
ENVIRONMENTAL ASSESSMENT

CONSTRUCTION OF AN ARMED FORCES RESERVE CENTER AND IMPLEMENTATION OF BRAC 05 REALIGNMENT ACTIONS AT MIDDLETOWN, CONNECTICUT



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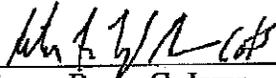
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**CONSTRUCTION OF AN ARMED FORCES RESERVE CENTER AND
IMPLEMENTATION OF BRAC 05 REALIGNMENT ACTIONS AT
MIDDLETOWN, CONNECTICUT**

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ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: Mobile District, U.S. Army Corps of Engineers

TITLE OF PROPOSED ACTION: Environmental Assessment for Construction of an Armed Forces Reserve Center and Implementation of BRAC 05 Realignment Actions at Middletown, CT

AFFECTED JURISDICTIONS: Middlesex County, Connecticut

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ABSTRACT: On September 8, 2005, the Defense Base Closure and Realignment Commission ("BRAC Commission") recommended that certain realignment actions occur in Middletown, Connecticut. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

To implement the BRAC Commission's recommendations, the U.S. Army proposes to provide the necessary facilities to support the changes in force structure and the consolidation of reserve units. This Environmental Assessment (EA) analyzes and documents environmental effects associated with the U.S. Army's proposed actions at Middletown, CT.

None of the predicted effects of the Proposed Action would result in significant impacts to the quality of the human or biological environment at Middletown, CT. Mitigation would be required to offset impacts to unavoidable wetlands for the Cucia Park and Millennium Industrial Park (Ken Dooley Drive) Alternatives. Therefore, preparation of an Environmental Impact

Statement is not required and a Finding of No Significant Impact (FNSI) will be published in accordance with the National Environmental Policy Act (NEPA).

REVIEW PERIOD: Interested parties are invited to review and comment on the EA and Draft FNSI during the 30-day comment period, April 24, 2009 through May 23, 2009. The EA and Draft FNSI can be accessed on the World Wide Web at:

http://www.hqda.army.mil/acsim/brac/env_ea_review.htm

Copies of the EA can also be viewed at the following local library:

Russell Library
123 Broad Street
Middletown, CT 06457

Comments on the EA and Draft FNSI should be submitted during the 30-day public comment period via mail, fax, or electronic mail to the following:

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Base Closure and Realignment (BRAC) Commission recommended that certain realignment actions occur in Middletown, Connecticut (CT). These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Closure and Realignment Act of 1990 (Public Law 101-510), as amended. The acquisition of property and construction of the facilities needed to implement the BRAC recommendation for Middletown, CT is referred to in this EA as the 'Proposed Action.'

The purpose of the Proposed Action is to implement those elements of BRAC law that contain the BRAC Commission's recommendation pertaining to Middletown, CT.

The BRAC recommendation for Middletown, CT reads:

Close the US Army Reserve Center, Middletown, CT, the Organizational Maintenance Shop, Middletown, CT; the SGT Libby US Army Reserve Center, New Haven, CT; the Organizational Maintenance Shop, New Haven, CT; the Army Reserve Area Maintenance Support Activity #69, Milford, CT, and relocate units to a new Armed Forces Reserve Center, Organizational Maintenance Shop and Army Maintenance Support Activity in Middletown, CT, if the Army is able to acquire land suitable for the construction of the facilities. The new AFRC, OMS and AMSA shall have the capability to accommodate units from the following facilities: Connecticut Army National Guard Armories in Putnam, Manchester, New Britain and the CTARNG facility in Newington, CT, if the state decides to relocate those National Guard units (BRAC Commission, 2005).

These actions are related to the decision to realign and transform Reserve Component facilities in the State of Connecticut. To implement this recommendation, the U.S. Army proposes to provide in Middletown, CT the necessary facilities to support the changes in force structure. This Environmental Assessment (EA) analyzes the potential environmental impacts associated with the construction and operation of the new Armed Forces Reserve Center (AFRC).

The Defense Base Closure and Realignment Act of 1990 specifies that the NEPA does not apply to actions of the President, the Commission, or the Department of Defense, except "(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated." (Section 2905(c)(2)(A), Public Law 101-510, as amended.) The law further specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the Secretaries of the Military Departments concerned do not have to consider "(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to these recommended or selected" (Section 2905 (c)(2)(B). However, an appropriate level of NEPA analysis and documentation is required to analyze how the BRAC actions will be implemented.

ES.2 SETTING

Middletown, CT is located in Middlesex County approximately 20 miles south of Hartford and 25 miles northeast of New Haven, CT.

ES.3 PROPOSED ACTION

The Proposed Action is to construct a new AFRC and associated support facilities at Middletown, CT to support five U.S. Army Reserve units and six CT Army National Guard (CTARNG) units relocating from the SGT Libby U.S. Army Reserve Center (USARC), New Haven CT and the Army Reserve Army Maintenance Support Activity (AMSA) #69, Milford CT as well as CTARNG facilities in Manchester, Newington, and New Britain, CT.

The purpose of the Proposed Action is to implement the BRAC Commission's recommendations pertaining to Middletown, CT.

Facilities – The proposed AFRC would provide a 164,007 square foot (SF) 1000-member training facility with administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for four Army Reserve units and six CTARNG units. Associated support facilities include a 34,979 SF Organizational Maintenance Shop

(OMS) and a 3,886 SF unheated storage building. In addition, there would be approximately 8.76 acres of paved areas including approximately 3.80 acres of military equipment parking (MEP) areas and approximately 4.96 acres of privately-owned vehicle (POV) parking areas, walkways, and access roads.

Personnel - Implementing the BRAC Commission's recommendations for Middletown, CT would result in the total assignment of 895 personnel to the new AFRC. Of these 895 personnel, there would be 842 reservists and 53 civilians. There would be 100 full-time personnel. Of these personnel, none would be coming from outside of the region. Each U.S. Army Reserve unit will be drilling on one of three weekends each month, meaning that not all personnel will be using the facilities on the same weekend. CTARNG units drill one of two weekends each month. The typical maximum number of personnel using the facilities on a drill weekend would be approximately 450.

Equipment - The relocation and realignment of reserve units to the proposed AFRC at Middletown, CT would bring associated unit vehicles, equipment, and materials. The total number of vehicles that would be relocated and stationed at the new facility is about 219. This includes approximately 92 from the Army Reserve, including 46 wheeled vehicles and 46 trailers, and 127 from the CTARNG units, including 86 wheeled vehicles and 41 trailers.

ES.4 REALIGNMENT PROCESS

The timeline for implementing the action in Middletown, CT began in late 2005 with Congressional and Presidential approval of the BRAC law followed by the initiation of this NEPA process and related planning activities in Middletown, CT. New BRAC facilities in Middletown are programmed through fiscal year 2010 with realignment moves scheduled to be completed by 2011. Under the BRAC law, the U.S. Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011.¹

¹ Section 2904(a), Public Law 101-510, as amended, provides that the Army must "... initiate all closures and realignments no later than two years after the date on which the President transmits a report [by the BRAC Commission] to the Congress ... containing the recommendations for such closures or realignments; and ... complete all such closures and realignments no later than the end of the six year period beginning on the date on which the President transmits the report ..." The President took the specified action on September 15, 2005.

This BRAC EA examines the environmental impact from efforts that will take place within the 6-year BRAC implementation window.

ES.5 ALTERNATIVES

This EA evaluates the impacts of acquisition of property for the construction and operation of an Armed Forces Reserve Center. Four sites were evaluated as reasonable alternatives for construction and operation of the AFRC in Middletown. These sites include Mile Lane, Bysiewicz Industrial Subdivision (Liberty Park), Cucia Park, and Millennium Industrial Park (Ken Dooley Drive) and Boardman Lane as one combined alternative site location. The former Army Reserve Base on Mile Lane was eliminated from further analysis because the BRAC Law requires the closure of this existing facility.

As preliminary engineering designs progressed for the three remaining alternatives, it was determined that the AFRC complex could be constructed entirely on the Millennium Industrial Park (Ken Dooley Drive) parcel. As a result, the Boardman Lane property was dropped from the Millennium Industrial Park (Ken Dooley Drive)/Boardman Lane Alternative. Three reasonable alternative sites were identified and evaluated in addition to the No Action Alternative.

In March 2009, the owner's representative of the Bysiewicz Industrial Subdivision (Liberty Park) stated that a company signed an option to purchase three lots on the Bysiewicz property. However, the purchaser had to accomplish certain conditions by late April, or they would lose the option.

The Bysiewicz site is analyzed as an alternative in this EA. However, if the lots are sold, the site would no longer meet the Army's needs. It would be eliminated from further consideration, because it would be too small for the Army Reserve project.

Cucia Park is the U.S. Army's Preferred Alternative site.

No Action Alternative

CEQ regulations require analysis of the No Action Alternative in an EA, and serves as the baseline against which the impacts of the proposed action and alternatives will be evaluated. Accordingly, the No Action Alternative is evaluated in this EA. Under the No Action

Alternative the various reserve units presently located in areas around New Haven, CT; in Milford, CT; and at the CTARNG would continue to train at and operate from their current locations with current facilities. Many of these facilities are outdated, inadequate, and inefficient.

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Under this alternative, the AFRC, OMS, unheated storage building, and an MEP area would be constructed on a parcel of land located off of Middle Street across from Smith Street within Middletown, CT. The 33 acre property is zoned industrial and is located within two miles of Interstate (I) 91. Existing forested vegetation on the site has been recently cleared by the current owner. The parcel is flat and the owner/developer has been conducting grading activities on-site, as well as road construction and the installation of sewer and stormwater systems. In 2006, a wetlands construction permit was issued by the City of Middletown for the parcel.

The property can accommodate the size and footprint of the proposed facilities and ensures compliance with the Anti-Terrorism (AT)/Force Protection (FP) stand-off buffer requirements. Utilities exist within or near the location and can be extended to the proposed facilities. Wetlands on the property are outside the construction and operation areas and would be avoided.

Cucia Park Alternative (Preferred Alternative)

The approximate 42 acre Cucia Park parcel is located across Middle Street from the Bysiewicz Industrial Subdivision (Liberty Park), south of Smith Street. Under this Alternative, the AFRC, OMS, unheated storage building, and MEP area would be constructed on the eastern portion of the parcel, adjacent to I-91. The property is zoned industrial and is located within two miles of I-91. Cucia Park proper is a three acre park in the northwestern portion of the property. The City of Middletown later added 39 acres to the parcel with the intention of industrial development.

The property can accommodate the size and footprint of the proposed facilities while also meeting required AT/FP stand-off buffer requirements. The necessary utilities exist within or near the location and could be extended to the proposed facilities. The disadvantages of this site include that it requires the clearing of 28 acres of forestland, unavoidable loss of 11,636 SF (0.267 acres) of wetlands, and impacts to state listed habitat for the eastern box turtle.

Millennium Industrial Subdivision (Ken Dooley Drive) Alternative

Under this alternative, the AFRC, OMS, unheated storage building, and a MEP area would be constructed on the 39-acre Millennium Industrial Park (Ken Dooley Drive). Originally this alternative included the 88-acre Boardman Lane property (located at the corner of Bell Street and Boardman Lane). As preliminary engineering designs progressed for this alternative, it was determined that the AFRC complex could be constructed entirely on the Millennium Industrial Park (Ken Dooley Drive) parcel. As a result, the Boardman Lane property was dropped from this alternative.

The Millennium Industrial Park (Ken Dooley Drive) Alternative includes access to the site from a northern entrance off of Millennium Industrial Park (Ken Dooley Drive). The site is zoned industrial and located within two miles of I-91. The property can accommodate the size and footprint of the proposed facilities while also meeting required AT/FP stand-off buffer requirements. The necessary utilities exist within or near the location and could be extended to the proposed facilities.

The site contains 5.28 acres of wetlands along the eastern border of the parcel. Construction of a new AFRC at this site would require the clearing of 35 acres of forestland, the unavoidable loss of 8,145 SF (0.187 acres) of wetlands, and impacts to state listed habitat for the eastern box turtle. The parcel would also require blasting during site preparation for construction.

ES.6 ENVIRONMENTAL CONSEQUENCES

Under the No Action Alternative, the proposed new BRAC facilities would not be constructed, and no environmental impacts would occur to sites within Middletown, CT.

The Proposed Action would not have any significant adverse effects or impacts on any of the environmental or related resource areas within the local or surrounding areas of the three alternative sites in Middletown CT. For all resource areas, the effects are evaluated to be at No Effect or No Significant Effect levels. Mitigation would be required for impacts to 0.26 acres of unavoidable wetlands, discussed in ES.7.

A summary of impacts by resource area for the No Action Alternative and each alternative is provided in Table ES-1.

Table ES-1: Summary of the Impacts of the Proposed Action Alternatives

Resource Area	No Action Alternative	Bysiewicz Industrial Subdivision (Liberty Park)	Cucia Park	Millennium Industrial Park (Ken Dooley Drive)
Land Use				
<i>Regional Geographic Setting and Location</i>	No effect.	No effect.	No effect.	No effect.
<i>Site Land Use</i>	No effect.	No significant effect.	No significant effect.	No effect.
<i>Current and Future Development in the Region of Influence</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Aesthetic and Visual Resources	No effect.	No significant effect.	No significant effect.	No significant effect.
Air Quality				
<i>Ambient Air Quality Conditions</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Meteorology/Climate</i>	No effect.	No effect.	No effect.	No effect.
<i>Air Pollutant Emissions at Project Site</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Regional Air Pollutant Emissions Summary</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Noise	No effect.	No significant effect.	No significant effect.	No significant effect.
Geology and Soils				
<i>Geologic and Topographic Conditions</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Soils</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Prime Farmland</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Water Resources				
<i>Surface Water</i>	No effect.	No effect.	No effect.	No significant effect.
<i>Wetlands</i>	No effect.	No effect.	No significant effect – impacts would be mitigated	No significant effect – impacts would be mitigated
<i>Hydrogeology/ Groundwater</i>	No effect.	No effect.	No effect.	No significant effect.
<i>Floodplains</i>	No effect.	No significant effect.	No effect.	No effect.
<i>Coastal Zone</i>	No effect.	No effect.	No effect.	No effect.
Biological Resources				
<i>Vegetation</i>	No effect.	No significant	No significant	No significant

Resource Area	No Action Alternative	Bysiewicz Industrial Subdivision (Liberty Park)	Cucia Park	Millennium Industrial Park (Ken Dooley Drive)
		effect.	effect.	effect.
<i>Wildlife</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Threatened, Endangered, and Sensitive Species</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Cultural Resources				
<i>Archaeology</i>	No effect.	No effect.	No effect.	No effect.
<i>Built Environment</i>	No effect.	No effect.	No significant effect.	No significant effect.
<i>Native American Resources</i>	No effect.	No effect.	No effect.	No effect.
Socioeconomics				
<i>Economic Development</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Demographics</i>	No effect.	No effect.	No effect.	No effect.
<i>Environmental Justice</i>	No effect.	No effect.	No effect.	No effect.
<i>Protection of Children</i>	No effect.	No effect.	No effect.	No effect.
Transportation				
<i>Roadways and Traffic</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Public Transportation</i>	No effect.	No effect.	No effect.	No effect.
Utilities				
<i>Potable Water Supply</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Sanitary Sewer System</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Electrical Service and Distribution</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Storm water System</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Natural gas</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Communications</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Municipal Solid Waste</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Hazardous Materials Use, Handling, and Storage				
<i>Uses of Hazardous Materials</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Storage and Handling Areas</i>	No effect.	No significant effect.	No significant effect.	No significant effect.

