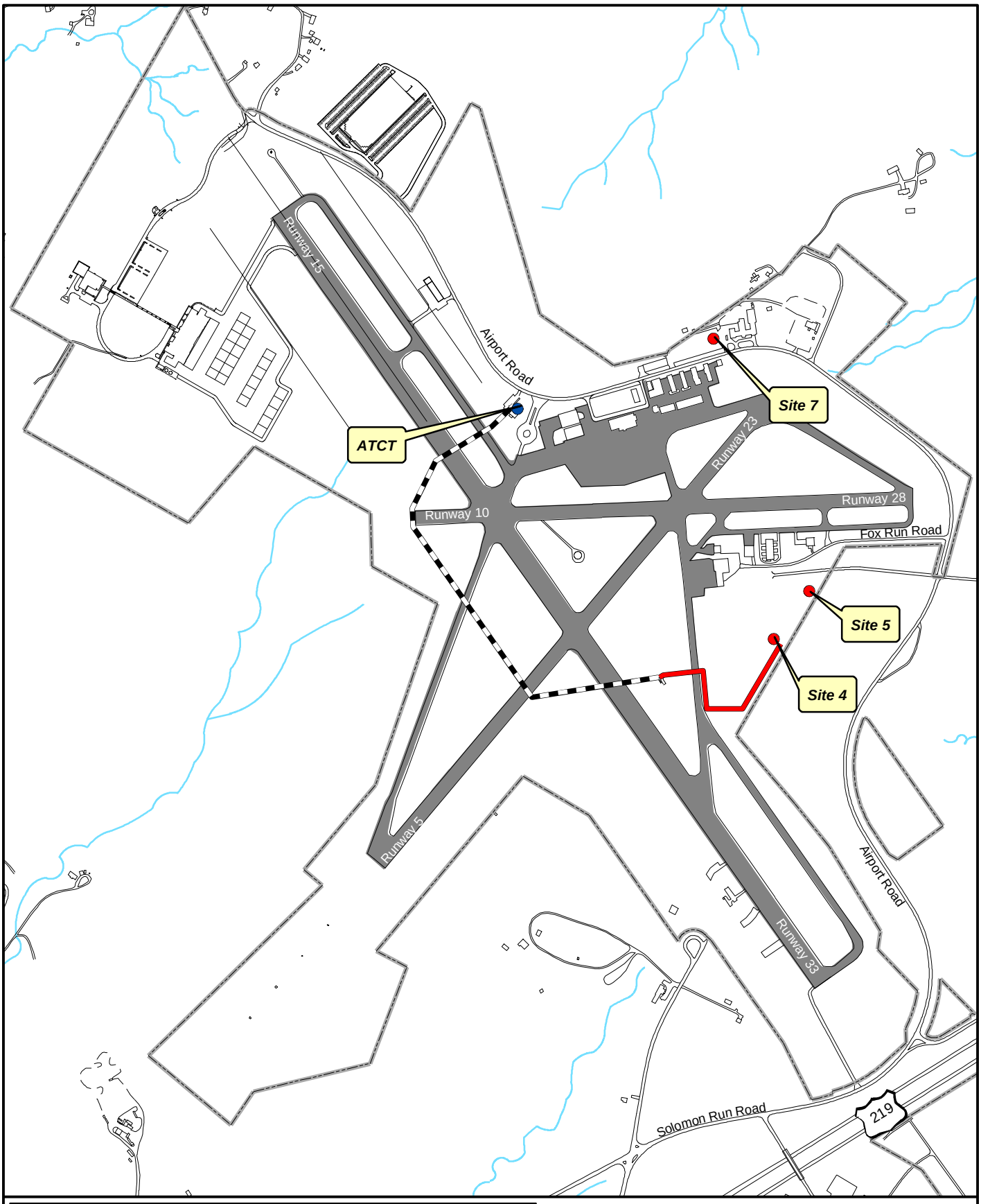
4.2.3 Environmental Justice

Under its instructions for the Environmental Impact Analysis Process (32 CFR Part 989), the USAF must demonstrate compliance with Executive Order 12898, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations* to determine the effects of federal programs, policies, and activities on minority and low income populations.

As stated in Section 3.2, JCCA is located within census tract 42021-0107 while five other census tracts surround the airport. Approximately 7.2 percent of the population living within the census tract containing the alternative sites live below the poverty level, a rate comparable to the surrounding census tracts, and lower than the county rate of 14.0 percent and a state rate of 11.0 percent. Census tract 42021-0107 contains a non-white population of 1.5 percent, comparable to surrounding census tracts and Cambria County (4.8 percent), and lower compared to the state-wide value (15.9 percent). However, anecdotal evidence suggests that the inhabitant of the private residence abutting **Site 7** is living on fixed income, and may possibly be considered low income. The inhabitant's possible low income status, combined with the visual aesthetic impact of having a radar tower sited so close to the house (see Section 4.9), may raise environmental justice concerns. Airport officials have notified the resident of the scale and timing of the project.

4.3 UTILITIES AND TRANSPORTATION

The following describes potential short- and long-term effects to utilities as a result of the installation of the DASR system. At any of the three alternative sites, connections to electrical and telephone service would require between 100 and 775 feet of new telephone cabling, and between 600 and 1,000 feet of underground electrical conduit. Fiber optic cable connections, which must be made from the alternative site to the existing ATCT, are depicted in Figures 4.3-1, 4.3-2, and 4.3-3. Depending on the site selected, between 1,700 and 4,760 feet of new fiber



Source: JCCA, 2001

LEGEND

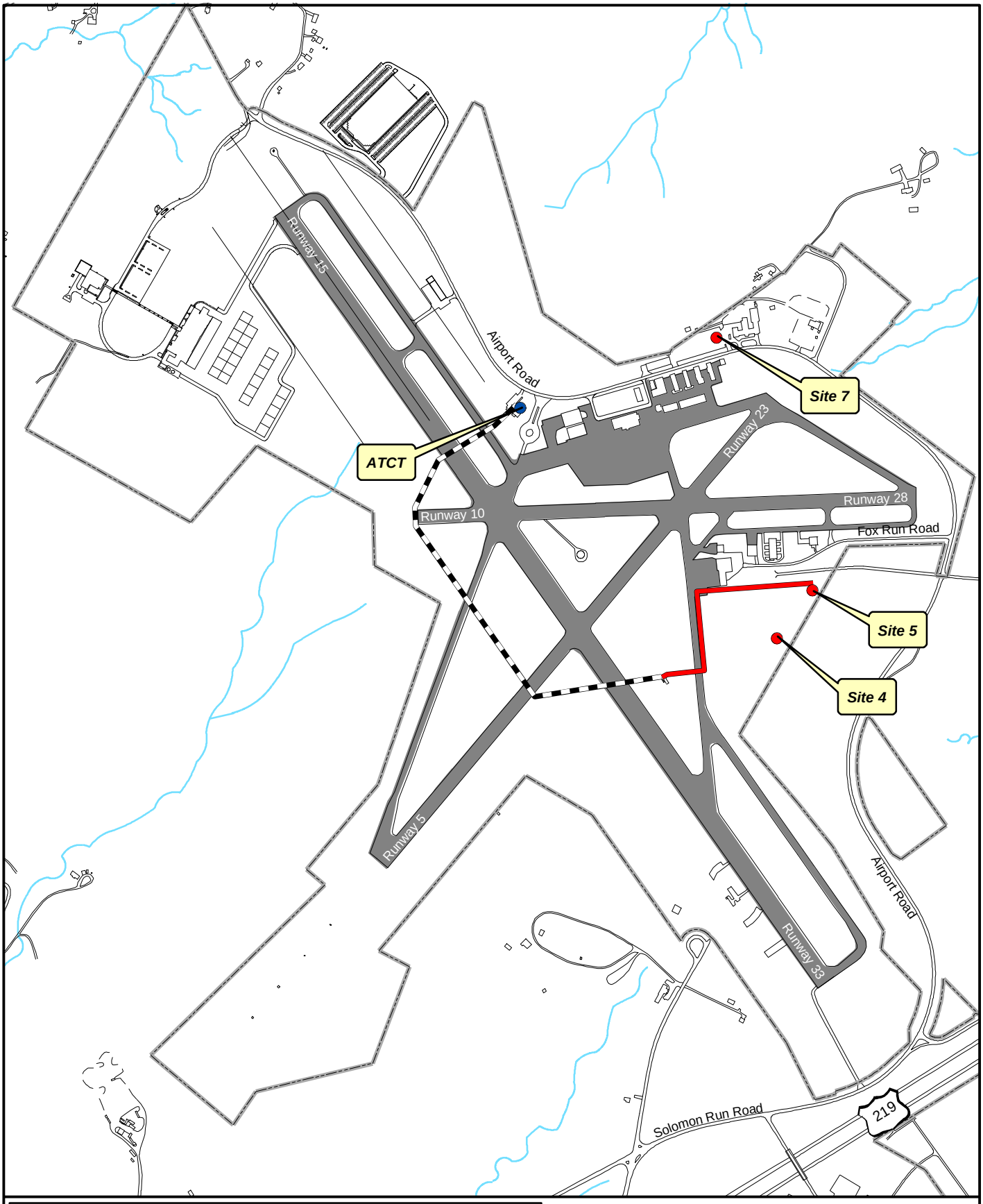
- Proposed Direct-Bury Fiber Optic Route
- MPN-26 Radar Duct Bank (Proposed Separately)
- Airport Property Boundary
- Roads, Buildings, and Airport Features
- Surface Water Features
- Runways and Taxiways
- Air Traffic Control Tower
- Proposed ASR-11 Site

N W E S

Figure 4.3-1.
PROPOSED FIBER OPTIC ROUTE FOR ALTERNATIVE ASR-11 SITE 4
JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

500 250 0 500 1,000 1,500 2,000 Feet

JohnstownFiber_4.mxd



Source: JCCA, 2001

LEGEND

- Proposed Direct-Bury Fiber Optic Route
- MPN-26 Radar Duct Bank (Proposed Separately)
- Airport Property Boundary
- Roads, Buildings, and Airport Features
- Surface Water Features
- Runways and Taxiways
- Air Traffic Control Tower
- Proposed ASR-11 Site

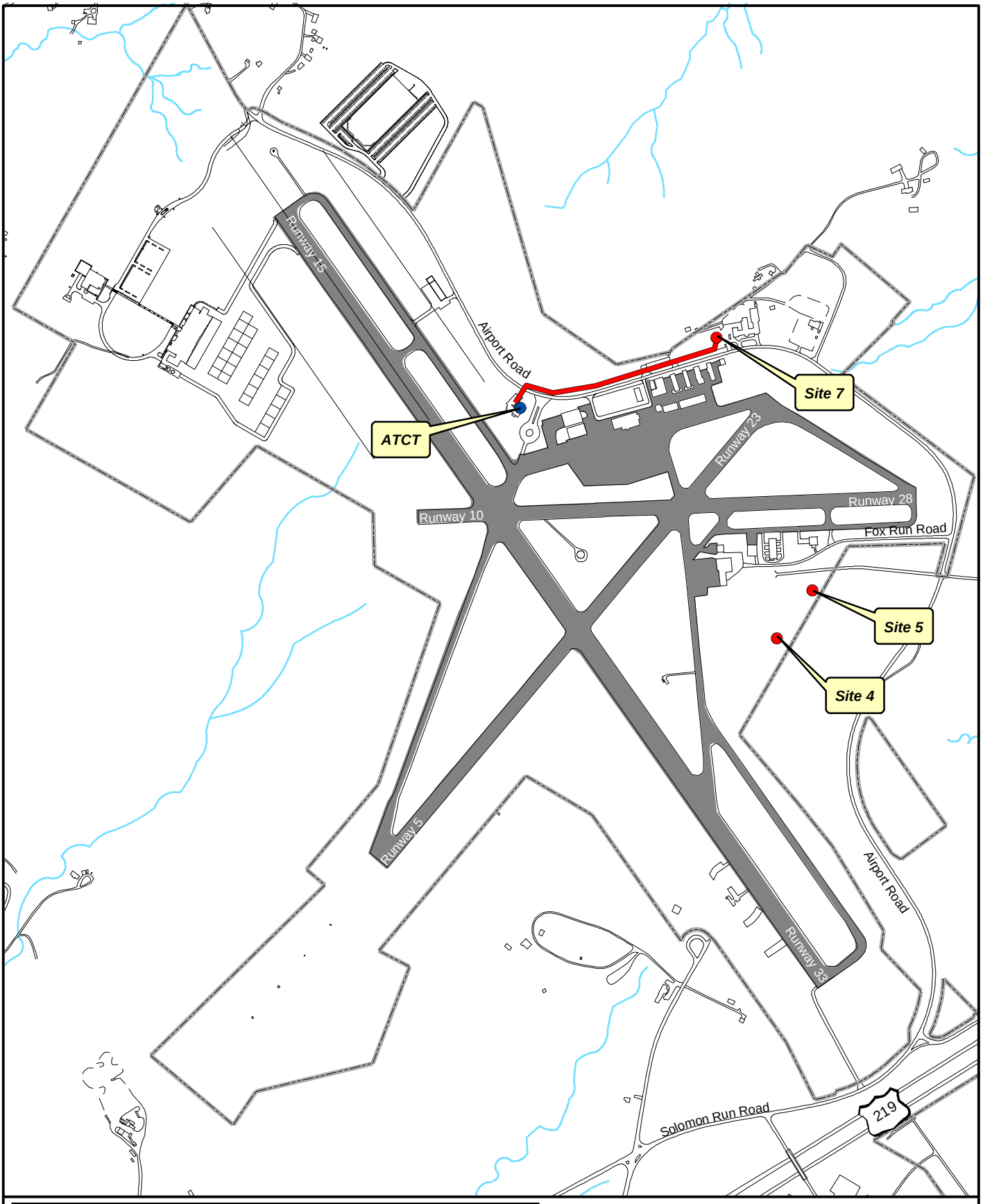
N W E S

500 250 0 500 1,000 1,500 2,000 Feet

Figure 4.3-2.
PROPOSED FIBER OPTIC ROUTE FOR ALTERNATIVE ASR-11 SITE 5

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

JohnstownFiber_5.mxd



Source: JCCA, 2001

LEGEND

- Proposed Direct-Bury Fiber Optic Route
- Airport Property Boundary
- Roads, Buildings, and Airport Features
- Surface Water Features
- Runways and Taxiways
- Air Traffic Control Tower
- Proposed ASR-11 Site

N W E S

500 250 0 500 1,000 1,500 2,000 Feet

Figure 4.3-3.
PROPOSED FIBER OPTIC ROUTE FOR ALTERNATIVE ASR-11 SITE 7

JOHNSTOWN-CAMBRIA COUNTY AIRPORT
DIGITAL AIRPORT SURVEILLANCE RADAR
Cambria County, Pennsylvania

JohnstownFiber_7.mxd

optic cable would be required. Up to 2,800 feet would run through duct banks constructed as part of a separately proposed project, and up to 1,960 feet would require new duct banks.

4.3.1 Short-term Impacts

Various lengths of open trench excavation would be needed to provide utility connections, such as electrical, telephone, and fiber optics (Table 4.3-1). The ASR-11 would not require water or wastewater services for operation, although these utilities will be required, to a limited extent, during construction.

Table 4.3-1. Required Lengths of New Utility Connections and Access Roads

ASR-11 Alternative Site	Length of New Access Road Required	Length of Telephone Cable Required	Length of Electric Power Connection Required[1]	Length of Fiber Optic Cable Required[2]
Site 4	775 ft	775 ft	600 ft	4,300 ft Total New Cable 2,800 ft Existing Duct 1,500 ft New Duct
Site 5	100 ft	100 ft	1,000 ft	4,760 ft Total New Cable 2,800 ft Existing Duct 1,960 ft New Duct
Site 7	New Access Road Not Required	100 ft	1,000 ft	1,700 ft Total New Cable No Existing Duct 1,700 ft New Duct

Source: USAF, 2002

1. Site 4 and Site 5 would require underground conduit. Site 7 would be connected to overhead lines.

2. Total New Cable refers to the length of fiber optic cable required to directly link the ATCT with the proposed ASR-11 site. Existing Duct refers to duct banks which will be constructed as part of a separately proposed project, but will be completed by the time the ASR-11 is built. New Duct represents the amount of trenching which would be required to connect the proposed ASR-11 site to Existing Duct.

4.3.1.1 Water Supply. A temporary increase in water demand would occur during construction. A water source would be supplied on site by mobile water tanks. Due to the limited number of construction workers, short construction period, and the adequate supply of water to the airport, it is not anticipated that the water demand both for workers' personal needs and dust control during construction of the ASR-11 would adversely impact the JCCA water supply.

4.3.1.2 Wastewater Treatment. There would be an insignificant short-term increase in demand for sewage treatment during construction. Portable toilets would be available during the construction activities, and waste would be transported to an offsite treatment facility for disposal.