Resource Area	No Action Alternative	Bysiewicz Industrial Subdivision (Liberty Park)	Cucia Park	Millennium Industrial Park (Ken Dooley Drive)
<i>Site Contamination and Cleanup</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Cumulative Effects	No effect.	No significant effect.	No significant effect.	No significant effect.

ES.7 MITIGATION RESPONSIBILITY AND PERMIT REQUIREMENTS

Mitigation Responsibility

The proposed activity at the Preferred Alternative site, Cucia Park, impacts less than 0.5 acres of inland wetlands or waters, inclusive of direct, indirect and temporary impacts (includes areas or waters flooded, dewatered or cut). This impact would require obtaining a U.S. Army Corps of Engineers Regulatory Division permit through the District Engineer's Connecticut State Programmatic General Permit 2. This effort under Section 404 of the Clean Water Act also includes application to the CT Department of Environmental Protection (CTDEP) for a State Water Section 401 Water Quality Certification. A preliminary jurisdictional determination has been filed with the New England District, U.S. Army Corps of Engineers Regulatory Division.

At Cucia Park, construction will result in the unavoidable loss of about 0.26 acres of wetlands requiring replication or compensation for the loss at a rate to be determined with the final completion of the formal permitting through the U.S. Army Corps of Engineers and State of Connecticut. As final design plans and specifications move forward, additional agreements on the mitigation plan development will be addressed through the Corps and State of Connecticut because mitigation requirements may be project specific.

In an effort to determine locations where off-site mitigation for construction of a new AFRC at Cucia Park could be completed if required, preliminary discussions with the Department of Planning, Conservation and Development for the City of Middletown have identified six locations that could be supported by the City of Middletown for potential wetlands mitigation. These properties include: Tuttle Place, Smith Park, Galluzzo Pond, Mile Lane I, High School, Spencer School. Mitigation required for construction of a new AFRC on the Millennium Industrial Park (Ken Dooley Drive) Alternative site could be performed on-site.

Creation or enhancement of wetland resources is preferred to include habitats that may be utilized by eastern box turtle. The efforts would require design to enhance a combination of upland/wetland habitats since the species have an extremely small home range and are found near small streams and ponds

Best Management Practices and Permit Requirements

U.S. Army will consider the use of Best Management Practices (BMPs) in addition to those required by law, regulation, or the Army. The following permits and or plans would be required in implementing the projects identified in this analysis:

- A Sediment and Stormwater Plan and a National Pollutant Discharge Elimination System (NPDES) permit would be required.
 - A Notice of Intent for Stormwater Discharges Associated Construction Activity under a NPDES General Permit would be submitted to the CTDEP.
 - The Sediment and Stormwater Plan would include BMPs to be used during site preparation, earthworks, and construction activities at the site. Site-specific BMPs would be based on proper design, run-off calculation, slope factors, soil type, topography, construction activities involved, and proximity to water bodies. Potential BMPs may include installation of silt fences, coverage of soil piles with mulch, installation of hay bales, and maintaining exposed surface soils in a damp state.
- Any stormwater discharged off-site via the stormwater drainage ditches would meet all state and local regulatory and permit requirements.

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1.0 PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

The United States (U.S.) Army's mission is to defend the United States and territories, support national policies and objectives, and defeat nations responsible for aggression that endangers the peace and security of the U.S. To carry out these tasks, the U.S. Army must adapt to changing world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. A key part of this adaptation is to realign and reorganize U.S. Army organizational structures and properly align facilities and infrastructure to support the changing conditions and threats that the U.S. Army must respond to worldwide. This Environmental Assessment (EA) addresses proposed actions at Middletown, Connecticut (CT) as part of the overall U.S. Army restructuring and realignment.

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) Commission recommended that certain realignment actions occur at Middletown, CT. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The BRAC Commission's deliberations and decision, as well as the need to close or realign a military installation, are exempt from the National Environmental Policy Act (NEPA)². NEPA analysis is required, however, to analyze how the BRAC action will be implemented at each installation that is receiving realigned missions. The decision to be made is how the Army will implement the BRAC recommendation in Middletown, CT and, as appropriate, carry out mitigation measures that would avoid and reduce effects on resources.

² Sec. 2905(c)(2)(A), Public Law 101-510
*U.S. Army Corps of Engineers, Mobile District
Environmental Assessment – Middletown, CT
April 2009*

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to acquire property for the construction and operation of an Armed Forces Reserve Center (AFRC) in Middletown, CT per the BRAC Commission's recommendation.

The BRAC Commission's recommendations for Middletown, CT are:

Close the US Army Reserve Center, Middletown, CT, the Organizational Maintenance Shop, Middletown, CT; the SGT Libby US Army Reserve Center, New Haven, CT; the Organizational Maintenance Shop, New Haven, CT; the Army Reserve Area Maintenance Support Activity #69, Milford, CT, and relocate units to a new Armed Forces Reserve Center, Organizational Maintenance Shop and Army Maintenance Support Activity in Middletown, CT, if the Army is able to acquire land suitable for the construction of the facilities. The new AFRC, OMS and AMSA shall have the capability to accommodate units from the following facilities: Connecticut Army National Guard Armories in Putnam, Manchester, New Britain and the CTARNG facility in Newington, CT, if the state decides to relocate those National Guard units (BRAC Commission, 2005).

These actions are related to the decision to realign and transform Reserve Component facilities in the State of Connecticut. To implement this recommendation, the U.S. Army proposes to provide in Middletown, CT the necessary facilities to support the changes in force structure. This EA analyzes potential environmental effects associated with the U.S. Army's proposed actions at Middletown, CT. Details on the Proposed Action are provided at Section 2.0.

The need for the Proposed Action is to improve the ability of the Nation to respond rapidly to challenges of the 21st century. The Army is legally bound to defend the United States and its territories, support national policies and objectives, and defeat nations responsible for aggression that endangers the peace and security of the United States. To carry out these tasks, the Army must adapt to changing world conditions and improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. The following discusses the major initiative that contributes to the Army's need for the Proposed Action.

Base Realignment and Closure. In previous rounds of BRAC, the explicit goal was to save money and downsize the military to reap a "peace dividend." In the 2005 BRAC round, the Department of Defense (DoD) sought to reorganize its installation infrastructure to support its forces efficiently, increase operational readiness and facilitate new ways of doing business.

Thus, BRAC represents more than cost savings. It supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The Army needs to carry out the BRAC recommendations at Middletown, CT to achieve the objectives for which Congress established the BRAC process.

1.3 SCOPE

This EA has been developed in accordance with NEPA and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the U.S. Army³. The *2006 Base Realignment Closure Manual for Compliance with the National Environmental Policy Act* (U.S. Army, 2006) was used for guidance in preparing the EA. The purpose of the EA is to inform decision makers and the public of the likely environmental consequences of the Proposed Action and alternatives.

This EA identifies, documents, and evaluates environmental effects of realignments at Middletown, CT. Environmental effects of realignment would include those related to construction and operation of the Proposed Action as well as impacts of increased personnel to Middletown. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action. The Proposed Action is described in Section 2.0, and alternatives, including the No Action Alternative, are described in Section 3.0. Conditions existing as of 2008, considered to be the "baseline" conditions, are described in Section 4.0, Affected Environment and Environmental Consequences. The expected effects of the Proposed Action, also described in Section 4.0, are presented immediately following the description of baseline conditions for each environmental resource addressed in the EA. Section 4.0 also addresses the potential for cumulative effects, and mitigation measures are identified where appropriate.

³ Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, 40 Code of Federal Regulations (CFR) Parts 1500–1508, and *Environmental Analysis of Army Actions*, 32 CFR Part 651.

The Defense Base Closure and Realignment Act of 1990 specifies that NEPA does not apply to actions of the President, the Commission, or the DoD, except "(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated" (Sec. 2905(c)(2)(A), Public Law 101-510, as amended). The law further specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider "(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected" (Sec. 2905(c)(2)(B)). The Commission's deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. Accordingly, this EA does not address the need for realignment.

1.4 PUBLIC PARTICIPATION AND INVOLVEMENT

The U.S. Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision making process.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. The EA will be made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI) or a draft Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS), whichever is appropriate depending on the level of impacts. At the end of the 30-day public review period, the U.S. Army will consider any comments submitted by individuals, agencies, or organizations on the Proposed Action, the EA, or draft FNSI/NOI. If no significant impacts are expected, the U.S. Army may then execute the FNSI and proceed with implementing the Proposed Action. If it is determined prior to issuance of a final FNSI that implementing the Proposed Action would result in significant impacts, the

U.S. Army will publish in the *Federal Register* a NOI to prepare an EIS, or commit to mitigation actions sufficient to reduce impacts below significance levels.

Throughout this process, the public may obtain information on the status and progress of the Proposed Action and the EA through the 99th Regional Support Command (RSC) at:

Craig Kelley
BRAC Environmental Coordinator
99th Regional Support Command (East)
11 Saratoga Boulevard
Devens, MA 01432
(978) 790-2515
Craig.A.Kelley@ usace.army.mil

Public meetings for information pertaining to the Middletown BRAC project are ongoing and have been held on five occasions; January 24, 2008, June 10, 2008, August 27, 2008, and September 30, 2008. On November 10, 2008 there was a media roundtable attended by the media and elected officials.

1.5 REGULATORY FRAMEWORK

A decision on whether to proceed with the Proposed Action rests on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, the Middletown, CT BRAC is guided by relevant statutes (and their implementing regulations) and Executive Orders that establish standards and provide guidance on environmental and natural resources management and planning. Relevant statutes include the Clean Air Act (CAA), Clean Water Act (CWA), Noise Control Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), American Indian Religious Freedom Act (AIRFA), Archaeological Resources Protection Act (ARPA), Energy Policy Act, Energy Independence and Security Act, Resource Conservation and Recovery Act (RCRA), and Toxic Substances Control Act (TSCA). Executive Orders bearing on the Proposed Action include Executive Order (EO) 11988 (*Floodplain Management*), EO 11990 (*Protection of Wetlands*), EO 12088 (*Federal Compliance with Pollution Control Standards*), EO 12580 (*Superfund Implementation*), EO 12898 (*Federal Actions to Address Environmental Justice in Minority*

Populations and Low-Income Populations), EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*), EO 13423 (*Strengthening Environment, Energy, and Transportation Management*), EO 13175 (*Consultation and Coordination with Indian Tribal Governments*), and EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*). These authorities are addressed in various sections throughout this EA when relevant to environmental resources and conditions. The full text of the laws, regulations, and EOs is available on the Defense Environmental Network & Information Exchange Web site at <http://www.denix.osd.mil>.

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 INTRODUCTION

This section describes the U.S Army's alternatives for implementing the BRAC Commission's recommendations for Middletown, CT (the Proposed Action). The BRAC Commission recommended the realignment of the following agencies/activities with relocation to Middletown, CT. These include:

- Construct an AFRC in Middletown, CT that can accommodate 1000 reservists, National Guard members, and civilians.
- Close the U.S. Army Reserve Center (USARC), Middletown, CT, the OMS, Middletown, CT, and relocate units to the new AFRC in Middletown, CT.
- Close the SGT Libby USARC, New Haven, CT, the OMS, New Haven, CT and relocate units to the new AFRC in Middletown, CT.
- Close the Army Reserve AMSA #69, Milford, CT and relocate units to the new AFRC in Middletown, CT.

2.2 PROPOSED FEDERAL ACTION

The Proposed Action is to acquire sufficient and suitable land to construct a new AFRC and associated support facilities in Middletown, CT to support five U.S. Army Reserve units and six CTARNG units⁴ relocating from the closing facilities. The Department of the Army defines suitable land based on six criteria: price, sufficient building area, site access, environmental issues, zoning, and site-related construction costs (Geren, 2008). Figure 2-1 provides a general area map indicating the location of Middletown, CT within the larger community.

The Proposed Action is further detailed below, in the *Facilities* (Section 2.3.1), *Equipment* (Section 2.3.2), and *Personnel* (Section 2.3.3) sub-sections.

⁴ The Governor of Connecticut elected to remove the 250th Engineer Company unit of the CTARNG from those units relocating to the new AFRC. The removal of this unit reduced the overall number of incoming personnel and equipment and, therefore, reduced the site acreage requirements from 31 acres to about 25 acres for the proposed AFRC.

2.2.1 Facilities

The proposed AFRC would provide a training facility with administrative, educational, assembly, library, learning center, vault, weapons simulator, and physical fitness areas for five U.S. Army Reserve units and six CTARNG units. Associated support facilities include a Organizational Maintenance Shop (OMS), Organizational Vehicle Parking, and an unheated storage building. Table 2-1 provides the approximate size of the AFRC and the additional support facilities. There would be approximately 3.80 acres of Motorized Equipment Parking (MEP) area and 4.96 acres of paved privately-owned vehicle (POV) parking area.

Table 2-1. AFRC Complex Building Sizes

Building	Approximate Size (square feet (ft²))
Armed Forces Reserve Center	164,007
OMS	34,979
Unheated-unit storage building	3,886
TOTAL	202,872

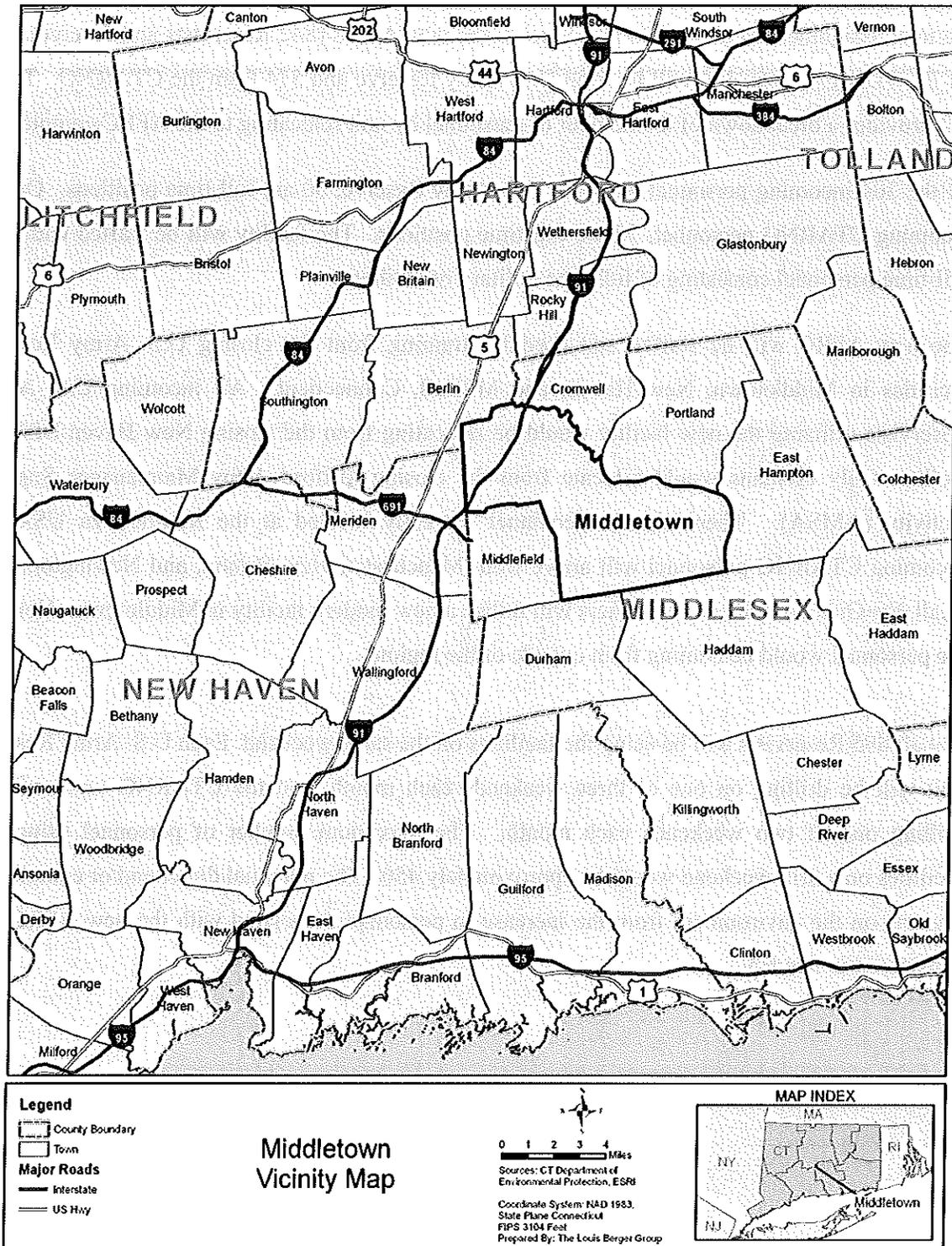
Source: U.S. Army, 2008

Supporting improvements proposed to complement the AFRC and associated facilities include connections to utilities, access roads, POV parking, walkways, curbs and gutters, wash rack, fencing, site work, and landscaping. Anti-Terrorism/Force Protection (AT/FP) safety and security measures, including minimum stand-off distance from roads, parking areas, and vehicle unloading areas would be incorporated into the facility designs and siting, and accessibility for disabled persons would also be provided in public areas (U.S. Army, 2008). Section 3.3.4 – *New Construction Alternative Sites* discusses the sites that can accommodate this facility.