4.3.1.3 Solid Waste. Minimal solid waste, such as rubbish or scrap metal, is anticipated to be generated from the construction of the ASR-11. All solid waste would be handled or recycled in accordance with standard airport procedures. Any hazardous materials would be disposed of following JCCA policies and protocols and applicable state and federal regulations (see Section 4.11).

4.3.1.4 Electricity. Existing power lines may need to be upgraded to meet the increased load associated with the ASR-11 at **Site 4** or **Site 5**; existing power lines near **Site 7** are suitable for carrying the increased load (USAF, 2002). For reasons of practicality and convenience, the selected electrical connection point for the ASR-11 may be further away than the closest point on the nearest distribution lines, as presented in Section 3.3.1.4. Trenching would be required at Site 4 and Site 5 in order to install new underground conduits to carry electrical distribution lines from the alternative site to the nearest appropriate electrical source. Site 4 would require 600 feet of new wire and underground conduit to tie into existing underground distribution lines west of the proposed site. Site 5 would require 1,000 feet of new underground conduit and wire to connect to existing underground distribution lines west of the proposed site. Site 7 would require 1,000 feet of new underground conduit and wire to connect to existing overhead distribution lines at Airport Road. Short-term disruption of power to the immediate area around the alternative ASR-11 sites may occur while connections are made.

4.3.1.5 Communications. Fiber optic lines would be extended from the existing locations identified in Section 3.3.1.5. The final route and distance to the new ASR-11 site will be determined when the final site and design are selected. **Site 4** would require a total of 4,300 feet of new fiber optic cable, 2,800 feet of which would utilize the duct system associated with a separately proposed facilities upgrade project, and approximately 1,500 feet would require new ducts. **Site 5** would require a total of 4,760 feet of new fiber optic cable, 2,800 feet of which

would utilize the duct system associated with a separately proposed facility upgrade project, and 1,960 feet would require new ducts. Fiber optic connections for **Site 7** would require 1,700 feet of new fiber optic cable, all of which would require new duct.

For reasons of practicality and convenience, the selected telephone line connection points for the ASR-11 may be further away than the closest point on the nearest service lines, as presented in Section 3.3.1.5. Telephone line connections to **Site 4** and **Site 5**, 775 feet and 100 feet respectively, would be provided from new overhead lines running along the sites' proposed access roads to Fox Run Road, ultimately connecting to existing lines on Airport Road. Telephone connections to **Site 7** would be made from existing telephone lines along Airport Road, at a distance of approximately 100 feet. No disruption to telephone service in the immediate area of the alternative ASR-11 sites is expected as a result of ASR-11 construction.

4.3.1.6 Natural Gas. Natural gas is not required for the proposed ASR-11 radar. Therefore, no impacts are expected to occur with regard to natural gas at JCCA. Utility trenching for electric, telephone, and fiber optic connections are not anticipated to impact existing natural gas lines, although the exact location of natural gas lines in the vicinity of the proposed sites and utility connections should be confirmed prior to construction.

4.3.1.7 Transportation. Impacts to transportation systems at JCCA during construction would be minimal. Increased activity in the vicinity of the selected ASR-11 site, including connection of the ASR-11 to existing utilities, could temporarily disrupt local traffic along Airport Road. Personal and commercial vehicles operated by the contractor and subcontractors would be operated and parked on site or at an area designated by airport authorities. There would be a period of approximately 10 hours when cement trucks would access the site for the foundation pouring. The foundation concrete must be poured continuously, thus necessitating the 10-hour period. Heavy vehicles, including cement trucks, frequently travel on Airport Road. Therefore, the cement trucks and other construction vehicles necessary for construction are not expected to have an impact on local roads or airport roads.

Site 4 would require a new access road, extending 775 feet from Fox Run Road along the airport property line. **Site 5** would require a 100 foot long access road, also connecting with Fox Run Road. An access road would not need to be constructed for **Site 7** because the existing driveway for the CE building would provide access to the site.

4.3.2 Long-term Impacts

It is not anticipated that future utility and transportation conditions at JCCA would be affected as a result of operating the proposed ASR-11 radar system. The addition of telephone lines, fiber optic cable, and electrical upgrades at any of the alternative radar sites would not have a significant effect on those utilities in the area. The operation of the ASR-11 radar system would not require water resources, wastewater treatment, collection of solid waste, or natural gas; therefore, no impacts to those utilities are anticipated.

Although selection of **Site 4** or **Site 5** would require the construction of an access road, the overall length of the new roadway would be relatively short compared to the extensive transportation network on and around the airport. Furthermore, the number of increased vehicle trips per day required for inspection and maintenance is small and consistent with existing traffic patterns on airport and local roadways. Therefore, no impact to transportation is anticipated.

4.4 NOISE

4.4.1 Short-term Impacts

Construction of the radar tower and supporting infrastructure would result in elevated noise levels while grading, minor excavation, trenching, utility connection, and tower construction proceeds. These elevated noise levels would be short-term in duration. Construction noise at **Site 4** or **Site 5** would not cause noise impacts because these two sites are located in areas of open space away from the majority of airport activities and away from sensitive receptors. Elevated noise levels near **Site 7** would be heard by occupants of the adjacent residence and personnel working in the adjacent buildings. However, noise impacts from construction of the ASR-11 would be comparable to noise experienced during commonly performed construction and maintenance activities at the airport and military facilities, such as the recent renovation of

the CE building, construction of new storm drains in the CE parking lot, and repaving of the CE parking lot, all of which occurred within 200 feet of Site 7. Elevated noise levels would be reduced by using well-maintained equipment and by installing mufflers and engine jackets on heavy machinery. Construction would occur during normal daytime hours. Construction of the towers and supporting infrastructure is anticipated to take approximately three weeks; thus, any elevated noise levels would be restricted to this short-term period. Therefore, noise impacts to sensitive receptors would not be significant.

4.4.2 Long-term Impacts

No long-term noise impacts are anticipated to result from operation of the proposed ASR-11 radar. Noise levels generated by the ASR-11 would be maintained at a level consistent with current Occupational Safety and Health Administration (OSHA) regulations as specified in 29 CFR Part 1910. Noise from ASR-11 equipment would be designed not to exceed 55 decibels at any time. Noise from the ASR-11 system equipment located in general work areas is not expected to exceed 65 decibels, including periods when the cabinet doors are open. The antenna pedestal with its drives, mounted on the tower, will be designed not to produce noise levels in excess of 55 decibels outdoors on the ground at a distance of 100 feet from the tower.

The emergency generator is anticipated to be operated approximately once per week for testing and during occasional power outages. Though scheduled testing would occur during the day, emergency operation would be the greatest source of nighttime noise in the area. The contribution to noise in the area surrounding **Site 4** and **Site 5** is expected to be negligible considering the lack of sensitive receptors. The contribution to noise in the area surrounding **Site 7** could be significant, particularly at night. If Site 7 were selected, options to reduce/mitigate these potential noise impacts would be evaluated during final design. Possible mitigation measures include maximizing distance to the receptor and/or utilizing proposed shelters/structures to shield/reflect the noise. The emergency generator is proposed to be enclosed within a shelter that would provide some noise attenuating characteristics; however, selection of this site may require the use of a higher-end noise attenuation enclosure than is included as part of the DASR standard design.

4.5 AIR QUALITY

The Clean Air Act requires that actions of federal agencies or federally supported activities should not 1) cause or contribute to any new air quality standard violation; 2) increase the frequency or severity of any existing standard violation; or 3) delay the timely attainment of any standard or any required interim emission reductions or other milestones.

4.5.1 Short-term Impacts

The short-term air quality impacts of constructing an ASR-11 would be similar at all of the three alternative sites. Construction vehicle operation and traffic would generate fugitive dust during the construction of access road (if necessary), utility trenches, and tower foundation. Due to potential for long dry spells, a dust suppressant should be applied to the site during the construction activities. Thus, dust generation from construction activities is anticipated to be minimal. The disturbed area at any of the three ASR-11 alternative sites would be variable, proportional to the amount of utility trenching and access road construction (see Section 4.3).

All construction vehicles and some equipment would produce engine emissions that could temporarily affect air quality. However, because the number of vehicles and duration of construction required to perform the work is limited, emissions are not anticipated to cause an exceedance of NAAQS or PA Ambient Air Quality Standards in the vicinity of the selected ASR-11 radar site.

4.5.2 Long-term Impacts

Operation of the ASR-11 radar station at any of the three alternative sites would produce identical emissions, which are not anticipated to have adverse impacts on air quality. Sources of emissions during the operation of the ASR-11 would include the operation of the emergency diesel generator and evaporative loss of fuel from the AST at the radar site. As described in the Programmatic EA for the NAS program (USAF, 1995a), the emergency generator is anticipated to be operated approximately once per week for testing and during occasional power outages. The emissions anticipated to be produced by the emergency generator would be far below the 100 tons per year threshold, which requires review under the Prevention of Significant

Deterioration regulations. Emissions are therefore expected to have no adverse impact on air quality (USAF, 1995a). The evaporative loss from the associated AST is also expected to be minimal, and to have no adverse impact on air quality. At all three of the alternative sites, minimal fugitive dust is expected to be generated by maintenance vehicles, due to the location of these sites along improved roadways. JCCA does not operate under a Title V air permit (Peeze, 2002); therefore no permit revision is required.

Operation of the generator would be exempt from a Pennsylvania State Operating Permit because the combined NO_x output of all exempted generators at JCCA, including the anticipated emissions from the ASR-11 generator, would be less than the thresholds (100 lbs/hr, 1,000 lbs/day, 2.75 tons per ozone season, and 6.6 tons/year on a 12-month rolling basis) set by the PA DEP (PA DEP, 2001c). Construction of the 1,000 gallon storage tank would be exempted from the State Operating Permit because the stored diesel fuel has a vapor pressure of less than 1.5 pounds per square inch absolute (psia), and the tank is less than 2,000 gallons (PA DEP, 2001c).

4.6 GEOLOGY AND SOILS

4.6.1 Short-term Impacts

The construction of the ASR-11 radar system would have similar effects on soil at any of the alternative ASR-11 sites. Excavation of the tower footings is not anticipated to exceed seven to eight feet in depth. Excavation of the utility trenches is typically four feet deep, and may be up to 10 feet wide. Anecdotal evidence suggesting that soil samples collected as part of a closure study at the former fuel tank farm near **Site 4** and **Site 5** did not contain contaminants could not be verified; therefore, contaminated soil may be encountered during excavation and trenching at those sites. Oil stains observed at the existing motor pool suggest that contaminated soil may be encountered during excavation and trenching at **Site 7**. The temporary construction staging area would be removed upon project completion and would not be anticipated to substantially impact geology or soils. Based on mine inspection reports, the presence of existing coal mines beneath the proposed sites are not expected to impact the ASR-11 foundation due to the structural integrity of the mines (Rampside Collieries, 2001).

4.6.2 Long-term Impacts

No long-term impacts to the existing soils or geology, including coal mines, would result if the ASR-11 radar system were constructed at any of the three alternative sites. Based on mine inspection reports, the presence of existing coal mines beneath the proposed sites are not expected to impact the ASR-11 foundation due to the structural integrity of the mines (Rampside Collieries, 2001).

4.7 SURFACE WATER AND GROUNDWATER

4.7.1 Short-term Impacts

4.7.1.1 Surface Water. No surface water features exist within at least 1,000 feet of any of the three alternative sites; therefore, it is anticipated that the installation of the ASR-11 would not adversely impact surface water. The temporary construction activities at any of the three alternative ASR-11 sites are not anticipated to impact stormwater runoff. To minimize sedimentation and erosion during storm events, the proposed construction must comply with the JCCA Stormwater Pollution Prevention Plan. Construction activities would be required to implement BMPs, such as vegetative swales or buffer strips, and would be subject to inspection by state, county, and local regulators to ensure that environmental requirements are being addressed.

Stormwater management computations would need to be submitted to Richland Township for approval prior to construction. Because the impacted area is less than five acres, the Rational Method is the required computation method. Stormwater management requirements are waived when calculations submitted to the township demonstrate that the increase in runoff for a 25 year-24 hour event is less than 0.2 cubic feet per second (cfs). Otherwise, storage, slope, spillway, and discharge requirements must be met (Richland Township, 1995). Calculations will not be available until final design.

4.7.1.2 Groundwater. Wetland vegetation several hundred feet from **Site 4** and **Site 5** suggests an elevated water table near those sites. Trenching and construction of radar tower footings (approximately 7 to 8 feet deep) at Site 4 or Site 5 may require dewatering. Groundwater may

have been contaminated from the historical tank farm near Site 4 and Site 5. Depth of groundwater at **Site 7** is expected to be approximately 23 feet below ground surface and therefore deeper than footing excavations. No groundwater would be discharged from trenches during construction if contamination is encountered in the area without consulting state, county, and local regulators.

4.7.2 Long-term Impacts

There would be no long-term impact to surface water if the ASR-11 were to be constructed at any of the three alternative sites. Stormwater management requirements are waived when calculations submitted to the township demonstrate that increase in runoff for a 25 year-24 hour event is less than 0.2 cfs. Otherwise, storage, slope, spillway, and discharge requirements must be met (Richland Township, 1995). Calculations will not be available until final design.

There would be no anticipated long-term impacts to the groundwater if the ASR-11 were to be constructed at any of the three alternative sites. Underground utility conduits would be constructed to prevent leaking, so seepage from groundwater infiltration during rain events would not interfere with operation or maintenance of underground telephone, electric, and fiber optic cables.

4.8 BIOLOGICAL RESOURCES

The following describes potential short- and long-term effects of the installation of the DASR system on biological resources. The biological resources addressed in this section consist of vegetation, wetlands, wildlife, and threatened and endangered species.

4.8.1 Short-term Impacts

4.8.1.1 Vegetation. The construction of the ASR-11 may require the clearing of vegetation in the immediate areas of the facility, within the temporary construction staging area, within the corridor of the short access roads (if necessary), and along new duct bank routes. Vegetation in the vicinity of **Site 4** and **Site 5** is predominantly upland grasses, clover, dandelion, and yarrow, and is regularly mowed. The wooded area along the airport property line would not be impacted. **Site 7** is located on impervious or gravel surface and construction of the ASR-11 at this site would therefore not impact vegetation. Given the relatively small areas that will be cleared, such as the 160-foot by 160-foot fenced area surrounding the ASR-11 (if necessary), the access road (varying between 2,000 square feet (sf) and 15,000 sf, if necessary), the temporary staging area (75 feet by 100 feet), and narrow fiber optic trench, the clearing of vegetation associated with the DASR facility is not anticipated to present a significant impact to vegetative communities at JCCA.

4.8.1.2 Wetlands. As noted in Section 3.8.1.2, **Site 4** and **Site 5** are located several hundred feet from, but not within, a wetland area. **Site 7** is not located proximate to any wetlands. Therefore, no impact to wetlands is anticipated.

4.8.1.3 Wildlife. Due to the relatively limited area proposed for disturbance, the construction of the ASR-11 facility is not anticipated to substantially impact wildlife in the area. Wildlife populations found on any of the alternative ASR-11 sites are likely to be accustomed to periodic noise intrusions because of the persistent nature of the airport operations. Some brief displacement of wildlife populations may occur in the area of each site during construction. The wildlife which most commonly utilizes the three alternative ASR-11 sites consists primarily of small birds (such as sparrows, thrushes, and robins) and small mammals (such as mice); these species are generally mobile and would be capable of temporarily relocating from the vicinity of construction activities.

4.8.1.4 Threatened and Endangered Species. Except for occasional transient species, no federal or state-listed or proposed threatened and endangered species are known to exist in the vicinity of JCCA. Thus, no threatened or endangered species are anticipated to be impacted as a result of ASR-11 related construction activities.

4.8.2 Long-term Impacts

Operation of the ASR-11 at any of the three alternative sites has the potential to result in limited long-term impacts on biological resources, as noted below.

4.8.2.1 Vegetation. Installation of the ASR-11 facility at **Site 4** or **Site 5** would result in clearing of grassy areas for the 160-foot by 160-foot ASR-11 site, staging area, access road, and trenching required to construct new duct banks. The staging area and filled trenches would be re-seeded following project completion. Therefore, the only permanent loss to vegetation would occur from the ASR-11 site and the access road, approximately 15,000 sf at Site 4 and 2,000 sf at Site 5. Installation of the ASR-11 facility at **Site 7** would not impact vegetated areas. No new access road is needed, and the staging area would be located on paved surfaces near the existing motor pool. The new duct banks would be constructed along the road shoulder and would be re-seeded following project completion. Therefore, no long-term impact to JCCA vegetation resources would be expected at Site 7.

4.8.2.2. Wetlands. As noted in Section 3.8.1.2, **Site 4** and **Site 5** are located several hundred feet from a small wetland area. **Site 7** is not located proximate to wetlands. Therefore, no long-term impact to wetlands is expected.

4.8.2.3 Wildlife. Given the relatively small area required for the DASR facility, the presence and operation of a DASR system should not interfere with wildlife. The ASR-11 tower could theoretically pose an obstacle to birds flying through the area of the site. However, as discussed in the Programmatic EA for the NAS program (USAF, 1995a), the relatively low height of the ASR-11 antenna is not anticipated to pose a substantial threat to birds flying through the area.