2.2.2 Equipment

The relocation and realignment of reserve units to the proposed AFRC at Middletown, CT would bring associated unit vehicles, equipment, and materials. The total number of vehicles that would be relocated and stationed at the new facility is about 219. This includes approximately 92 from the Army Reserve (46 wheeled vehicles and 46 trailers) and 127 from the CTARNG units, (86 wheeled vehicles and 41 trailers).

Figure 2-1. Middletown Vicinity Map



2.2.3 Personnel

Implementing the BRAC Commission's recommendations for Middletown, CT would result in the total assignment of about 895 personnel to the new AFRC (842 Reservists and 53 civilians). Of the 842 Reservists, 304 will be from U.S. Army Reserve and 538 from the CTARNG. Table 2-2 provides a breakdown of the number of personnel by unit relocating to the AFRC complex.

Of the 304 incoming personnel from the U.S. Army Reserve, 30 are full-time positions. Of the incoming CTARNG personnel, 70 are full-time positions. The facility will be staffed with 100 full-time personnel consisting of full time military or civilians.

The new AFRC will be staffed and used for training from the closing U.S. Army Reserve facilities in Middletown, New Haven, and Milford, Connecticut. All incoming U.S. Army Reservists utilizing the new facility would be relocating from the closing New Haven USARC facility. Only civilians would relocate from the closing Milford Army Maintenance Support Activity (AMSA). There are no personnel currently located at the Middletown USARC. Incoming CTARNG personnel will arrive from Manchester, New Britain, and Newington, CT. In all, the Guard and Reserve Soldiers will utilize a new modern facility in Middletown. None of the personnel would be coming from outside of the region.

Not all 895 Reservists will be using the facilities on the same weekend. Each U.S. Army Reserve unit will be drilling on one of three weekends each month, and the CTARNG units will be drilling one of two weekends each month. The maximum number of personnel using the facilities on a drill weekend would be approximately 450. The potential direct and/or cumulative impacts on the environment from the increase in personnel associated with the new AFRC are considered in this EA.

2.3 SCHEDULE

Under the BRAC law, the U.S. Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011.⁵ Implementation of the Proposed Action would occur over a span of approximately two years, beginning in May 2009 and completing construction in May 2011.

⁵ Section 2904(a), Public Law 101-510, as amended, provides that the Army must "... initiate all closures and realignments no later than two years after the date on which the President transmits a report [by the BRAC Commission] to the Congress ... containing the recommendations for such closures or realignments; and ... complete all such closures and realignments no later than the end of the six year period beginning on the date on which the President transmits the report ..." The President took the specified action on September 15, 2005.

Table 2-2. Middletown, CT 2005 BRAC Actions: Personnel Changes

Action	Organization	From	Total Number of Unit Personnel	Total Number of Civilians
Incoming	395 th Quartermaster Battalion	New Haven USARC	78	4
Incoming	344 th Military Police Company	New Haven USARC	122	1
Incoming	439 th Quartermaster Company	New Haven USARC	77	1
Incoming	617 th Quartermaster Detachment	New Haven USARC	10	0
Incoming	2200 Military Intelligence Detachment	New Haven USARC	15	0
Incoming	Return to Duty Office	New Haven USARC	2	0
Incoming	AMSA	Milford USARC	0	11
Incoming	B Company, 1/102 nd Infantry	CTARNG Manchester Armory and Maintenance Shop	131	
Incoming	Field Maintenance Shop	CTARNG Manchester Armory and Maintenance Shop		24
Incoming	143 rd Area Support Group	CTARNG DVA Newington	124	
Incoming	118 th Medical Battalion	CTARNG DVA Newington	77	
Incoming	Human Resources Office	CTARNG DVA Newington		12
Incoming	141 st Medical Company	CTARNG New Britain Armory	75	
Incoming	C Company, 1/102 nd Infantry	CTARNG New Britain Armory	131	
		TOTAL	842	53

3.0 ALTERNATIVES

3.1 INTRODUCTION

A key principle of NEPA is that agencies are to give full consideration to all reasonable alternatives to a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be, capable of implementation, satisfactory with respect to meeting the purpose of and need for the action, and affordable. The following discussion identifies alternatives considered by the U.S. Army and identifies whether they are feasible and, hence, subject to detailed evaluation in this EA.

Alternatives to the Proposed Action have been examined according to three variables: the means to accommodate realigned units, siting of new construction, and schedule. This section presents the U.S. Army's development of alternatives and addresses reasonable alternatives available for the Proposed Action. This section also describes the No Action Alternative, under which the Proposed Action would not be implemented (see Section 3.4, *No Action Alternative*).

3.2 ALTERNATIVES

3.2.1 Acquisition of New Property

The acquisition of property for construction of a new AFRC is required if the Army is able to acquire suitable land for the construction and operation. Section 3.2.2 addresses the properties examined by the U.S. Army that would accommodate the construction of new facilities.

Numerous sites were evaluated in the site selection process to determine which locations would be reasonable and viable. The U.S. Army initiated three site selection processes between 2007 and 2008 to identify suitable land for the AFRC: May 2007, March 2008, and September 2008. Appendix J outlines the full site selection process for Middletown, CT.

Of the six criteria for determining site suitability outlined by Secretary of the Army Geren (price, sufficient building area, site access, environmental issues, zoning, and site-related construction costs), nine site-specific minimal engineering and environmental selection criteria fall within this framework and were used by the U.S. Army to determine if a site was considered feasible for implementing the Proposed Action. To be feasible, the site needed to, at a minimum:

- Contain a net useable area of about 25 acres (sufficient building area);
- Meet Anti-Terrorism/Force Protection set back requirements (sufficient building area);
- Support intended construction and be environmentally clean (environmental issues);
- Have ready access to public utilities (site access);
- Have reasonable cut or fill requirements (site-related construction costs);
- Have proximity to a major roadway corridor (site access);
- Meet appropriate zoning/antiterrorism considerations (zoning);
- Be within the City of Middletown, CT (site access); and
- Be available for purchase by the Federal Government (price)

Properties may be larger than the required 25 net usage acres. Acreage is determined by the real estate parcel size and whether or not the owner is willing to subdivide. Potential sites may be larger than 25 net usable acres but cannot be less than the net usable acreage to be considered a viable site location.

The U.S. Army Site Survey team identified a total of sixteen potential sites within Middletown where the proposed AFRC could be sited and evaluated each site to determine whether these locations could be considered reasonable alternatives for implementing the Proposed Action. Twelve of these sites were rejected for engineering and/or environmental constraints. Section 3.3.2, *Construction of New Facilities*, discusses the four alternative site locations carried forward for analysis based on this stage of identification of reasonable alternatives.

Figure 3-1 identifies the location of each site evaluated. Table 3-2 identifies the 12 sites that were evaluated and rejected from further consideration and Section 3.3.2 discusses the reasons for their rejection from further analysis.

3.2.2 Construction of New Facilities

Since BRAC Law directs that the existing USARC facilities be closed and there are no adequate existing facilities available to be leased, new construction is required and is evaluated in this EA. Construction of new facilities is necessary to ensure adequate space is available for the mission requirements of the realigning units. New construction would facilitate a high level of shared use of facilities by the relocated units if configured and managed properly. While providing adequate and appropriate space for each unit to accomplish its own home station goals and objectives, integrated new construction would also include significant areas that would allow for shared use by all of the newly realigned units.

Four sites were determined to be reasonable alternatives for construction and operation of the AFRC in Middletown. One site, the former Army Reserve Base on Mile Lane, was eliminated because the BRAC Law requires the closure of this existing facility. The three remaining sites were evaluated as reasonable alternatives for construction and operation of the AFRC in Middletown. The reasonable alternatives, in addition to the No Action Alternative, include:

- Bysiewicz Industrial Subdivision (Liberty Park) Alternative
- Cucia Park Alternative
- Millennium Industrial Park (Ken Dooley Drive)/Boardman Lane Alternative

As preliminary engineering designs progressed for all three alternatives, it was determined that the AFRC complex could stand alone and be constructed entirely on the Millennium Industrial Subdivision (Ken Dooley Drive) parcel without intrusion onto the Boardman Lane property. As a result, the Boardman Lane property was dropped from the combined Millennium Industrial Subdivision (Ken Dooley Drive)/Boardman Lane Alternative. This EA, therefore, evaluates this alternative only as the Millennium Industrial Park (Ken Dooley Drive) Alternative.

In March 2009, the owner's representative of the Bysiewicz Industrial Subdivision (Liberty Park) stated that a company signed an option to purchase three lots on the Bysiewicz property. However, the purchaser had to accomplish certain conditions by late April, or they would lose the option.

The Bysiewicz site is analyzed as an alternative in this EA. However, if the lots are sold, the site would no longer meet the Army's needs. It would be eliminated from further consideration, because it would be too small for the Army Reserve project.

Cucia Park is the U.S. Army's Preferred Alternative.

Table 3-1 provides a general comparison of environmental factors at each alternative site.

Table 3-1: General Comparison of Environmental Factors on Alternative Sites

Alternative	Size (est.)/ acres ¹	City Zoning ²	Wetlands		Floodplains	Waterbodies	Federal Threatened & Endangered Species	State Threatened & Endangered Species	Cultural Resource Sites
			Onsite (acres)	Potential loss (acres)					
Bysiewicz Industrial Subdivision	33	IT	2.34	0	No	No	No	Yes	No
Cucia Park	42	IT	2.86	0.267	Yes	Yes	No	Yes	No
Millennium Industrial Park	39	IT	5.28	0.187	Yes	Yes	No	Yes	No

¹ The government will only construct on a portion of the parcel, all or a larger portion the property must be acquired due to irregular shape, wetlands, topography, etc.

² Designated for development of certain industrial and business uses in close proximity to the Interstate Highway. Permitted uses in this zone include, but not limited to: Metal Working, Laboratories, Manufacturing, Printing Trades – not within 100 feet of residential zone, Research & Development, Production Studios, Wholesale & Warehousing – on premises, Office Buildings – not include treatment facilities, Diesel Repair – not to include junkyards or outdoor storage, Electronic Servicing, Conference Center Complex – minimum 15 area and 250 room hotel, Wholesaling – greater than 50 employees, Biotech, Professional Sports Facility, Design Center (City of Middletown, 2008a)

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

The AFRC, OMS, unheated storage building, and an MEP area would be constructed on the parcel located on Middle Street across from Smith Street within Middletown, CT. The 33-acre Bysiewicz Industrial Subdivision (Liberty Park) can accommodate the size and footprint of the proposed facilities and ensures compliance with the AT/FP stand-off buffer requirements. The site has been cleared and developed.

The advantages of this site are that it has access from Middle Street and is located within two miles of Interstate (I) 91. It is zoned industrial by the City of Middletown and is expected to incur future industrial and light commercial development. This alternative ensures adequate facilities for all realigned U.S. Army Reserve units and fully accommodates the six incoming CTARNG units. Utilities exist within or near the location and can be extended to the proposed facilities. This site contains under two and a half acres of wetlands that are avoidable. This site would incur the least environmental impacts associated construction and operation with respect to forest losses, wetlands losses, and indirect impacts to existing State-listed Special Concern Species habitats.

The disadvantages of this site are that military vehicle access is difficult given the location of the entrance off of Middle Street. With entrance/exit improvements to the facility, concerns over vehicle and passenger safety will persist. This site contains 2.34 acres of wetlands that would be adjacent to the facility. This wetland complex and adjacent uplands on site, though not directly within the construction and operation of the facility boundaries, supports a population of a Connecticut State-listed Species of Special Concern, Eastern box turtle, and facility operation could indirectly have an impact on this species and its habitats.

Figure 3-2 illustrates each alternative, including the Bysiewicz Industrial Subdivision Alternative site.

Cucia Park Alternative (Preferred Alternative)

The Cucia Park parcel is located across Middle Street from the Bysiewicz Industrial Subdivision (Liberty Park), south of Smith Street. The AFRC, OMS, unheated storage building, and MEP area would be constructed on the eastern portion of the parcel, adjacent to I-91. The 42-acre

Cucia Park can accommodate the size and footprint of the proposed facilities while also meeting required AT/FP stand-off buffer requirements. The site consists of medium dense forestland, wetlands, ponds, and floodplains.

Advantages of this site include that it is zoned industrial by the City of Middletown and is expected to incur future industrial and light commercial development. It is located within two miles of I-91. This site ensures adequate facilities for all realigned U.S. Army Reserve units and fully accommodates the six incoming CTARNG units, as directed by the BRAC law. The necessary utilities exist within or near the location and could be extended to the proposed facilities. The site is not adjacent to sensitive noise receptors and noise from facility operations would not be expected to exceed existing noise levels.

The disadvantages of this site are that construction would result in the loss of the public park and the majority of the forestland in an urban green space/park setting. It would incur unavoidable losses to wetland resources and require mitigation at an off-site location. This site requires forest clearing of about 28 acres, losses to wetlands of about 11,000 sf. The parcel also contains habitat for State-listed Species of Special Concern that would likely be directly impacted from construction and operation (Victoria, 2009).