4.8.2.4 Threatened and Endangered Species. No federal or state-listed or proposed threatened and endangered species are known to exist in the vicinity of JCCA, except for occasional transient species. Therefore, the siting and operation of the ASR-11 at any of the three alternative sites is not anticipated to impact threatened or endangered species.

4.9 AESTHETICS

4.9.1 Short-term Impacts

Trenching, staging, and road building activities associated with ASR-11 construction at **Site 4** and **Site 5** would not be expected to significantly impact the aesthetic resources at JCCA. Views of Site 4 and Site 5 could only be obtained from airport property; the wooded area to the east would screen activity on these sites from Airport Road. No significant impact is anticipated.

Site 7 would be visible from the airport, Airport Road, adjacent military facilities, and the private residence abutting the existing motor pool. Views of trenching and staging activities would not significantly alter the aesthetic resources at this site because such activities are typical of operations and maintenance projects at and around the airport. Additionally, these activities are expected to be of relatively short duration (approximately three weeks), further reducing the potential for short-term aesthetic impacts.

4.9.2 Long-term Impacts

An ASR-11 tower constructed at **Site 4** or **Site 5** would be mostly screened from view offsite by the woods to the east of the sites, though the top of the tower may extend above the treetops. However, the tower would be approximately 1,000 feet from Airport Road, and at this distance the tower's presence would be diminished. A tower at Site 4 or Site 5 would be approximately 600 feet and 350 feet, respectively, from the hangers along Fox Run Road. However, the tower would not be in the direct line of site from the hangers because the bay doors face east and west, while the tower would be located to the south, and would therefore not cause a visual impact. Thus no adverse visual impact at Site 4 and Site 5 would be expected.

An ASR-11 tower at **Site 7** would be within plain view of the private residence. Though the view to the east from the residence is already characterized by telephone poles, wires, and the CE building, the 67-foot high tower at Site 7 would be only 125 feet away from the residence and would dominate the view. The tower would not obstruct any existing rare, unique, or otherwise special views, including rural settings. The concurrent relocation of the motor pool may be perceived as a visual improvement and may partially mitigate the impact of the new radar tower. Nevertheless, the radar tower would be the focal point of the view to the east and would have a potentially significantly impact on the visual aesthetic from the residence. Additionally, visitors approaching the airport terminal from the east on Airport Road would have a direct and unobstructed view of the radar tower. The view from Airport Road toward the site is characterized by buildings and structures associated with the airport. Thus, although a tower at Site 7 would be clearly seen from Airport Road, the impact would not be significant since the tower would be constructed on an already developed site, and would not obstruct unique or rare scenic views, including rural settings. Additionally, a tower may reasonably be expected to be seen within land zoned as industrial or airport (Richland Township, 2001c). A tower at Site 7 would also be within the view from adjacent military and airport buildings. However, the view of the radar tower would be consistent with the function of the airport.

Operation of the ASR-11 facility at any of the alternative sites would require the installation of security lighting. Lighting fixtures to be installed at the ASR-11 facility would generally consist of the following: two red, steady burning, 116-watt obstruction lights on top of the antenna; 200-watt area lights on each stair landing of the tower to provide illumination for authorized personnel; two 1,000-watt outdoor area lights to be projected downward to illuminate the area within the fenced footprint; and fluorescent indoor area lighting installed in the equipment shelter on the site. The tower stairway lights and outdoor area lighting will be illuminated only when needed for nighttime maintenance activities.

4.10 CULTURAL RESOURCES

4.10.1 Short-term Impacts

Based on cultural resource surveys for JCCA and the surrounding area, cultural resources are not likely to be present within the proposed project areas for the three alternative sites. The construction activities associated with the installation of the ASR-11, including trenching for utility connections, are not anticipated to impact any cultural resources at any of the three potential ASR-11 sites.

4.10.2 Long-term Impacts

No long-term impacts to cultural resources are anticipated to result from the operation of the ASR-11 at any of the three alternative sites.

4.11 POLLUTION PREVENTION AND HAZARDOUS WASTE

4.11.1 Short-term Impacts

The potential short-term pollution and hazardous waste impacts resulting from construction of the ASR-11 are discussed in the following sections.

4.11.1.1 Pollution Prevention. The construction phase of the ASR-11 radar system would comply with applicable JCCA policies and guidelines for pollution prevention. In addition, a pollution prevention plan has been developed for the NAS program. This plan prohibits the use of all Class I ozone depleting chemicals and directs the contractor to minimize the use of Class II ozone depleting chemicals and toxic substances. Consequently, hazardous waste generation is anticipated to be reduced to the maximum extent possible during construction of the new radar facility. Similar pollution prevention measures would be implemented during ASR-11 construction regardless of the alternative site at which the facility is constructed.

4.11.1.2 Hazardous Waste. At any of the three alternative ASR-11 sites, some hazardous materials and waste would likely be used and generated during the ASR-11 construction, including: equipment fuel, engine oil, hydraulic oil, grease, and other equipment operation and

maintenance material. Refueling of equipment may also take place at the alternative ASR-11 site selected during construction. Any hazardous materials used during the ASR-11 construction would be stored, transported, and disposed in accordance with base, state, and federal regulations.

According to the Airport Executive Director, the general vicinity of **Site 4** and **Site 5** had been the location of a former fuel tank farm. Anecdotal evidence suggests that soil samples collected as part of the closure study for the fuel tank farm did not reveal any contamination in this area but could not be verified; therefore, it may be possible that impacted soil or groundwater is encountered during excavation or trenching operations. Oil stains observed at the existing motor pool suggest that impacted soil may be encountered during excavation or trenching near **Site 7**. In the event that any contaminated soil or groundwater is encountered at any of the alternative sites, appropriate airport procedures would be followed.

4.11.2 Long-term Impacts

The potential long-term pollution and hazardous waste impacts resulting from operation of the ASR-11 are discussed in the following sections.

4.11.2.1 Pollution Prevention. As indicated above, a pollution prevention plan has been developed for the NAS program. The plan prohibits the use of all Class I ozone depleting chemicals, and directs the contractor to minimize the use of Class II ozone depleting chemicals and toxic substances. In addition, operation of the ASR-11 radar system would comply with all applicable JCCA policies and guidelines for pollution prevention. Consequently, hazardous waste generation is anticipated to be reduced to the maximum extent possible during the operation of the ASR-11 facility.

4.11.2.2 Hazardous Waste. Operation of the radar facility at any of the three alternative sites would include the installation of a 1,000-gallon aboveground storage tank for the storage of diesel fuel to be used by an emergency generator. The fuel tank would be affixed with the National Fire Protection Agency Fire Diamond label to indicate the presence of hazardous materials/chemicals. The tank would comply with all federal, state, and airport spill control

requirements, including a leak detention system, overfill alarm, and double-wall and/or secondary containment as specified in 40 CFR 112.

In addition, hazardous materials and waste would likely be used and generated during operation, including: equipment fuel, engine oil, hydraulic oil, grease, and other equipment operation and maintenance material. All hazardous waste would be used and disposed of in accordance with applicable regulations and airport policies. Consequently, it is not anticipated that any soil or groundwater contamination would occur as a result of operating the radar.

4.12 ELECTROMAGNETIC ENERGY

4.12.1 Short-term Impacts

Construction at any of the three ASR-11 alternative sites at JCCA is not expected to generate RFR at levels that would be harmful to human health. Some low levels of RFR could be generated from commonly used devices at construction sites, such as cellular telephones or portable computers. However, any RFR generated, and any other electric or magnetic fields, would be typical of that which exists throughout the human environment and is not anticipated to be harmful to human health.

4.12.2 Long-term Impacts

Operation of the ASR-11 radar at any of the three alternative sites would generate identical levels of electric and magnetic fields, including RFR. As discussed in Section 3.12, the RFR generated by the existing MPN-26 is only hazardous at close distances to the radar when it is operating. Similarly, the RFR generated by the ASR-11 would only be hazardous at close ranges, while the radar is operating (see below). The tower immediately below the radar would be in the spillover region, and would be hazardous to humans while the radar is operating. At any of the three alternative sites, the facility would be sited a sufficient distance from occupied buildings that the radar operation would not pose a RFR hazard to personnel within the general vicinity of any of the ASR-11 sites. To advise personnel in the area of the RFR hazard at close ranges, signs would be posted at the perimeter of the ASR-11 facility warning against

approaching the antenna while it is in operation. There would be no RFR generated from the antenna, and therefore no RFR hazard, when the antenna is not in operation.

The following comparison to various RFR safety standards is adapted from the October 1997 *Radiofrequency Impact Analysis for Airport Surveillance Radar-11* (FAA, 1997).