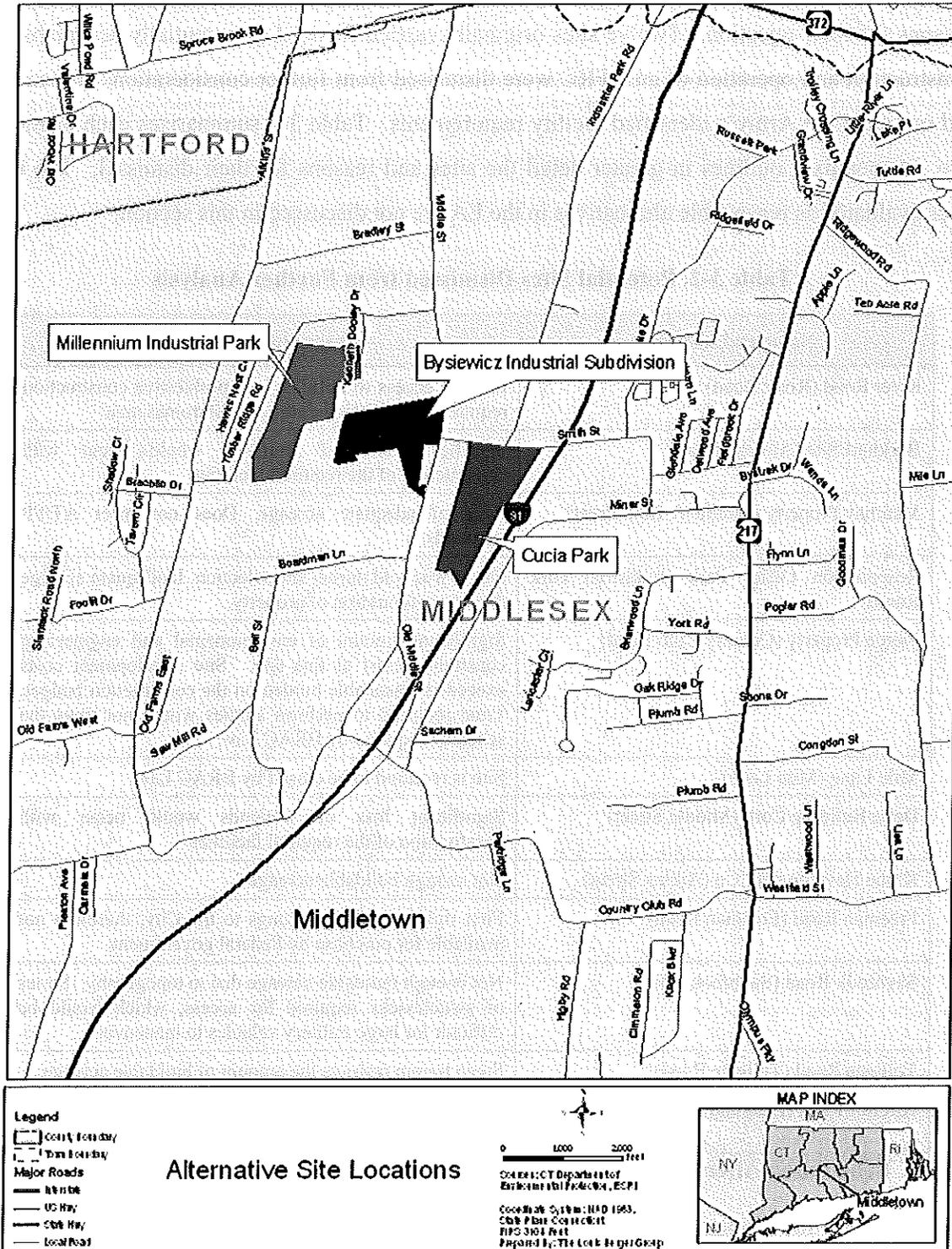
Millennium Industrial Park (Ken Dooley Drive) Alternative

The AFRC, OMS, unheated storage building, and a MEP area would be constructed on the 39 acre Millennium Industrial Park (Ken Dooley Drive). The Millennium Industrial Park (Ken Dooley Drive) Alternative includes access to the site from a northern entrance off of Ken Dooley Drive. The majority of this site consists of forestland with approximately five acres of wetlands,. The property owner is currently in the process of forest clearing.

Advantages of this site include that it is zoned industrial by the City of Middletown and is expected to incur future industrial and light commercial development. It is located within two miles of I-91. This alternative ensures adequate facilities for all realigned U.S. Army units and fully accommodates the six incoming CTARNG units. The property can accommodate the size and footprint of the proposed facilities while also meeting required AT/FP stand-off buffer requirements. The necessary utilities exist within or near the location and could be extended to the proposed facilities.

The disadvantages of this site is it requires forest clearing of about 35 acres, losses to wetlands of about 8,000 sf, and losses of existing habitats of State-listed Species of Special Concern, Eastern box turtle.

Figure 3-2. Alternative Site Locations



Locations Dismissed from Further Analysis

This section describes the sites carried forward in the site selection process and outlines the reasons for their rejection. Twelve sites originally carried forward as potentially acceptable for construction and operation of an AFRC were dismissed from further consideration. These sites did not meet the Army's identified facility requirements. Table 3-2 summarizes each dismissed site. Appendix J outlines in greater detail the sites and reasons for their dismissal. The three sites evaluated as reasonable alternatives in the EA are not discussed in this section.

Table 3-2. Potential Sites Dismissed from Further Analysis

Name and Location	Reason for Dismissal
River Road (River Road)	Limited access to utilities, cost prohibitive construction requirements, located within the Maromas area
Burkhart Site (Aircraft Road)	Significant loss of wetlands would occur with construction of the required facilities
Manthay Property (Middle & Bell Street)	Lack of adequate acreage. Does not meet AT/FP standards
Roscommon Office Park (Industrial Park Road)	Parcel was sold during site selection. Inadequate acreage due to configuration of property.
Pierce Property (Country Club Road)	Significant amount of environmental and engineering constraints exist at this site. Site development costs exceeded reasonable burden on the construction budget. Time required to perform studies would not meet the schedule required by BRAC Law
Mile Lane (Mile Lane)	Site is required to be closed by BRAC Law
Delta Building Corp (Middle Street)	Significant loss of wetlands would occur with construction of the required facilities
Krane Development Co (Atkins Street)	Not enough buildable acreage
Freeman Road (Freeman Road)	First right of refusal belongs to the City, therefore not available for purchase by Federal government.
Saybrook Road (Saybrook Road)	Not enough buildable acreage due to topography. Series of switchbacks required for access, which would be difficult for large military vehicles to maneuver
Tollgate Road (Tollgate Road)	Steep terrain restricts the amount of buildable acreage
Aircraft Road (Pratt and Whitney)	Site under RCRA Corrective Action Program with no known date for final clean-up clearances.

3.2.3 Scheduling Alternatives

The schedule for implementation of the Proposed Action must balance facilities construction timeframes and planned arrival dates of inbound units and stand-up dates of newly-established

units, all within the 6-year limitation of the BRAC law. Realignment earlier than that shown in the schedule in Section 2.4 is not feasible in light of the time required to build facilities. Shifting of schedules to accomplish realignment at a later date would unnecessarily delay realization of benefits to be gained. Under the BRAC law, the U.S. Army must complete all realignments not later than September 15, 2011. Since earlier implementation is not possible, and since delay is avoidable and unnecessary, alternative schedules are not further evaluated in this EA.

3.3 NO ACTION ALTERNATIVE

CEQ regulations require analysis of the No Action alternative in an EA, for it serves as the baseline against which the impacts of the Proposed Action and alternatives will be evaluated. Accordingly, the No Action Alternative is evaluated in this EA. Under the No Action Alternative the various reserve units presently located in areas around New Haven, CT; in Milford, CT; and at the CTARNG would continue to train at and operate from their current locations with current facilities.

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4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

This section describes the environmental conditions of the resources that would be affected should the Proposed Action be implemented. It analyzes the potential effects arising from implementing the Proposed Action. The description of the Affected Environment represents the baseline conditions, or the “as is” or “before the action” conditions at the installation. The baseline is further defined as the level of operations and environmental conditions at the time of the BRAC Commission’s 2005 decision. The baseline facilitates subsequent identification of changes in conditions that would result from the realignment. The environmental consequences portion represents the culmination of scientific and analytic analysis of potential effects arising from implementing the Proposed Action. Direct, indirect, and cumulative effects of the Proposed Action are also addressed.

For each environmental resource area the baseline conditions are presented first followed immediately by evaluating of the potential impacts of the No Action and the three Alternatives. Where appropriate and definable, a specific Region of Influence (ROI) is indicated for a given resource area.

4.2 LAND USE

4.2.1 Affected Environment

Middlesex County is located in the Connecticut River Valley, 20 miles south of Hartford and 40 miles northwest of Bridgeport. Adjacent counties include Hartford to the north, New Haven to the west, and New London County to the east (see Figure 2-1). Middlesex County is comprised of 439 square miles and includes one city, 14 towns, one borough, and 11 villages. The County has a population of more than 155,000 residents and consists of developed areas with residential, commercial, and industrial facilities, as well as agricultural areas (Stats Indiana, 2008a). Like all Connecticut Counties, there is no county seat.

4.2.1.1 Regional Geographic Setting and Location

All three Alternative sites are located less than two miles from I-91, along Middle Street in the City of Middletown, Middlesex County.

The City of Middletown's Planning Department states that there are about 27,200 acres of land within the City of Middletown. Of these acres, 19,641 acres are zoned for residential use, 273 acres are zoned for commercial use, 3,607 acres for 'other' use, and 3,679 acres are zoned for industrial/office use. Of the 3,679 acres zoned for industrial or office use, 1,065 acres, or 29 percent, are undeveloped (City of Middletown, nd-a). The State of Connecticut and the City of Middletown are the two largest landowners within the City (City of Middletown, nd-a).

The City of Middletown Planning and Zoning Code identifies all three alternative sites to be within the City's designated Interstate Trade (IT) District (City of Middletown, 2008a). The IT District is designated for development of certain industrial and business uses in close proximity to the Interstate Highway.

Bysiewicz Industrial Subdivision (Liberty Park) Alternative Approximately 25 acres of the 33 acre industrial subdivision would be developed for operation of the AFRC. The site is zoned IT with nearby access to all utilities. The site is currently under development, cleared of vegetation, and is vacant with no structures. A power line easement traverses the western portion of the parcel.

Cucia Park Alternative (Preferred Alternative) The AFRC would encompass approximately 25 acres of the 42 acre park. The site is zoned IT with nearby access to all utilities. The site was previously a pre-civil war brick manufacturing facility and a 3 acre portion of the property is currently a town park. The park has been inactive since the 1970's and there are no structures located on it. Current habitat includes forestland and wetlands along with two ponds and manicured park area. A stream crosses the western boundary of the parcel. Sanitary sewer and power line easements are both present on the property.

Millennium Industrial Park (Ken Dooley Drive) Alternative The AFRC would encompass approximately 25 acres of the 39 acre parcel. The site is zoned IT with nearby access to all utilities. The Millennium Industrial Park (Ken Dooley Drive) parcel contains no structures. The

property owner has been clearing trees and grading the property, but the majority of the parcel is still forestland with wetlands along the eastern boundary. A power line easement crosses the eastern portion of the parcel.

4.2.1.2 Current and Future Development in the Region of Influence

The ROI for the Proposed Action includes Middlesex County, located in the Connecticut River Valley. Between 2000 and 2007, Middlesex County grew from a population of 155,000 in 2000 to over 163,000 in 2007 (Stats Indiana, 2008a). The ROI is described in further detail in Section 4.10, Socioeconomics. The City of Middletown added 695,000 square feet of new commercial and industrial projects in 2006 through 2008 (City of Middletown, 2006b).

4.2.2 Environmental Consequences

Impacts to land use were determined by the following criteria:

No Effect – No impacts to surrounding land use from the proposed project.

No Significant Effect – The impact to land use would be measurable or perceptible, but would be limited to a relatively small change in land use that is still consistent with the surrounding land uses, or the impact is consistent with the designated zoning land uses.

Significant Effect – The impact to land use would be substantial. Surrounding land uses are expected to substantially change in the short- and long-term. The action would not be consistent with the surrounding land use.

4.2.2.1 No Action Alternative

Under the No Action Alternative, there would be no changes in land use at the Proposed Action sites.

4.2.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

No effects are expected on local and regional setting as a result of implementing the Proposed Action at the Bysiewicz Industrial Subdivision (Liberty Park) Alternative Site. The construction of the AFRC and related facilities would require alteration of about 25 acres of the 33 acre site and would result in the placement of building and impervious parking surfaces within an existing site-developed industrial park in the City of Middletown.

Implementation of the Proposed Action at the Bysiewicz Industrial Subdivision (Liberty Park) would not change the existing land use of the site and the effects would not be significant. Land use at the current site is currently developed for industrial/commercial use but has no current structures. The site has an installed sewer, electrical, and stormwater drainage system in anticipation for building construction. Development of a new AFRC at the site would be consistent with the City of Middletown zoning, which designates the parcel for industrial and business development. Industrial and business zones occur in the area of the City due to their proximity to I-91 (City of Middletown, 2008a).

Effects from construction and operation of the new AFRC would not be significant since the project would be compatible with city zoning.

4.2.2.3 Cucia Park Alternative (Preferred Alternative)

No effects are expected on local and regional setting as a result of implementing the Proposed Action at the Cucia Park Alternative Site. The construction of the AFRC and related facilities would utilize approximately 25 acres of the overall 42 acre site and would result in a minor reduction in undeveloped space within the county. It would result in the placement of building and impervious parking surfaces within an industrially zoned site in the City of Middletown.

The remaining 17 acres within the site would remain as open space. Impacts on land use on the site are expected to be limited in scope to the site itself.

Implementation of the Proposed Action at Cucia Park would permanently change the existing land use from forested uplands and forested wetlands to developed commercial and light industrial use, however, the effects would not be significant. Development of a new AFRC at the Site would be consistent with the City of Middletown zoning, which designates the parcel for industrial and business development. Industrial and business zones occur in the area of the City due to their proximity to I-91 (City of Middletown, 2008a).

Effects to land uses from construction and operation of the new AFRC would not be significant since the project would be compatible with established city zoning.

4.2.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

No effects are expected on local and regional setting as a result of implementing the Proposed Action at the Millennium Industrial Park (Ken Dooley Drive) Alternative Site. The construction of the AFRC and related facilities would utilize approximately 25 acres of the overall 39 acre site and would result in a reduction in undeveloped space within the county. It would result in the placement of building and impervious parking surfaces within an industrially zoned site in the City of Middletown. Impacts on land use on the site are expected to be limited in scope to the site itself.

Implementation of the Proposed Action at the Millennium Industrial Park (Ken Dooley Drive) Alternative site would change the existing land use of the site; however, the effects would not be significant. Development of a new AFRC at the Site would be consistent with the City of Middletown zoning, which designates the parcel for industrial and business development. Industrial and business zones occur in the area of the City due to their proximity to I-91 (City of Middletown, 2008a).

Construction and operation of the new AFRC would not be significant since the project would be compatible with city zoning.