Terms such as "safety standards" and "exposure standards" generally refer to, and are frequently used interchangeably with, specifications or guidelines on maximum public or occupational exposure levels to electromagnetic fields. Such levels are usually expressed as maximum power densities or field intensities in specific frequency ranges for stated exposure durations. Exposure guidelines have been developed by private organizations such as the American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE), and the National Council on Radiological Protection (NCRP, now called the National Council on Radiation Protection and Measurements) as voluntary guidelines for occupational or general public exposure, or both. Governmental agencies such as the Federal Communications Commission (FCC) and various state and municipal bodies have adopted such guidelines or variations thereof as enforceable stands. The draft version of FAA Order 3910.3B, Radiation Safety Program (1997) adopts the ANSI/IEEE exposure guidelines.

The ANSI/IEEE (1992) guidelines cover the frequency range from 0.003 MHz to 300,000 MHz, and separately specify the maximum permissible exposure (MPE) in "uncontrolled environments" (accessible by the general population) and "controlled environments" (such as occupational exposure). In the ASR-11 frequency band of 2,700-2,900 MHz, the MPE for uncontrolled environments is 1.80-1.93 milliwatts per square centimeter (mW/cm^2) averaged over a 30-minute period. The guideline level for controlled environments is 9-10 mW/cm^2 averaged over a 6-minute period.

In 1988, the International Radiation Protection Association (IRPA) published guidelines for occupational and public exposure to RFR in the frequency range 0.001 MHz to 300,000 MHz. At the ASR-11 frequency, the MPE for occupational exposure is 5 mW/cm^2 averaged over a 6-minute period. The MPE for non-occupational exposure is 1 mW/cm^2 averaged over a 6-minute

period. The MPE for pulsed RFR is set at 1,000 times the MPE for time-averaged exposure. Thus, at ASR-11 frequency, the MPE for pulsed RFR is 1,000 mW/cm^2 peak pulse power density. The NCRP also published guidelines for human exposure. For RFR at ASR-11 frequency, the MPE for occupational exposure is 5 mW/cm^2, averaged over 6 minutes. The corresponding MPE for exposure of the general population is 1 mW/cm^2, averaged over 30 minutes.

In August 1996, the FCC adopted a hybrid standard based in part on the ANSI/IEEE guidelines and in part on the NCRP guidelines. For occupational exposure to RFR in the ASR-11 frequency band, the FCC MPE is the same as the NCRP guideline level.

The power density of the ASR-11 beam varies considerably between the near-field (within 260 feet of the antenna) and the far-field (greater than 260 feet away) (FAA, 1997). Thus, far-field conditions apply to almost all the receptors near the proposed radar sites and are presented herein. Any differences in power densities would be conservative, because near-field calculations lead to lower predicted power densities than do far-field calculations. The power density of the ASR-11 signal can be represented by peak pulse power - the maximum power level of a single pulse - or as the power averaged over a time period, usually several or more minutes. At a distance of 23 meters (75 feet) from the ASR-11 antenna, the peak power density of the ASR-11 signal will be 945 mW/cm^2, less than the 1,000 mW/cm^2 MPE for peak power density established by the IRPA, as discussed above. The peak power density will decrease rapidly with distance from the antenna. At all locations more than 23 meters (75 feet) from the ASR-11 antenna, the ASR-11 signal will comply with the MPE for peak power density established by the IRPA. The private residence that is located near Site 7 and the OMS would be located approximately 125 to 400 feet from the tower center, respectively, and the CE building would be approximately 200 feet from the tower center; the peak power densities at these locations would therefore comply with the IRPA requirement.

The average (mean) power radiated by the ASR-11 is 2.1 kilowatts (kW). At any point near the ASR-11 in normal operation (i.e. antenna is rotating), the average power density is lower than the peak density by the factor 0.00034. For the ASR-11 frequency range (uncontrolled

environments), the ANSI/IEEE MPE is 1.8 to 1.93 mW/cm^2, averaged over 30 minutes. The average power density of the ASR-11 signal decreases with distance from the antenna and will fall below 1.9 mW/cm^2 at a distance of 10 meters (33 feet) from the radar antenna. Since the ASR-11 will be mounted on a tower greater than 10 meters in height, persons at ground level would not be exposed to RFR levels exceeding the ANSI/IEEE MPE. At distances of more than 13 meters (43 feet) from the ASR-11 antenna, the ASR-11 signal will comply with the MPE levels for the general population, 1.0 mW/cm^2, set forth in IRPA, NCRP, and FCC guidelines, discussed above. The private residence and OMS that is located near Site 7 and the OMS would be located approximately 125 to 400 feet, respectively, west of the tower center, and the CE building would be approximately 200 feet east of the tower center.

Thus, no impacts to nearby receptors are anticipated at any of the three alternative sites. At all locations near the radar, the ASR-11 signal will comply by an even wider margin with the guideline levels for occupational exposure set forth by ANSI/IEEE, IRPA, NCRP, and FCC. As a precautionary measure, signs would be posted at the perimeter of the DASR facility advising personnel and the public against approaching the radar facility during operation.

5.0 COMPARISON OF ENVIRONMENTAL CONSEQUENCES AND SELECTION OF ENVIRONMENTALLY PREFERRED ALTERNATIVE

The three alternative ASR-11 sites are relatively comparable with regard to existing environmental conditions. All three sites occur on the eastern/northeastern side of JCCA along the property boundary. The three sites are characterized by similar air quality, geologic, hydrologic, archaeological and cultural resource conditions, and noise levels. Site 4 and Site 5 are located along the eastern property line in a grassy, frequently mowed field. Site 7 is located north of Airport Road on land owned by JCCA but leased by the PA Army National Guard for use as a motor pool and storage facility. Site 4 and Site 5 are located several hundred feet from a mapped, isolated wetland area. Site 7 is a combination of paved and gravel surface, therefore no significant vegetation or wildlife occurs there. None of the sites are located in any known hazardous waste areas. However, Site 4 and Site 5 may have soil or groundwater contamination from a former fuel tank farm. Site 7 may have some localized areas of soil contamination resulting from its use as a motor pool. Site 4 and Site 5 share relatively similar aesthetic characteristics, with airfield and structures (hangars, ATCT, runways) contributing to the functional aesthetic of the eastern side of JCCA. Site 7 also shares some of the airfield aesthetics, however, it is located in close proximity to military buildings, a private residence and the public access road (Airport Drive) to the airport terminal.

No adverse short-term socioeconomic, biological, archaeological and cultural resources impacts are expected at any of the three sites. Construction activities at Site 4 or Site 5 may encounter an elevated water table; thus, dewatering during installation of tower footings may be necessary. Contaminated groundwater may also be encountered during the construction of the ASR-11 at those two sites. The three alternative sites are at various distances from existing electric, telephone, and data communication lines. Generally, the longer the length of trench required for utility connections, the greater the potential for increased dust and noise levels for a small portion of the construction period. Site 4 would require the longest access road and telephone connection but the shortest electrical connection. Site 5 and Site 7 would require the longest electrical connections and shortest telephone connections. Site 5 would also require the greatest length of fiber optic cable and greatest length of new fiber optic ducts. Electrical connections to

Site 4 and Site 5 may need upgrading to accommodate the increased ASR-11 load. Construction and staging at Site 4 and Site 5 would require the clearing of vegetation, primarily grass. Construction and staging at Site 7 would not result in the loss of any vegetation because the site is paved or gravel, and no access road is required. Construction of underground utility ducts and access road (if necessary) would require a temporary loss of vegetation. Alignments for the access road and utility trenches, as well as siting of staging areas, will be designed to avoid wetland resources areas. Construction activities associated with the installation of the ASR-11 at Site 4 and Site 5 would not be visible beyond airport property. Construction activities associated with the installation of the ASR-11 at Site 7 would be visible from a single private residence, from several military buildings and structures, and from Airport Road.