4.3 AESTHETICS AND VISUAL RESOURCES

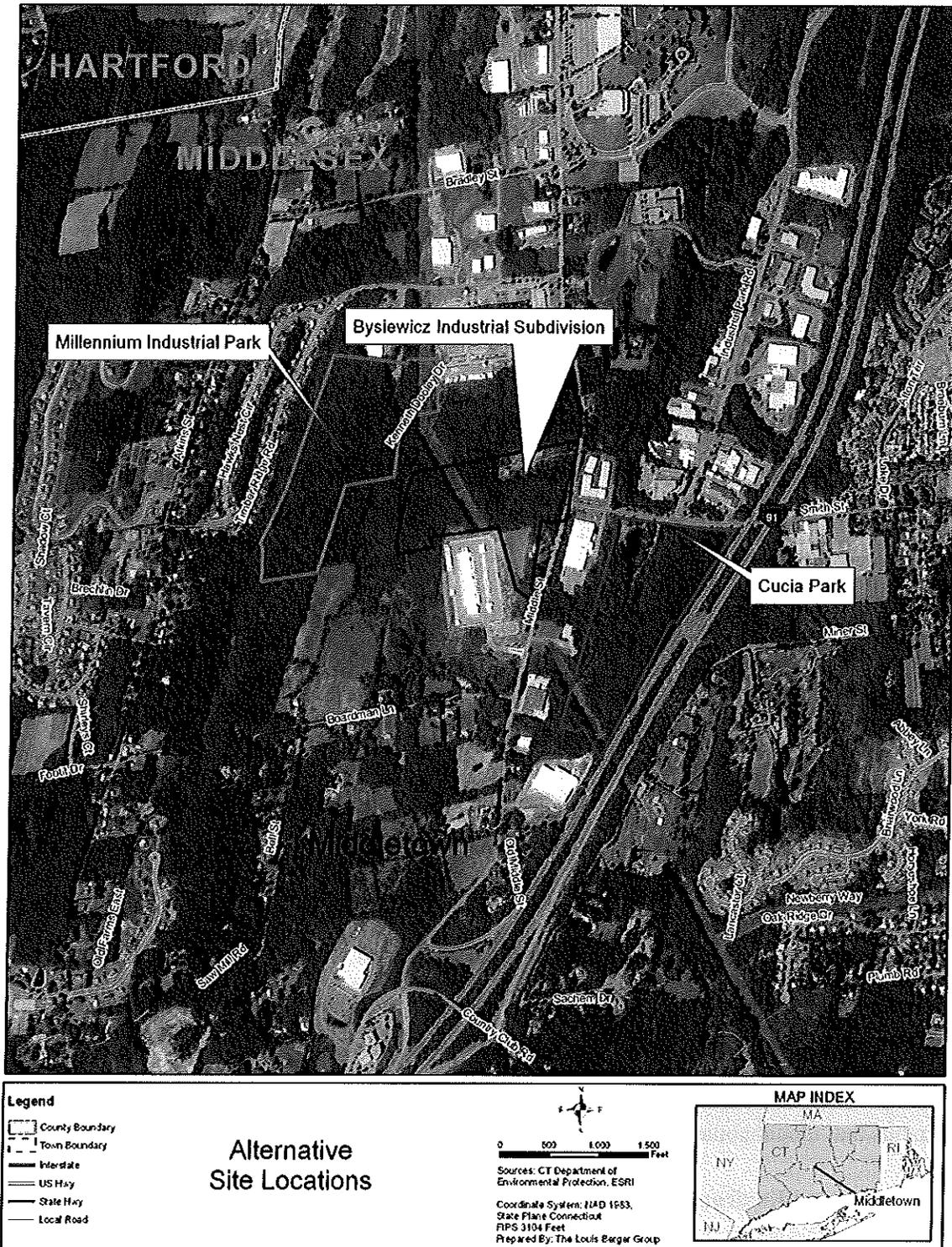
Visual character is defined as an area's salient visual features which can include landscape elements (i.e. rolling hills, dense tree cover), natural elements (i.e. water, geologic features), and built elements (i.e. buildings, structures, statues).

Relevant views and viewsheds typically include popular or common vantage points to or from a particular site. In some instances, views toward a site are important, particularly when the visual character of an area is a focal point or attraction to a volume of people. Conversely, some sites have significant views and vistas looking out toward significant landscape, natural, or built elements that the inhabitants of the site often strive to protect.

4.3.1 Affected Environment

Each of the three sites for the new AFRC are described in terms of their visual character and relevant views and viewsheds (see Figure 4-1).

Figure 4-1: Three Alternative Site Locations for the Proposed AFRC



Bysiewicz Industrial Subdivision (Liberty Park) Alternative

This 33 acre alternative site is located to the west of the intersection of Middle Street and Smith Street on a parcel that is currently under development.

Visual Character

The area around the intersection of Smith and Middle Streets is visually defined by an overhead power line and a steep embankment along Middle Street. Figure 4-2 shows the intersection, looking north. The photo, taken in 2008, shows the embankment covered in thick brush, however since the time the photo was taken, the brush has been cleared and cut back.

To the south and west of the site, there is the Yellow Freight Company warehouse distribution facility, and to the east, there is a single family residence that fronts Middle Street. To the west of the residence is a large grassy clearing without mature tree cover.

Views and Vistas

Currently, the site is visible from vehicular traffic travelling north and south along Middle Street as well as from the north side of the industrial parking lot and the rear of the residence.

Due to the embankment that runs along Middle Street, there are limited views toward the Bysiewicz Industrial Subdivision (Liberty Park) from the street

Figure 4-2: Looking north at the intersection of Smith and Middle Streets.



Cucia Park Alternative (Preferred Alternative)

Visual Character

Cucia Park is 42 acres and is located between I-91 to the east, Smith Street to the north, and Middle Street to the west. The eastern portion of the park is undeveloped with medium dense forested area while the extreme western portion of the park is occupied by a pond.

Views and Vistas

Currently, the site is visible from vehicular traffic traveling north and south along I-91 as well as from Smith Street to the north (See Figures 4-3 and 4-4). From I-91, Cucia Park's densely forested eastern edge is visible (see Figure 4-3). From Smith Street, the northern edge of Cucia

Figure 4-3: Looking south towards Cucia Park from I-91



Figure 4-4: Looking south from Smith Street towards Cucia Park pond



Park is characterized by a maintained landscape and passive recreational uses within the park around the pond. Currently, there is an approximately 20 foot setback from Smith Street which helps to maintain the visual appeal of a pleasant, tree-line Street between I-91 and Middle Street.

Millennium Industrial Park (Ken Dooley Drive) Alternative

Visual Character

Millennium Industrial Park (Ken Dooley Drive) is located less than a mile to the west of the other alternatives on undeveloped, partially forested areas and partially fielded areas. This site is located immediately to the east of a residential subdivision, separated by a steep rock ravine, and to the south of Test Logic, an aerospace testing company, off of Timber Ridge Road.

Views and Vistas

The Millennium Industrial Park (Ken Dooley Drive) site location is not visible from any major roads. Access to the parcel is visible from Timber Ridge Road and the industrial area to the north of Ken Dooley Drive, and is surrounded on the other three sides by a buffer of heavily forested area. The character of the buildings to the north is consistent with its location in an industrial area; the majority of the structures are metal frame pre-fabricated structures with little or no architectural embellishment or articulation. The placement and design of the buildings appears to be a product of their service and maintenance functions, with no intent for visual coherence or consistency.

4.3.2 Environmental Consequences

To evaluate the alternatives, the following criteria have been established to define the level of impacts to visual resources:

No Effect – No impacts to the viewsheds or the aesthetic character of the project area from the proposed project. Any disturbances that alter the visual character or viewsheds would be temporary, and would be restored to its original condition following the action.

No Significant Effect – Noticeable permanent impacts to the existing visual character in the project area and impacts to views and viewsheds are expected, but would not be adverse. Aesthetic changes resulting from the proposed action would be consistent with the architectural scale, design, and articulation of adjacent structures and would not degrade the existing visual environment, nor obscure any prominent or historical viewshed.

Significant Effect – Noticeable permanent impacts to the existing visual character of the project area and impacts to views and viewsheds that are greater in intensity, extent, and/or duration than non-significant impacts are expected from the implementation of the proposed action. The changes would substantially and adversely change the scale and character of the existing visual environment, and/or permanently obscure a prominent or historical viewshed.

4.3.2.1 No Action Alternative

Under the No Action Alternative, there would be no modification to any of the project areas. As a result, there would be no resultant change to the visual or aesthetic resources as a result of the Proposed Action.

4.3.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Visual Character

The new AFRC facilities would create a permanent noticeable effect on the visual character in the project area since more than 200,000 sf of buildings would be built in a currently undeveloped area. The site currently lacks architectural distinction and visual consistency, so the proposed AFRC would provide an opportunity to establish a new visual anchor that blends harmoniously with the existing visual character and landscape. No significant adverse effects would be expected.

Views and Vistas

The current viewsheds and vistas toward the site would also be substantially altered. Although the project area is located along a well-traveled path, the topography on the eastern edge of the site would obscure visibility of the facilities from Middle Street. Therefore, no significant effects to viewsheds are expected.

Short Term Impacts

During construction, there would be no significant effects because the associated disturbances that alter the visual character or viewsheds would be temporary and would be restored to the original condition following completion of construction.

4.3.2.3 Cucia Park Alternative (Preferred Alternative)

Visual Character

Construction of the AFRC at this site would create direct impacts to the existing visual character and views toward the site from I-91 as it would introduce three new buildings totaling 200,000 sf. While the new AFRC would not require demolition of any existing facilities, the new building would create a noticeable effect as it would represent a visual change from the presently

undeveloped site. However, the visual effect could be beneficial since the new structure could provide an aesthetically distinct anchor to the project area that currently lacks visual distinction. No significant effects would be expected.

Views and Vistas

The proposed development is located along Highway 91 in an area that is currently undeveloped and occupied by forested area. The new construction of the AFRC would transform the visual corridor on Highway 91, but views from I-91 are considered fleeting due to the vehicles that travel at high speeds along this portion of the highway. Therefore there would be no significant effect on the viewshed from I-91. From Smith Street, the AFRC would be highly visible and would create a noticeable effect as it would be located on the northeast corner of Cucia Park.

The proposed construction would require the removal of mature trees and alteration of existing topography within the natural landscape that would be replaced by new structures and elements that would have long-term impacts to the existing viewsheds. However, these new projects would not necessarily significantly impact the existing viewshed. The final design of the new structures is in progress and the proposed structures could create a new visual district that could create a visually consistent and coherent image within the area. Adverse effects would be minimized if the design of the proposed action incorporates the materials, style, color, and articulation of surrounding visual resources.

Short Term Impacts

During construction, there would be no significant effects because the associated disturbances (such as the presence of construction equipment or visual fencing or screening) that alter the visual character or viewsheds would be temporary and would be restored to the original condition following completion of construction.

4.3.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Visual Character

Although implementation of this alternative would not require the demolition of any existing structures, the new ARFC facilities would create a permanent noticeable direct effect on the visual character in the project area since more than 200,000 sf of buildings would be built in a currently undeveloped area. The project area currently lacks architectural distinction and visual

consistency, so the proposed AFRC would provide an opportunity to establish a new visual anchor that blends harmoniously with the existing visual character and landscape.

Views and Vistas

The current viewsheds and vistas toward the site would be altered. The AFRC would be located on the property designated for commercial and industrial development. The new AFRC would be visible from the residential neighborhood along Timber Ridge Road along with the associated security lighting. Therefore, the facility would not be located where the views are historic or prominent and while the impacts are expected to be noticeable, they will not be significant.

Short Term Impacts

During construction, there would not be significant effects because the associated disturbances that alter the visual character or viewsheds would be temporary and would be restored to the original condition following completion of construction.

4.4 AIR QUALITY

The U.S. EPA defines ambient air in 40 CFR Part 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 (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the USEPA has promulgated National Ambient Air Quality Standards (NAAQS). The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the USEPA has issued NAAQS for seven criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particles with a diameter less than or equal to a nominal 10 micrometers (PM₁₀), particles with a diameter less than or equal to a nominal 2.5 micrometers (PM_{2.5}), ozone (O₃), nitrogen dioxide (NO₂), and lead (Pb). Areas that do not meet NAAQS are called non-attainment areas.

4.4.1 Affected Environment

Middletown is located in Middlesex County, Connecticut. The USEPA classifies the New York – New Jersey – Long Island, NY-NJ-CT area, which includes Middlesex County, a moderate

non-attainment area for ozone and in non-attainment for PM_{2.5}⁶. The state of Connecticut is also part of the Ozone Transport Region (OTR). The OTR is a collection of East coast states from Virginia to Maine that experience higher levels of ground-level ozone. Ground-level ozone is a pervasive regional problem in the northeastern United States, with frequent exceedences of the 8-hour ozone standard. In order to address the regional problem, the OTR imposes stricter regulations on ozone precursors, explained below. The state and federal ambient standards for these pollutants are presented in Table 4-1.

Table 4-1: Ambient Air Quality Standards

Pollutant	Federal Standard	Connecticut Standard
Ozone (O ₃): 8-Hour Average	0.075 ppm	0.08 ppm
Particulate Matter (PM _{2.5}): 24-Hour	35 ug/m ³	35 ug/m ³
Annual Arithmetic Mean	15 ug/ m ³	15 ug/m ³

Source: USEPA, 2009a
 ppm – parts per million
 ug/m³ – micrograms per cubic meter

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. Projects below the *de minimis* levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action.

USACE has completed a General Conformity Rule applicability analysis to analyze any impact to air quality.

⁶ PM_{2.5} non-attainment areas have not yet been divided into severity levels and therefore are all classified as general non-attainment.

Ozone

Emissions have been estimated for the ozone precursor pollutants Nitrogen Oxides (NO_x) and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for each of the project actions (construction and operation) to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* for moderate ozone non-attainment areas in the OTR is 100 tons per year (TPY) for NO_x and 50 TPY for VOC.

Particulate Matter (2.5)

On July 11, 2006 the U.S. EPA established *de minimis* levels for PM_{2.5}. The final rule established 100 TPY as the *de minimis* emission level under non-attainment for directly emitted PM_{2.5} and each of the precursors that form it (SO₂, NO_x, VOC, and ammonia). This 100 TPY threshold applies separately to each precursor. This means that if an action's direct or indirect emissions of PM_{2.5}, SO₂, NO_x, VOC, or ammonia exceed 100 TPY, a General Conformity determination would be required. However, neither the USEPA nor the state of Connecticut have found PM_{2.5} problems to be caused by VOC or ammonia; therefore, ammonia is not further addressed in this EA (VOC is addressed as an ozone precursor).

Sources of NO_x, VOC, PM_{2.5}, and SO₂ associated with the proposed project would include emissions from construction and demolition equipment, construction crew commuting vehicles, fugitive dust (PM_{2.5}), painting of interior building surfaces, parking spaces (VOC only), emissions from daily commuters, and emissions from stationary units (boilers).

In addition to evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed 10-percent of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this 10-percent threshold, the federal action is considered to be a "regionally significant" activity, and thus, the general conformity rules apply.

4.4.1.1 Ambient Air Quality Conditions

Ambient air quality is monitored in Middlesex County by stations meeting the USEPA's design criteria for State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS). There is one ozone monitoring station within the county. The highest and second highest values recorded at these stations from 2004 through 2008 are presented in Table 4-2.

Table 4-2: Existing Monitoring Data within Middlesex County, CT

Monitoring Station	Year*				
	2004	2005	2006	2007	2008
#090070007 – CT Valley Hospital	0.102/0.084	0.110/0.106	0.110/0.098	0.111/0.101	0.091/0.083

1st/2nd highest data,

*Ozone values are in ppm

NAAQS: O3: 8-hour average = 0.075 ppm (0.085 is an exceedance)

Source: USEPA, 2009b

4.4.1.2 Meteorology/Climate

Temperature is a parameter used in calculations of emissions for air quality applicability. The climate in Middlesex County, CT varies seasonally. The average temperature in Middlesex County, which includes the project sites, is 52 degrees F. The average summer high is 84 degrees F while the average winter low is 20 degrees F (TWC, nd).

4.4.1.3 Regional Air Pollutant Emissions Summary

The USEPA calculates the Air Quality Index (AQI) for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The USEPA collects data daily to determine air quality for the region, and releases it in the form of the AQI, which runs from zero to 500, with zero being no air pollution and 500 representing hazardous air pollution levels. An AQI value between 101 and 150 indicates that air quality is unhealthy for sensitive groups who may be subject to negative health effects. Sensitive groups may include those with lung or heart disease who will be negatively affected by lower levels of ground level ozone and particulate matter than the rest of the general public. An AQI value between 151 and 200 is considered to be unhealthy and may result in

negative health effects for the general public, with more severe effects possible for those in sensitive groups. AQI values from 201 to 300 are considered to be very unhealthy. AQI values above 300 are considered hazardous (Clean Air Partners, nd).