No long-term utility, air quality, biological, hydrologic, or archaeological/cultural resources impacts are anticipated at any of the three sites. Site 7 is located on land zoned as Light Industrial; the radar tower may be permitted as a special use by the Richland Township zoning board as a telecommunications tower because it sends and receives transmissions. Although Site 7 is owned by JCCA, it is currently leased by the PA Army National Guard for use as a motor pool and storage facility; the motor pool would be relocated regardless of whether Site 7 were selected. Because the inhabitant of the abutting private residence may be low income, and because placement of a radar tower at Site 7 may have a potentially significant impact on the visual aesthetic from the house, along with potentially increased noise levels related to nighttime operation of the associated emergency generator, environmental justice may be a concern. All three sites would be constructed so as not to obstruct any future airport development. As noted previously, installation of the ASR-11 at Site 4 and Site 5 would require the permanent clearing of vegetation within the 160-foot by 160-foot footprint of the ASR-11 facility, as well as temporary clearing within the areas of the associated access road and utility connections; Site 7 is a combination of pavement and gravel and would not require clearing of vegetation for the radar footprint or staging area, and would require temporary clearing only along the utility route. Generally, the amount of clearing would not be significant, considering the abundance of similar grassy areas available on and in the vicinity of JCCA. Thus, with care taken to avoid wetland resources, long-term impacts to biological resources are anticipated to be minimal regardless of the alternative site selected. Only the top of the proposed radar tower at Site 4 or Site 5 would be

seen from beyond airport property, and its presence would be diminished by its distance from Airport Road. The proposed tower at Site 7 would cause an adverse impact to the local viewshed from the private residence. Although the radar would generate RFR while operating, persons at ground level would not be exposed to RFR levels exceeding the MPE levels for the general population, since the ASR-11 will be mounted on a tower greater than 57 feet in height. As a precautionary measure, signs would be posted at the perimeter of the DASR facility advising personnel and the public against approaching the radar facility during operation. Though the nearest receptors are approximately 125 feet away from the center of the tower, locations beyond 75 feet from the ASR-11 antenna will comply with the MPE for peak power density established by the IRPA. During the DASR operation, fuel and other hazardous materials such as engine oil and grease may be used at the site. However, use and disposal of any hazardous materials would occur in compliance with JCCA protocols and guidelines, as well as applicable state and federal regulations. Consequently, it is anticipated that operational use of hazardous materials would not adversely affect the natural or human environments.

In summary, construction and operation of the ASR-11 facility would result in minimal short-term impacts at all of the three alternative sites. Construction and operation of the ASR-11 facility would result in minimal long-term impacts at Site 4 and Site 5. However siting the ASR-11 at Site 7 may result in a potentially significant visual aesthetic impact to the adjacent residence. Because the occupant of the residence may be low income, environmental justice may be a concern. Site 4 or Site 5 would be acceptable locations for the ASR-11 facility from an environmental perspective. Site 7 would also be acceptable if aesthetic impacts and environmental justice concerns to the adjacent residence can be mitigated. Due to operational and other airport considerations, the USAF and JCCA authorities have selected Site 5 as the preferred ASR-11 location.

6.0 MITIGATION

Most of the impacts that may occur at any of the sites during construction and operation of the DASR system are minor in nature and few mitigation measures would be required. To minimize noise impacts during construction, mufflers would be used on construction equipment and vehicles. In addition, all equipment and vehicles used during construction would be maintained in good operating condition so that emissions are minimized, thus reducing the potential for air quality impacts. Dust would be managed on-site by using water or other acceptable control to wet down disturbed areas. The small area that would be permanently cleared for the DASR facilities would be stabilized using geotextile fabric with gravel to minimize the potential for erosion. In addition, all other areas disturbed outside of the ASR-11 facility area, including the temporary staging area, would be seeded or re-paved, as appropriate, upon project completion. The proposed project would incorporate appropriate BMPs, such as vegetative swales or buffer strips, to reduce the effects of stormwater runoff from the site and along access roads. Groundwater would be monitored as necessary. If contaminants are discovered in soil or groundwater, disposal would not occur without prior consultation with the Cambria County Conservation District. All hazardous materials and hazardous waste used during construction would be handled and disposed of in accordance with JCCA policies and protocols and all applicable state and federal regulations. Traffic management measures would be developed to facilitate traffic flow and pedestrian access. Additionally, due to the potential for RFR hazards at close distance during operation of the ASR-11, warning signs indicating the safe distance from the operating radar would be installed at the facility perimeter.

If Site 7 is selected as the alternative site, additional mitigation measures to reduce visual impact of the radar facilities, as well as to reduce potential noise concerns associated with the emergency generator, should be evaluated and implemented. Possible measures could include the planting of a hedgerow to provide a visual buffer from the residence. Final design should evaluate the optimal location of the emergency generator to maximize distance from the receptor while utilizing proposed shelters/structures to shield/reflect the noise. Selection of this site may require the use of a higher-end noise attenuation enclosure than is included as part of the standard DASR design.

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8.0 LIST OF PREPARERS

Metcalf & Eddy prepared this document to fulfill the requirements of the National Environmental Policy Act (NEPA) for the proposed action of constructing a DASR facility at the Johnstown-Cambria County Airport in Pennsylvania. Other entities that provided information on an as-needed basis included JCCA staff, PA ANG 258 ATCS, the PA ARNG 876 Civil Engineering Battalion, civilian airport authorities, Richland Township Zoning Office, Cambria County Offices, hired contractors, and various technical personnel at URS Corporation. The following persons authored and provided direct oversight for the preparation of this environmental assessment:

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APPENDIX A: ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

A/C	alternating current
AFB	Air Force Base
AFI	Air Force Instruction
AM	amplitude modulation (radio)
ANSI	American National Standards Institute
ASR-11	(airport surveillance radar model designation)
AST	aboveground storage tank
ATCS	Air Traffic Control Squadron
ATCT	air traffic control tower
BMPs	best management practices
CCHSS	Cambria County Historical Site Survey
CCIDC	Cambria County Industrial Development Corp.
CE	civil engineering
CFR	Code of Federal Regulations
cfs	cubic feet per second
DASR	Digital Airport Surveillance Radar
dBA	decibel, A-weighted
DNL	decibel, day-night average sound level
DoD	(U.S.) Department of Defense
DRMO	Defense Reutilization and Marketing Office
EA	environmental assessment
EIS	environmental impact statement
ESC	Electronic Systems Center
EPA	United States Environmental Protection Agency
°F	degrees Fahrenheit (temperature)
FAA	Federal Aviation Administration (United States Department of Transportation)
FAR	Federal Aviation Regulation
FDA	United States Food and Drug Administration
FCC	Federal Communications Commission
FM	frequency modulation (radio)

ACRONYMS AND ABBREVIATIONS (continued)

FONSI	finding of no significant impact
Hz	hertz
IEEE	Institute of Electrical Electronics Engineers
IRP	Installation Restoration Program
IRPA	International Radiation Protection Association
JCCA	Johnstown-Cambria County Airport
kHz	kilohertz
kW	kilowatts
LOS	line of sight
m/sec	meters per second
mg/m^3	milligrams per cubic meter
MHz	megahertz
MPE	maximum permissible exposure
MPN-26	(airport surveillance radar designation)
mW/cm^2	milliwatts per square centimeter
$\mu g/m^3$	micrograms per cubic meter
µm	micrometers (microns)
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NCRP	National Council on Radiological Protection
NEPA	National Environmental Policy Act
nm	nanometers
nmi	nautical mile
NRHP	National Register of Historic Places
OMS	operation and maintenance shop
OSHA	Occupational Safety and Health Administration
PA ANG	Pennsylvania Air National Guard
PA ARNG	Pennsylvania Army National Guard
PA HMC	Pennsylvania Historical and Museum Commission
PASS	Pennsylvania Archeological Site Survey

ACRONYMS AND ABBREVIATIONS (continued)

PM-2.5	particulate matter below 2.5 microns
PM-10	particulate matter below 10 microns
ppb	parts per billion (by volume in air)
ppm	parts per million (by volume in air)
psia	pound per square inch absolute
RFR	Radiofrequency radiation
ROW	right-of-way
sf	square feet
USAF	United States (Department of the) Air Force
USAR	United States Army Reserve
USBC	United States Bureau of the Census
USFWS	United States Fish and Wildlife Service

APPENDIX B: LISTING OF AGENCIES AND INDIVIDUALS CONTACTED

LISTING OF AGENCIES AND INDIVIDUALS CONTACTED

Colonel Ed Hull, 258 ATCS Unit Commander

Justin Young, 258 ATCS, Maintenance – ATCT and Radar

John Bowman, 258 ATCS, Radio Maintenance

Dennis Fritz, 258 ATCS, Tower Chief

Mike Butler, 258 ATCS

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Joe Peeze, PA Bureau of Air Quality, Southeast Region

APPENDIX C: PRELIMINARY SITE SCREENING CRITERIA FOR CAMBRIA COUNTY AIRPORT, JOHNSTOWN

(AS PRESENTED IN THE *INTEGRATED SITE SURVEY REPORT – PRELIMINARY*, *JOHN MURTHA JOHNSTOWN*, PREPARED BY RAYTHEON SYSTEMS COMPANY, 12 NOVEMBER 2001)

PRELIMINARY SITE SCREENING CRITERIA - CAMBRIA COUNTY AIRPORT

EXCLUSIONARY CRITERIA

These criteria consider the essential environmental, constructional, and operational constraints that could eliminate a site from further consideration as a potential site for the ASR-11 System. These criteria relate to environmental parameters that could lead to unmitigable significant impacts and physical parameters regarding a site's suitability for construction.