Table 4-3 displays the AQI data for Middlesex County, CT.

Table 4-3: AQI Data for Middlesex County, CT

Year	Unhealthy for Sensitive Groups (Days)	Unhealthy for General Public (Days)
2004	6	1
2005	12	4
2006	9	2
2007	12	3
2008	8	0

USEPA, 2009c

4.4.2 Environmental Consequences

No Effect – No impacts to air quality from the proposed project

No Significant Effect – Impacts to air quality do not exceed the *de minimis*⁷ levels for a pollutant or exceed 10 % of the daily limits laid out in the 2008 *Revision to Connecticut's State Implementation Plan (SIP)* for ozone and PM_{2.5} (CTDEP, 2008a, 2008b).

Significant Effect – Impact on air quality exceeds the *de minimis* levels for a pollutant or exceed 10% of the daily limits laid out in the 2008 *Revision to Connecticut's State Implementation Plan (SIP)* for ozone and PM_{2.5} (CTDEP, 2008a, 2008b).

Appendix B contains a detailed description of the assumptions and methodology used to estimate the potential emissions for all construction and future operational phases of at each of the three

⁷*De minimis* emission levels for a pollutant are established by the USEPA, and are used to determine whether requirements would apply under USEPA's General Conformity rules.

reasonable alternatives: Bysiewicz Industrial Subdivision (Liberty Park), Cucia Park, and Millennium Industrial Park (Ken Dooley Drive).

4.4.2.1 No Action Alternative

Implementation of the No Action Alternative would not change current conditions and therefore there would be no effect on the current air quality conditions in the region.

4.4.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

A General Conformity Applicability Analysis was performed for the Proposed Action at Bysiewicz Industrial Subdivision (Liberty Park). The General Conformity Applicability Analysis estimated the level of potential air emissions (NO_x, VOC, SO₂, and PM_{2.5}) for each alternative site location (see Appendix B).

Table 4-4 summarizes the total emissions associated with the construction and operation phases of the Bysiewicz Industrial Subdivision (Liberty Park) Alternative. Construction related emissions would be temporary and only occur during the 24-month construction period for all buildings; however, a conservative approach was initially employed in the applicability analysis to ensure that construction scheduling would not result in higher levels of emissions than predicted. The analysis assumed that the construction emissions for all of the buildings would occur concurrently over the same 1-year period.

Table 4-4: Summary of Emissions – Bysiewicz Industrial Subdivision (Liberty Park)

	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
Construction	8.600	2.431	0.773	1.771
Full Operation	1.143	1.223	0.041	0.009

The results in Table 4-4 show that the emissions associated with constructing and operating the new AFRC and associated facilities, when compared to the *de minimis* values for this moderate ozone non-attainment area and PM_{2.5} non-attainment area, fall well below the *de minimis* levels for all four pollutants, even under the initial conservative assumptions that were employed. As a result, implementation of the Proposed Action at the Bysiewicz Industrial Subdivision (Liberty Park) is not subject to the General Conformity Rule requirements.

In addition to *de minimis* values, actions are also evaluated for regional significance. An action is considered to be regionally significant if the annual increase in emissions would make up 10 percent or more of the available regional emission inventory. The *Revision to Connecticut's State Implementation Plan (SIP) 8-Hour Ozone Attainment Demonstration Technical Support Document* sets forth daily emission targets, in tons per day (TPD), for 2009 and 2012, as shown in Table 4-5 (CTDEP, 2008a). CTDEP recently submitted the final *Revision to Connecticut's State Implementation Plan Annual PM_{2.5} Attainment Demonstration Technical Support Document* (CTDEP, 2008b). The SIP sets forth annual emissions inventories for each of the three precursor pollutants, available in Table 4-6.

Table 4-5: Emissions Inventory (TPD): Ozone

2009		2012	
NO _x	VOC	NO _x	VOC
137.8	99.1	127.7	81.9

Table 4-6: Emissions Inventory (TPY): PM_{2.5}

2009			2012		
PM _{2.5}	SO ₂	NO _x	PM _{2.5}	SO ₂	NO _x
17,687	22,927	83,722	17,205	22,651	70,015

The increase in annual emissions from the construction and operational activities would not make up ten percent or more of the available regional emission targets for VOC, NO_x, PM_{2.5}, or SO₂ and would not be regionally significant.

No significant effects are expected as a result of the implementation of the Proposed Action at Bysiewicz Industrial Subdivision (Liberty Park).

4.4.2.3 Cucia Park Alternative (Preferred Alternative)

A General Conformity Applicability Analysis was performed for the Proposed Action at Cucia Park. The General Conformity Applicability Analysis estimated the level of potential air emissions (NO_x, VOC, SO₂, and PM_{2.5}) for each alternative site location (see Appendix B).

Table 4-7 summarizes the total emissions associated with the construction and operation phases of the Cucia Park Alternative. Construction related emissions would be temporary and only occur during the 24-month construction period for all buildings; however, a conservative approach was initially employed in the applicability analysis to ensure that construction scheduling would not result in higher levels of emissions than predicted. The analysis assumed that the construction emissions for all of the buildings would occur concurrently over the same 1-year period.

Table 4-7: Summary of Emissions – Cucia Park

	Total Annual Emissions – TPY			
	NO_x	VOC	PM_{2.5}	SO₂
Federal <i>de minimis</i> standards	100	50	100	100
Construction	10.169	2.555	0.911	2.096
Full Operation	1.143	1.223	0.041	0.009

The results in Table 4-7 show that the emissions associated with constructing and operating the new AFRC and associated facilities, when compared to the *de minimis* values for this moderate ozone non-attainment area and PM_{2.5} non-attainment area, fall well below the *de minimis* levels for all four pollutants, even under the initial conservative assumptions that were employed. As a result, implementation of the Proposed Action at Cucia Park is not subject to the General Conformity Rule requirements. Appendix D contains a draft Record of Non-Applicability for the Preferred Alternative.

In addition to *de minimis* values, actions are also evaluated for regional significance. Given the emissions inventories provided in Tables 4-5 and 4-6, the increase in annual emissions from the construction and operational activities at Cucia Park would not make up ten percent or more of the available regional emission targets for VOC, NO_x, PM_{2.5}, or SO₂ and would not be regionally significant.

No significant effects are expected as a result of the implementation of the Proposed Action at Cucia Park.

4.4.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

A General Conformity Applicability Analysis was performed for the Proposed Action at Millennium Industrial Subdivision (Ken Dooley Drive). The General Conformity Applicability Analysis estimated the level of potential air emissions (NO_x, VOC, SO₂, and PM_{2.5}) for each alternative site location (see Appendix B).

Table 4-8 summarizes the total emissions associated with the construction and operation phases of the Proposed Action. Construction related emissions would be temporary and only occur during the 24-month construction period for all buildings; however, a conservative approach was initially employed in the applicability analysis to ensure that construction scheduling would not result in higher levels of emissions than predicted. The analysis assumed that the construction emissions for all of the buildings would occur concurrently over the same 1-year period.

Table 4-8: Summary of Emissions – Millennium Industrial Subdivision (Ken Dooley Drive)

	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
Construction	10.169	2.555	0.911	2.096
Full Operation	1.143	1.223	0.041	0.009

The results in Table 4-8 show that the emissions associated with constructing and operating the new AFRC and associated facilities, when compared to the *de minimis* values for this moderate ozone non-attainment area and PM_{2.5} non-attainment area, fall well below the *de minimis* levels for all four pollutants, even under the initial conservative assumptions that were employed. As a result, the Millennium Industrial Subdivision (Ken Dooley Drive) Alternative is not subject to the General Conformity Rule requirements.

In addition to *de minimis* values, actions are also evaluated for regional significance. Given the emissions inventories provided in Tables 4-5 and 4-6, the increase in annual emissions from the construction and operational activities at Millennium Industrial Subdivision (Ken Dooley Drive) would not make up ten percent or more of the available regional emission targets for VOC, NO_x, PM_{2.5}, or SO₂ and would not be regionally significant.

No significant effects are expected as a result of the implementation of the Proposed Action at Millennium Industrial Subdivision (Ken Dooley Drive).

4.5 NOISE

Noise is generally defined as unwanted sound. Sound is all around us; it becomes noise when it interferes with normal activities such as speech, concentration, or sleep. Noise associated with military installations is a factor in land use planning both on- and off-base. In particular, noise associated with airfield and airspace operations can be of concern to on-base personnel and surrounding communities. Noise also emanates from vehicular traffic associated with new facilities and from project sites during construction. Ambient noise (the existing background noise environment) can be generated by a number of noise sources, including mobile sources, such as airplanes, automobiles, trucks, and trains; and stationary sources such as construction sites, machinery, or industrial operations. In addition, there is an existing and variable level of natural ambient noise from sources such as wind, streams and rivers, wildlife and other sources.

The Noise Control Act of 1972 was enacted to establish noise control standards and to regulate noise emissions from commercial products such as transportation and construction equipment. The Noise Control Act exempts noise from military weapons or equipment designated for combat use.

The standard measurement unit of noise is the decibel (dB), which represents the acoustical energy present. Noise levels are measured in A-weighted decibels (dBA), a logarithmic scale which approaches the sensitivity of the human ear across the frequency spectrum. A 3-dB increase is equivalent to doubling the sound pressure level, but is barely perceptible to the human ear. Table 4-9 presents some familiar sounds and their decibel levels.

Table 4-9. Familiar Sounds and Their Decibel Levels (dB)

Sound	Decibel Level (dB)
Whisper	30
Quiet Room	40
Moderate Rainfall	50
Conversation	60
Alarm Clock or Busy Street	80
Lawnmower	85-90
Chain Saw	100
Jet-Plane Takeoff	120

Source: ASHA, 2009

4.5.1 Affected Environment

4.5.1.1 Existing Noise Regulations

The State of Connecticut defines construction activities in Section 22a-69-1 of the Connecticut regulations for the Control of Noise as any and all physical activity at a site necessary or incidental to the erection, placement, demolition, assembling, altering, blasting, cleaning, repairing, installing or equipping of building or other structures. Per C.G.S Article 206-3, exceptions, the City of Middletown exempts noise generated from construction activity from adhering to the noise district restrictions between the hours of 7.00 a.m. and one hour after sundown, Monday through Saturday.

The City of Middletown noise control regulations set forth Industrial Noise District standards for noise emitted. An industrial emitter may emit 70 dBA to an industrial receptor, 66 dBA to a business receptor, and 61 dBA (day) or 51 dBA (night) to a residential receptor (City of Middletown, nd-b).

As a general rule for estimating noise emission, sound from a stationary source will diminish approximately 5 dBA with each doubling of distance (FTA, 2006). For example, if a noise from a source reaches 75 dBA at 50 feet, it will be 70 dBA at 100 feet and 65 dBA at 200 feet, and so on.

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Existing noise conditions at this site include the operation of construction equipment. The site is currently being graded by the owner in preparation for future construction. Surrounding noise conditions include traffic from Middle Street and industrial complexes, including the Yellow Freight Company to the south. A private residence is also adjacent to the south of the site along Middle Street.

Cucia Park Alternative (Preferred Alternative)

Existing noise conditions at the Cucia Park Alternative site includes high speed traffic along the adjacent I-91. Surrounding operations of industrial facilities contribute to the ambient noise conditions at Cucia Park.

Millennium Industrial Park (Ken Dooley Drive) Alternative

Existing noise conditions at Millennium Industrial Park (Ken Dooley Drive) are similar to the Bysiewicz Industrial Subdivision (Liberty Park) site. The site is on the western edge of the industrial area surrounding the Bysiewicz Industrial Subdivision (Liberty Park). Additionally, construction equipment contributes to the ambient noise at the site as the property owner has begun clearing portions of the site. A residential neighborhood is located adjacent to the western edge of the site. A farmhouse is located to the south of the site but is separated by several acres of both wooded areas and open fields.

4.5.2 Environmental Consequences

The following criteria have been developed to assess noise impacts:

No Effect – Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.

No Significant Effect – Noise levels would exceed natural sounds, as described under no effect, but would not exceed applicable noise standards.

Significant Effect – Noise levels would exceed applicable noise standards on a temporary, short-term, or permanent basis or for a prolonged period of time.

General Noise from Construction

Instances of increased noise are expected during the construction and demolition phases associated with the project. Measures that serve to limit noise during construction and demolition include limiting activity at project sites to daytime hours; limiting truck traffic ingress/egress to daytime hours; promoting awareness that producing prominent discrete tones and periodic noises (e.g., excessive dump truck gate banging) should be avoided as much as possible; requiring that work crews seek pre-approval for any weekend activities, or activities outside of daytime hours; and employing noise-controlled construction equipment to the maximum extent possible.

Temporary noise effects related to construction activities would be expected to occur. Site preparation for constructing the new facilities would involve the use of heavy machinery, including earth moving, materials handling and impact equipment. Heavy machinery is currently located on the site. Site clearing activities typically generate noise levels of 85 dBA at 50 feet from the source. At these levels, impacts would not be significant and could be further reduced by employing noise-controlled construction equipment to the extent possible and confining construction activities to normal working hours, between 7:00 a.m. and 6:00 p.m. on weekdays, when existing ambient noise levels in the vicinity of the site are at their highest.

The arrival and staging of heavy equipment and materials would be scheduled to occur during normal work hours to the greatest extent possible to avoid noise disturbances to adjacent properties. Contractors would be expected to comply with any applicable noise regulations and local ordinances regarding construction noise. Compliance with the OSHA standards for occupational noise exposure associated with construction (29 CFR 1926.52) would address the construction workers hearing protection. As a result, noise effects from construction are not expected to be significant.

High levels of noise can also affect the health of construction/demolition workers. Application of federal Occupational Safety and Health Administration (OSHA) standards for occupational noise exposure associated with construction (29 CFR 1926.52) is required. Typical construction equipment and operation noise levels are presented in Table 4-10.

Table 4-10. Typical Noise Levels (dBA) of Typical Construction Equipment

Equipment	Typical Noise Level (dBA) 50 ft from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scraper	89
Shovel	82
Truck	88

Source: FTA, 2006

General Noise from Facility and Vehicle Operations

Once constructed, noise can be generated from facility operations and the vehicles associated with the facility. Aside from negligible heating, ventilation, and air conditioning (HVAC) related noise, the facility is not expected to generate high levels of noise. Most noise would be expected from vehicles associated with the facility, including organizational vehicles used for training and operations, government and private delivery vehicles, and personal vehicles used for commuting purposes.

Site Specific Impacts

4.5.2.1 No Action Alternative

No effects would be expected. Implementation of the No Action Alternative would not alter the existing noise in Middletown, CT.

4.5.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Noise from Construction and Demolition – Temporary noise effects related to construction activities would be expected to occur. Site preparation for constructing the new facility would involve the use of heavy machinery, including earth moving, materials handling and impact equipment. Bysiewicz Industrial Subdivision (Liberty Park) is located adjacent to Middle Street and other IT-zoned parcels and is not adjacent to sensitive noise receptors. One private residence is located south of the site, but the construction of the new AFRC would not represent an increase in current noise conditions, as construction equipment is currently operating on the site. As a result, noise effects from construction are not expected to be significant.

Noise from Facility Operations – Once the AFRC is constructed; noise would be generated from the day-to-day use of the facilities. Aside from negligible HVAC related noise, most noise would be created by vehicles associated with the AFRC including organizational vehicles used for training and operations, government and private delivery vehicles, and personal vehicles used for commuting purposes. The noise created by facility and vehicle operations is not expected to have a significant effect.

There would be an estimated increase of approximately 895 personnel relocating to the proposed AFRC. The majority of individuals relocating to the site would be reporting on weekends and not all reporting on the same weekend. The maximum number of individuals reporting on any given weekend is expected to be approximately 450 and would contribute negligible amounts of noise to the current environment. The 100 full-time personnel commuting to the site daily would also contribute negligible amounts of traffic noise to the current noise environment.

In addition to commuter traffic, vehicle maintenance operations associated with the OMS would contribute to the noise environment. Only routine maintenance would be performed and therefore would only contribute negligible amounts of noise to the existing noise environment.

Since the Bysiewicz Industrial Subdivision (Liberty Park) is characterized by industrial/commercial uses, weekday and weekend drill periods would not present a substantial increase over existing noise levels. The addition of vehicles and personnel into the area, while contributing incrementally to noise in the site vicinity, would not present a substantial change to existing noise levels. Therefore, overall noise-related effects from the proposed AFRC and its associated facilities would not be significant.

4.5.2.3 Cucia Park Alternative (Preferred Alternative)

Noise from Construction and Demolition – Similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative, temporary noise effects related to construction activities would be expected to occur at Cucia Park. No demolition activities would be required; however a large amount of earth moving activities would be required. Site preparation for constructing the new facility would involve the use of heavy machinery, including earth moving, materials handling and impact equipment. Cucia Park is located adjacent to I-91 and is not adjacent to sensitive noise receptors. As a result, noise effects from construction are not expected to be significant.

Noise from Facility Operations – Noise from facility operations for the Cucia Park Alternative are expected to be the same as the Bysiewicz Industrial Subdivision Alternative.

While Cucia Park is currently an inactive park, it is located adjacent to I-91 and is zoned for industrial and business uses due to its proximity to the Interstate. Weekday and weekend drill periods would not present a substantial increase over existing noise levels. The addition of vehicles and personnel into the area, while contributing incrementally to noise in the site vicinity, would not present a substantial change to existing noise levels. Therefore, overall noise-related effects from the proposed AFRC and its associated facilities would not be significant.

4.5.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Noise from Construction and Demolition – Similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative, temporary adverse noise impacts related to construction activities would be expected to occur for the Millennium Industrial Park (Ken Dooley Drive) Alternative. Construction would be limited to the regulated hours, reducing the potential impact on the adjacent residential neighborhood. As a result, noise effects from construction are not expected to be significant.

Noise from Facility Operations – Noise from facility operations for the Millennium Industrial Park (Ken Dooley Drive) Alternative are expected to be the same as the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

The Millennium Industrial Park (Ken Dooley Drive) parcel is located adjacent to industrial complexes. The property is also adjacent to a residential area to the west. The Proposed Action would adhere to the City of Middletown regulations requiring at least a 60 foot buffer from residential areas (City of Middletown, 2008a). Weekday and weekend drill periods would not present a substantial increase over existing noise levels. The addition of vehicles and personnel into the area, while contributing incrementally to noise in the site vicinity, would not present a substantial change to existing noise levels. Therefore, overall noise-related effects from the proposed AFRC and its associated facilities would not be significant.

4.6 GEOLOGY AND SOILS

4.6.1 Affected Environment

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) soil surveys were used to determine and characterize the soil types that would occur on each of the three Alternatives. Soils within each site and their general characteristics are summarized in this section.

Geological resources consist of all bedrock and soil materials within an area. Geologic factors such as soil stability and seismic properties influence the stability of structures. Soil, in general, refers to unconsolidated earthen materials overlying bedrock and other parent material (Brady and Weil, 2007). Soil structure, elasto-plasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use (Fanning and Fanning, 1989). Topography consists of the physiographic, or surface, features of an area and is usually described with respect to elevation, slope, aspect, and landforms. Long-term geological, erosional, and depositional processes typically influence topographic relief of an area.

4.6.1.1 Geologic and Topographic Conditions; Soils

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Geologic and Topographic Conditions

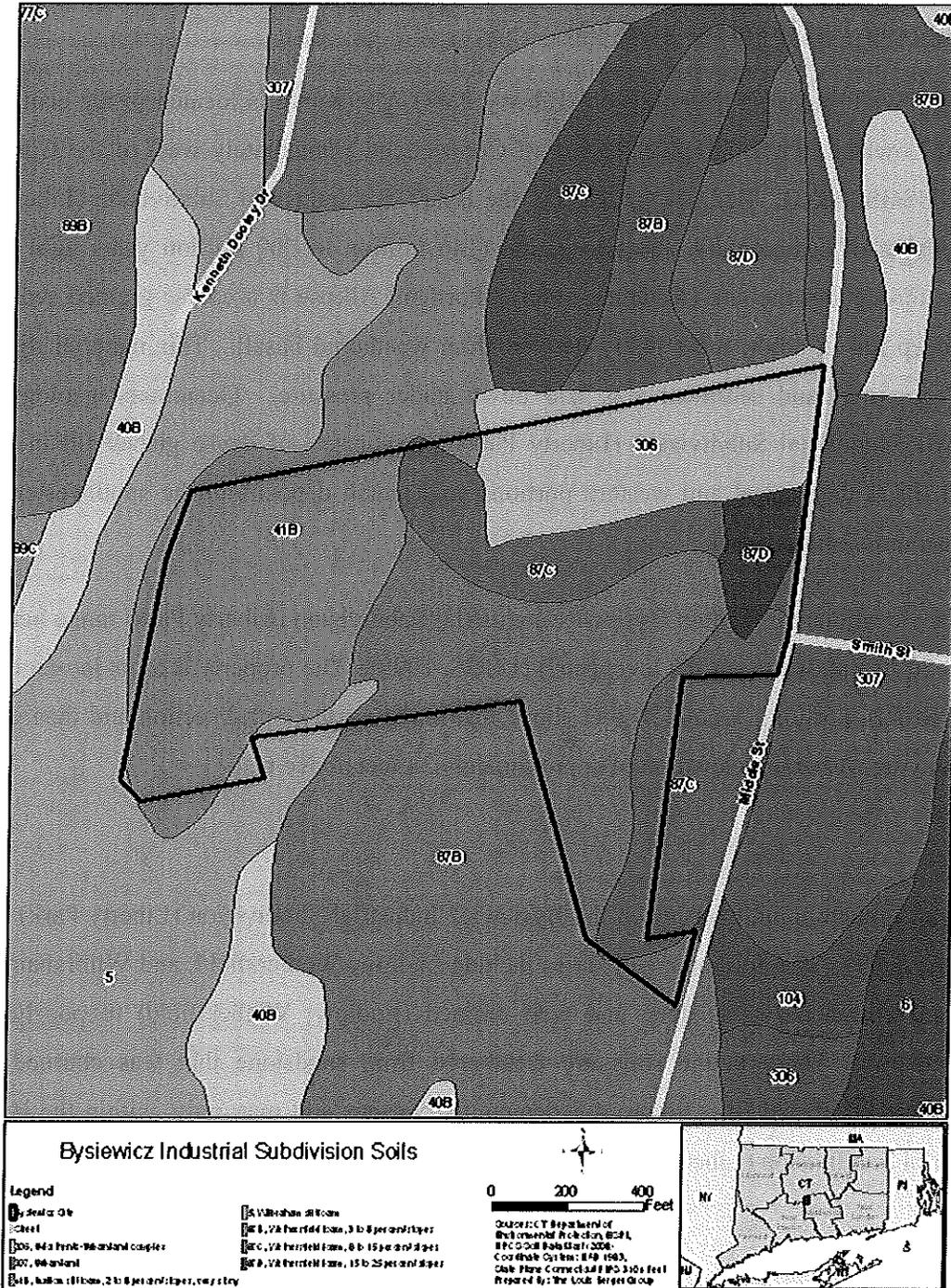
The Bysiewicz Industrial Subdivision (Liberty Park) Alternative is located in the center of the Central Lowlands Physiographic Region of Connecticut, immediately west of the Connecticut River (USGS, 2003). Bedrock underlying the Bysiewicz Industrial Subdivision (Liberty Park) site consists of sedimentary, Jurassic period (146 million to 200 million years ago) Portland Arkose throughout the site (Rodgers, 1985). Portland Arkose is a coarse-grained sedimentary rock, deep red in color, most likely derived from weathered basalt. This material resulted as rifting occurred and sediment was laid down under pressure. Quaternary geology of the Bysiewicz Industrial Subdivision (Liberty Park) site consists of dense glacial till in the east, glacial till in the central and western portions, and marsh deposits in the southwestern corner (DiGiacomo-Cohen, 1998).

Surface elevations throughout Bysiewicz Industrial Subdivision (Liberty Park) range between 25 feet to 50 feet above mean sea level (msl) (USGS, 1999). The property is at its lowest elevation in the eastern portion, rises to 50 feet above msl in the north-central section and then gradually slopes to the west to an elevation of approximately 34 feet above msl.

Soils

Seven soil mapping units occur on the Bysiewicz Industrial Subdivision (Liberty Park) property (USDA, 2007). The dominant soil series include Ludlow, Wethersfield, and Wilbraham. These soils are characterized as deep and well drained (Ludlow; Wethersfield) to poorly drained (Wilbraham). These acidic soils are weathered from sandstone that was churned up and redeposited as glacial till. Figure 4-5 depicts the various soil map units within the Bysiewicz Industrial Subdivision (Liberty Park) and Table 4-11 describes the soil map units.

Figure 4-5: Soils Map for Bysiewicz Industrial Subdivision (Liberty Park)



**Table 4-11 General Description of the Mapping Units at the Bysiewicz Industrial Subdivision
Alternative**

Mapping Unit	General Description
Ludlow silt loam, 2-8% slopes, very stony (41B)	This soil is moderately well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 6s. This soil is not suitable for cultivated crops. This component is a hydric soil. The assigned K erodibility factor is .28
Wethersfield loam, 3-8% slopes (87B)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 2e. This soil is prime farmland. This component is a hydric soil. The assigned K erodibility factor is .28
Wethersfield loam, 8-15% slopes (87D)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 3e. This soil is farmland of state importance. This component is a hydric soil. The assigned K erodibility factor is .28
Wethersfield loam, 15-25% slopes (87D)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 4e. This soil is unsuitable for cultivated crops. This component is a hydric soil. The assigned K erodibility factor is .28
Wilbraham silt loam (5)	This soil is poorly drained. The depth to a restrictive feature is 20 to 36 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 2 feet. It is non-irrigated land capability subclass 4w. This soil is of farmland of statewide importance. This component is a hydric soil. The assigned K erodibility factor is .28
Udorthents-Urban Land complex (306)	This soil is well drained. The depth to a restrictive feature is 56 to 72 inches (lythic bedrock). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is greater than 6 feet. It is non-irrigated land capability subclass 3e. This soil is unsuitable for cultivated crops. This component is not a hydric soil. The assigned K erodibility factor is .28
Urban Land (307)	This soil generally is roughly 6 inches thick and exists in urban areas. Restrictive features are not present because these soils are usually comprised of fill and artificially drained.

Cucia Park Alternative (Preferred Alternative)

Geologic and Topographic Conditions

Cucia Park is located in the center of the Central Lowlands Physiographic Region of Connecticut, immediately west of the Connecticut River (USGS, 2003). Bedrock underlying Cucia Park consists of igneous Holyoke basalt in the eastern portion, and Portland arkose in the central and western portions; both Holyoke Basalt and Portland Arkose formed during the Jurassic period (Rodgers, 1985). Holyoke basalt is a grey to orange-brown crystalline rock; whereas Portland arkose is a coarse-grained sedimentary rock, deep red in color. Quaternary geology of Cucia Park consists of dense glacial till and glacial till in the eastern portion; glacial lake deposits formed from Glacial Lake Middletown in the central portion; and post-glacial floodplain alluvium in the western portion (DiGiacomo-Cohen, 1998). All four Quaternary geological features parallel each other and run from north to south.

Surface elevations throughout Cucia Park range between 19 feet to 40 feet above msl (USGS, 1999). The property is at its lowest elevation in the northwestern portion. At the boundary between glacial lake deposits and glacial till the topography rises sharply (greater than 60 percent slope; field observation by Berger employees) to 40 feet above msl and then slightly slopes down to 34 feet above msl along the eastern boundary of Cucia Park.

Soils

Six soil mapping units occur in Cucia Park (USDA, 2007). The dominant soil series include Ludlow, Menlo, Wethersfield, and Wilbraham. These soils are characterized as deep and well drained (Ludlow; Wethersfield) to poorly drained (Menlo; Wilbraham). These acidic soils are weathered from sandstone that was churned up and redeposited as glacial till as well as lake sediments and floodplain alluvium. Table 4-12 describes the soil map units within the Cucia Park property. Figure 4-6 depicts the various soil map units within Cucia Park.

Figure 4-6: Soils Map for Cucia Park



Table 4-12: General Description of the Mapping Units at the Cucia Park Alternative

Mapping Unit	General Description
Ludlow silt loam, 3-8% slopes (40B)	This soil is moderately well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 2e. This soil is prime farmland. This component is a hydric soil. The assigned K erodibility factor is .20
Udorthents-Urban Land complex (306)	This soil is well drained. The depth to a restrictive feature is 56 to 72 inches (lythic bedrock). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is greater than 6 feet. It is non-irrigated land capability subclass 3e. This soil is unsuitable for cultivated crops. This component is not a hydric soil. The assigned K erodibility factor is .28
Wethersfield loam, 3-8% slopes (87B)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 2e. This soil is prime farmland. This component is a hydric soil. The assigned K erodibility factor is .28
Wethersfield loam, 8-15% slopes, very stony (88C)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 6s. This soil is unsuitable for cultivated crops. This component is a hydric soil. The assigned K erodibility factor is .17
Wethersfield loam, 15-25% slopes (87D)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 4e. This soil is unsuitable for cultivated crops. This component is a hydric soil. The assigned K erodibility factor is .28
Wilbraham and Menlo soils, extremely stony (6)	This soil is poorly drained. The depth to a restrictive feature is 20 to 36 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 2 feet. It is non-irrigated land capability subclass 7s. This soil is not suitable for cultivated crops. This component is a hydric soil. The assigned K erodibility factor is .28

Millennium Industrial Park (Ken Dooley Drive) Alternative

Geologic and Topographic Conditions

The Millennium Industrial Park (Ken Dooley Drive) Alternative is located in the center of the Central Lowlands Physiographic Region of Connecticut, immediately west of the Connecticut River (USGS, 2003). Bedrock underlying Millennium Industrial Park (Ken Dooley