Criteria	**Rejected Sites**		**Alternative Sites**		
	Site 1	**Site 2**	**Site 4**	**Site 5**	**Site 7**
Impacts occupied existing structures	No	No	No	No	No
Within railroad ROW	No	No	No	No	No
Within highway ROW	No	No	No	No	No
Within runways and/or taxiways	No	No	No	No	No
Within power line ROW	No	No	No	No	No
Impacts wilderness areas	No	No	No	No	No
Impacts national natural landmarks	No	No	No	No	No
Site less than 160 by 160 feet	No	No	No	No	No
Lacks coverage of departing aircraft targets within 1 nmi of the takeoff runway ends	No	No	No	No	No
Lacks coverage of aircraft on final approach up to the missed approach point	Yes[1]	Yes[2]	Yes[3]	Yes[4]	Yes[5]
Within 1,500 feet of any above ground screening object	No	No	No	No	No
Airport specific exclusions	Yes[6]	No	No	No	No

No = Meets Criteria
Yes = Does Not Meet Criteria

1. Site 1 will not provide coverage to the missed approach point for VOR/DME or GPS RWY 15 and VOR or GPS RWY 5 due to the 0.5 nmi minimum detection range.
2. Site 2 will not provide coverage for a section of the approach VOR or GPS RWY 5 due to the 0.5 nmi minimum detection range.
3. Site 4 will not provide coverage to the missed approach point for ILS RWY 33, VOR/DME or GPS 23, and VOR or GPS RWY 5 due to the 0.5 nmi minimum detection range.
4. Site 5 will not provide coverage to the missed approach point for VOR/DME or GPS RWY 23 and VOR or GPS RWY 5 due to the 0.5 nmi minimum detection range.
5. Site 7 will not provide coverage to the missed approach point for VOR/DME or GPS RWY 23 and VOR or GPS RWY 5 due to the 0.5 nmi minimum detection range.
6. Site 1 is located 200 feet from an Explosive Storage area.

Source: USAF, 2002

RESTRICTIVE SCREENING CRITERIA

These criteria could eliminate a site from further consideration due to the extensive mitigation required to offset potentially significant impacts. Many of these criteria originate from Federal law. In these cases, the law has been noted. Additionally, many of the criteria are covered by state and local laws, which were consulted as appropriate.

Criteria	Rejected Sites		Alternative Sites		
	Site 1	Site 2	Site 4	Site 5	Site 7
Ecological or wildlife refuges	5	5	5	5	5
Wild and scenic rivers	5	5	5	5	5
Prime and unique farmland	5	5	5	5	5
National, state, and municipal parks and recreation areas	5	5	5	5	5
Historical, archeological, and cultural sensitive sites	N/A	N/A	5	5	5
Wetlands	5	5	5	5	5
Endangered and threatened species habitat	N/A	N/A	5	5	5
Non-airfield or non-federal land	5	5	5	5	5
Hazardous waste site	N/A	N/A	5	5	5
Capped landfill	5	5	5	5	5
Scenic highways	5	5	5	5	5
Coastal zones	5	5	5	5	5
Steep terrain	5	5	5	5	5
Floodplain	5	5	5	5	5
Within 2,500 feet of existing electronic facilities or power lines that could interfere with operation	1[a]	5	1[b]	1[c]	1[d]
Cone of silence impacts coverage of radar/instrument approaches, navigational fixes, airway/route, and special air traffic coverage requirements	1[e]	1[f]	1[g,i]	1[h,i]	1[h,i]
Within 2,500 feet of industrial operations that could interrupt or contaminate the site	5	5	5	5	5
Within 0.5 nmi of edges of any operational runways and approach and departure paths	1[j]	1[k]	1[l]	1[l]	1[m]
Violates FAR Part 77 requirements	5	5	5	1[n]	1[o]

5 = No Adverse Impacts/Meets Criteria
3 = Partially Impacted/Marginal
1 = Significantly Impacted/Does Not Meet Criteria
N/A Due to the rejection of site, this information was not collected

a Site 1 is within 2,330 feet of the ATCT and 2,420 feet of the proposed MPN 26 radar site.
b Site 4 is within 1,600 feet of the VOR, 2,400 feet of the ATCT, and 2,170 feet of the proposed MPN 26 radar site.
c Site 5 is within 1,660 feet of the VOR, 2,320 feet of the ATCT, and 2,350 feet of the proposed MPN 26 radar site.
d Site 7 is within 1,590 feet of the VOR, 1,160 feet of the ATCT, and 2,500 feet of the proposed MPN 26 site.
e For Site 1, the 0.5 nmi minimum detection range will affect the approaches VOR/DME or GPS RWY 10 and VOR or GPS RWY 5.
f For Site 2, the 0.5 nmi minimum detection range will affect the approach VOR or GPS RWY 5.

g For Site 4, the 0.5 nmi minimum detection range will affect the approaches ILS RWY 33, VOR/DME or GPS RWY 23, and VOR or GPS RWY 5.
h For Site 5 and Site 7, the 0.5 nmi minimum detection range will affect the approaches VOR/DME or GPS RWY 23 and VOR or GPS RWY 5.
i For Sites 4, 5, and 7, the minimum detection range will affect the air routes V12, V106, V297, and V469. The cone of silence will affect air route V35.
j Runway ends 10 and 15 are within 0.5 nmi of Site 1.
k Runway end 5 is within 0.5 nmi of Site 2.
l Runway ends 10, 23, 28, and 33 are within 0.5 nmi of Site 4 and Site 5.
m Runway ends 10, 23, and 28 are within 0.5 nmi of Site 7.
n Site 5 violates FAR Part 77 for Runway 10/28.
o Site 7 violates FAR Part 77 for Runway 5/23.

Source: USAF, 2002

SELECTIVE SCREENING CRITERIA

These criteria provide positive or negative considerations that will form the basis for comparison of candidate sites. Much of the information required will be obtained during site visits.

Criteria	Rejected Sites		Alternative Sites		
	Site 1	Site 2	Site 4	Site 5	Site 7
Visual sensitivity	+	+	+	+	-[1]
Accessibility to roads	+	o[2]	+	+	+
Soils	o[3]	o[3]	+	+	+
Geology	+[4]	+[4]	+[4]	+[4]	+[4]
Proximity to power	+	o[5]	+	+	+
Proximity to telephone lines	+	o[5]	+	+	+
Zoning	+	+	+	+	+[6]
Subsurface rights	o[7]	o[7]	o[7]	o[7]	o[7]
Unique habitat	+	+	+	+	+
Utilities	+	+	+	+	+
Planned use of site	+	+	+[8]	+[8]	+
Roadways	+	+	+	+	+
Water resources	+	+	+	+	+
Recreational use	+	+	+	+	+
Underground cable routing	+	o[9]	o[9]	o[9]	+
LOS visibility to air traffic coverage requirements	N/A	N/A	23 of 87	23 of 87	22 of 87
Secondary radar coverage, on the surface, over the entire length of runways	N/A	N/A	+	+	+

+ = Positive
– = Negative
o = Neutral

1 Site 7 is located approximately 200 feet east of a single family residence and would provide an unobstructed view of the ASR-11 system.
2 Accessing Site 2 would require coordination in order to cross active runways.
3 According to the Building Site Development table in the Cambria County Soils Survey, the soil at Sites 1 and 2 have moderate to severe constructability constraints due to wetness, slope, large stones, and frost action.
4 According to the 1994 Uniform Building Code-Seismic Zone Map, all of the candidate sites are located in Seismic Zone 1, low earthquake hazard area.
5 Site 2 would require power and telephone routing of approximately 4,000 feet to tie into utilities at the future mobile radar location.
6 According to the 1999/2000 Community Information Guide and Map of Richland Township, Cambria County, Site 7 is zoned Light Industrial.
7 The geology of the airport and vicinity is a honeycomb-like network of coal mines.
8 Sites 4 and 5 are located in an area that may be developed by the airport. No firm plans are available at this time.
9 As compared to the other proposed candidate sites, Sites 2, 4, and 5 would require long underground cable routes to supply radar data and control communications to the ATCT.

N/A Sites 1 and 2 were eliminated from further evaluation prior to the line of sight analysis; thus "N/A" reflects that the coverage analysis was not performed for sites previously removed from the list of alternative sites being considered.

Source: USAF, 2002