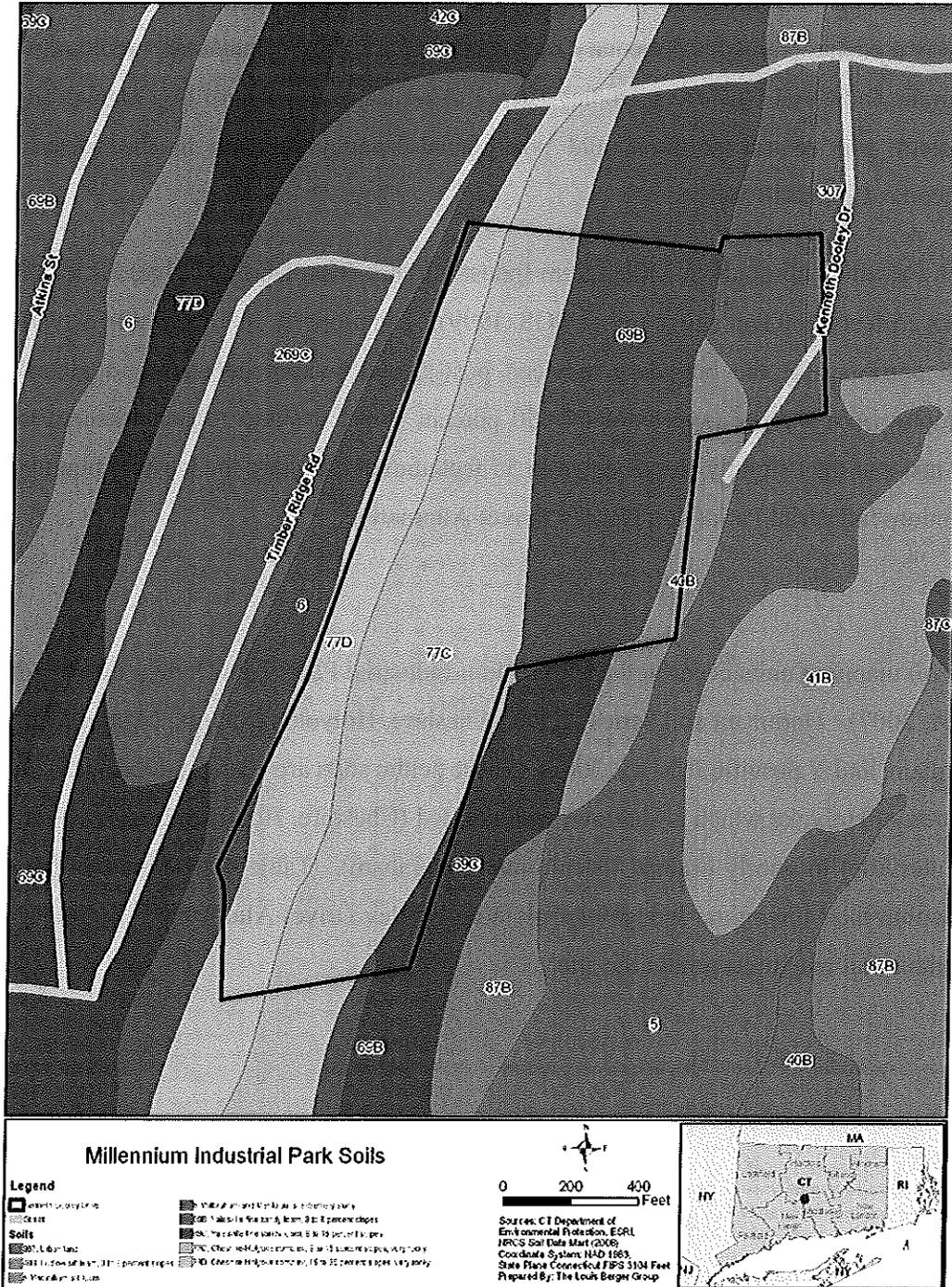
Drive) consists of igneous Hampden basalt in the western portion, and Portland Arkose in the eastern portions; both Hampden Basalt and Portland Arkose formed during the Jurassic period (Rodgers, 1985). Hampden basalt is a grey to orange-brown crystalline rock; whereas Portland Arkose is a coarse-grained sedimentary rock, deep red in color. Quaternary geology within the Millennium Industrial Park (Ken Dooley Drive) Alternative consists of thin glacial till deposits in western and central portions, and post-glacial swamp deposits in the eastern portion (DiGiacomo-Cohen, 1998).

Surface elevations throughout Millennium Industrial Park (Ken Dooley Drive) Alternative range between 25 feet to 60 feet above msl (USGS, 1999). The property is at its lowest elevation in the eastern portion. At the boundary between post-glacial swamp deposits and glacial till the topography rises sharply (approximately 50 percent slope; desktop reconnaissance) to 60 feet above msl and then slightly slopes down to 55 feet above msl along the western boundary of the Millennium Industrial Park (Ken Dooley Drive) Alternative.

Soil

Eight soil mapping units occur in the Millennium Industrial Park (Ken Dooley Drive) Alternative (USDA, 2007). Dominant soil series include Cheshire, Holyoke, Ludlow, Menlo, Wethersfield, Wilbraham, and Yalesville (USDA, 2007). These acidic soils are characterized as deep (with the exception of Holyoke which is shallow) well drained (Cheshire, Holyoke, Ludlow, Wethersfield, and Yalesville) to poorly drained (Menlo and Wilbraham). Table 4-13 describes the soil map units within the Millennium Industrial Park (Ken Dooley Drive) Alternative. Figure 4-7 depicts the various soil map units within the site.

Figure 4-7: Soils Map for Millennium Industrial Park (Ken Dooley Drive)



**Table 4-13 General Descriptions of the Mapping Units at the Millennium Industrial
Subdivision (Ken Dooley Drive) Alternative**

Mapping Unit	General Description
Cheshire-Holyoke Complex, 3-15% slopes, very rocky (77C)	This soil is well drained. The depth to a restrictive feature is 10 to 20 inches (lythic bedrock). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 2 feet. It is non-irrigated land capability subclass 6s. This soil is unsuitable for cultivation. This component is a hydric soil. The assigned K erodibility factor is .17
Cheshire-Holyoke Complex, 15-35% slopes, very rocky (77D)	This soil is well drained. The depth to a restrictive feature is 10 to 20 inches (lythic bedrock). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 2 feet. It is non-irrigated land capability subclass 6s. This soil is unsuitable for cultivation. This component is a hydric soil. The assigned K erodibility factor is .17
Ludlow silt loam, 3-8% slopes, very stony (40B)	This soil is moderately well drained. The depth to a restrictive feature is 20 to 40 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 2e. This soil is unsuitable for cultivated crops. This component is a hydric soil. The assigned K erodibility factor is .20
Urban Land (307)	This soil generally is roughly 6 inches thick and exists in urban areas. Restrictive features are not present because these soils are usually comprised of fill and artificially drained.
Wilbraham and Menlo soils, extremely stony (6)	This soil is poorly drained. The depth to a restrictive feature is 20 to 36 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 2 feet. It is non-irrigated land capability subclass 7s. This soil is not suitable for cultivated crops. This component is a hydric soil. The assigned K erodibility factor is .28
Wilbraham silt loam (5)	This soil is poorly drained. The depth to a restrictive feature is 20 to 36 inches (densic material). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 2 feet. It is non-irrigated land capability subclass 4w. This soil is of farmland of statewide importance. This component is a hydric soil. The assigned K erodibility factor is .28
Yalesville fine sandy loam, 3-8% slopes (69B)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (lythic bedrock). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 2e. This soil is prime farmland. This component is a hydric soil. The assigned K erodibility factor is .24
Yalesville fine sandy loam, 8-15% slopes (69C)	This soil is well drained. The depth to a restrictive feature is 20 to 40 inches (lythic bedrock). The slowest permeability within a depth of 60 inches is low. Available water holding capacity to a depth of 60 inches is low. Annual flooding is none; annual ponding is none. The minimum depth to a water table is less than 3 feet. It is non-irrigated land capability subclass 3e. This soil is farmland of state importance. This component is a hydric soil. The assigned K erodibility factor is .24

4.6.1.2 Prime Farmland

The Farmland Protection Policy Act was passed to minimize the amount of land irreversibly converted from farmland due to Federal actions. Prime farmland, as defined by the U.S. Department of Agriculture (USDA) NRCS, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas (USDA, 2007). The USDA requires that projects impacting prime farmland be accompanied by USDA Form 1006: Farmland Conversion Impact Rating. This form requires answering 12 ranked site assessment surveys. Upon completion of the surveys, the higher the final number, the greater the impacts. Because this project is federal, the construction of the facility is exempt from USDA 1006.

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Three of the eight soil mapping units within the Bysiewicz Industrial Subdivision Alternative are classified as farmland of statewide importance: Bash silt loam, Wethersfield loam, 8-15 percent slopes, and Wilbraham silt loam. Wethersfield loam, 3-8 percent slopes, is classified as prime farmland.

Cucia Park Alternative

Two of the six soil mapping units within the Cucia Park Alternative are classified as prime farmland: Ludlow silt loam, 3-8 percent slopes, and Wethersfield loam, 3-8 percent slopes.

Millennium Industrial Park (Ken Dooley Drive) Alternative

Two of the eight soil mapping units within the Millennium Industrial Park (Ken Dooley Drive) Alternative are classified as farmland of statewide importance: Wilbraham silt loam, and Yalesville fine sandy loam, 8-15 percent slopes. Two of the soil mapping units, Wethersfield loam, 3-8 percent slopes, and Yalesville fine sandy loam, 3-8 percent slopes, are classified as prime farmland.

4.6.2 Environmental Consequences

To assess the magnitude of impacts to geology, topography, and soils in the area of the project sites, the following impact thresholds were used.

No Effect - Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection. Any impacts would be slight.

No Significant Effect - Impacts to geology, topography, or soils would be detectable. Impacts to undisturbed areas would be proportionally small to the area.

Significant Effect - Impacts on geology, topography, or soils would be readily apparent and result in a change to the character of the resource over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and may or may not be successful.

General Construction and Operational Impact

The primary impact to soils from construction and operation a new AFRC is from the potential for erosion, soil compaction, and contamination from unexpected leaking equipment.

Several construction procedures, including vegetation clearing and grading destabilize the soils surface and increase erosion potential. A soil's susceptibility to erosion is a function of characteristics such as soil texture and structure, topography, surface roughness, vegetative cover, and climate. Erosion may also be influenced by the length of time the soils are bare and by disruption of drainage and erosion constructs (FERC, 1997). The potential for soil erosion at each of the Alternative sites would be limited, lasting only the initial stages of construction until the impervious surfaces are complete, site drainage systems installed, and the remaining areas of the property landscaped and revegetated.

Soil compaction can occur with the movement of heavy construction vehicles within the project area. Compaction damages soil structure and ultimately affects revegetation rates. In preparing the site for construction, heavy machinery would be used to remove vegetative cover to prepare the site for construction (i.e., grading and leveling), construction of the access road and parking

facility. As a result, soils would be compacted, soil layer structure would be disturbed and modified, and soils would be exposed, increasing the overall potential for erosion. Soil productivity, (i.e., the capacity of the soil to produce vegetative biomass), would decline in disturbed areas and be completely eliminated for those areas within the footprint of building structures, access road, and parking facilities.

A slight potential exists for soil contamination as a result of spills or equipment failure leaking fuel or lubricants onto soils during construction. This effect is minor due to the low frequency and volume of these occasions. Spilling of fuels and lubricants during construction would be cleaned up immediately by removing and properly disposing of any soil contaminated.

Erosion Control, Revegetation, and Maintenance

The impact of construction on soils can be effectively reduced through the use of appropriate and applicable erosion control methods. Adverse effects to soils from the proposed construction activities would be minimized by proper construction management and planning, and the development and implementation of a sediment and erosion control plan. This plan would be reviewed and approved by the State of Connecticut as part of the pollution discharge permitting process as well as the Corps of Engineers Contracting Officers Representative prior to construction. It will make use of appropriate site-specific Best Management Practices (BMPs) for controlling runoff, erosion, and sedimentation during construction activities. Site-specific BMPs would be based on proper design, run-off calculation, slope factors, soil type, topography, construction activities involved, and proximity to water bodies. These BMPs integrate the use and upkeep of sedimentation and erosion control devices and implementing practices sufficient to retain sediment generated by land-disturbing activity within the boundaries of construction area. BMPs include, but are not limited to, erosion control matting, silt fencing, brush barriers, storm drain outlet protection, stone check dams, rock filter dams, construction exits, temporary and permanent seeding, and the application of mulch. The application of any or all of these erosion methods or other BMPs depends on specific ground conditions in the areas disturbed by construction. Gravel exits, or similar measures, could be used at construction exits to reduce transport of mud from construction vehicles traveling from the site to existing paved roads.

Because the area impacted from the actions proposed under this alternative would be relatively small, and appropriate BMPs would be implemented as part of this alternative, effects to soils resulting from implementation of the Proposed Action would not be considered significant.

4.6.2.1 No Action Alternative

No impacts would be expected. Implementation of the No Action Alternative would not alter the existing soils or geologic conditions at the sites being considered under the Proposed Action.

4.6.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Geologic and Topographic Conditions

Construction activities for the site development of Liberty Park as an industrial park have already had significant impact to the existing topography. Impacts to the existing geologic and topographic conditions have already occurred and the construction of a new AFRC would not affect geologic or topographic conditions.

Soils

The Bysiewicz Industrial Subdivision (Liberty Park) site has already undergone disturbance. Net cut and fill requirements for the construction of an AFRC are estimated to be about 249,350 cubic yards. Soils were moved and graded to accommodate the industrial subdivision, thus no significant effects to soils would occur as a result of implementation of the Proposed Action.

Prime Farmland

Approximately 10 acres of prime farmland and six acres of farmland of state importance are located within the Bysiewicz Industrial Subdivision (Liberty Park) Alternative (USDA, 2007). These farmlands are located in the central and southeastern portions of the study area on the steepest mapped portion of the property. These farmlands were impacted as part of the grading for the industrial subdivision, thus no significant effects to prime farmlands would occur as a result of the Proposed Action.

4.6.2.3 Cucia Park Alternative (Preferred Alternative)

Geologic and Topographic Conditions

Construction and operation of the proposed AFRC at the Cucia Park Alternative would not alter the geologic conditions for the project area. The primary effects from construction would include disturbance to the natural topography to about 39 acres from soil removal and grading activities. Development of the Cucia Park site would be consistent with the City of Middletown's zoning efforts to use this property for industrial use. No significant effects would be expected from this action.

Soils

Construction of a new AFRC at the Cucia Park Alternative site would require the removal of soil as part of site grading and preparation activities. Approximately 255,610 cubic yards of soil and subsoils would be required to be removed for site development. Construction and operation would follow all erosion control BMPs and no significant effects would be expected.

Prime Farmland

The terrain of the Cucia Park Alternative is gently rolling from the western boundary through the floodplain and prime farmland (approximately 2/3 of the site). Approximately 16 acres of Cucia Park are classified as prime farmland. East of the prime farmland the terrain becomes very steep until the eastern boundary, adjacent to I-91. The majority of the wetlands delineated within Cucia Park are located within the gently rolling areas, thus the proposed placement of the facility would be where the steep slopes presently exist. This site designation would protect both the wetlands and the prime farmland from experiencing significant effects. No significant effects to prime farmland would occur.

4.6.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Geologic and Topographic Conditions

Exposed rock formations would either be removed using heavy machinery or by blasting, bedrock would need to be displaced to make sufficient space for the foundation of the facility, slopes would need to be graded, and shallow soils would be disturbed.

Soils

Approximately 220,075 cubic yards of soil would be removed. However, soil and rocks removed would be replaced by clean fill, thus no significant effects on soil and geology would occur. Implementation of soil erosion BMPs would ensure no significant effect on soils.

Prime Farmland

Approximately 13.5 acres of the Millennium Industrial Park (Ken Dooley Drive) are comprised of prime farmland and approximately 3.5 acres farmland of state importance (USDA, 2007). These farmlands are located in the gently rolling terrain in the eastern and central portions of the properties and extend westward until the topography becomes steeper. Placement of the facility in the western portion would ensure that significant impacts to prime farmland and farmland of state importance were minimized.

The implementation of BMPs would ensure that prime farmland and farmland of state importance would not be significantly affected.

4.7 WATER RESOURCES

The following sections provide a summary of the general condition and character of water resources found at each of the alternative sites within Middletown, CT.

4.7.1 Affected Environment

4.7.1.1 Hydrogeology/Groundwater

A sedimentary-rock aquifer system, which includes interbedded sedimentary and volcanic rocks, underlies the project area. These systems can be very productive sources of water and can yield 1 to 10 million gallons of water per day. Typical groundwater flow in Connecticut is concentrated in the upper part of the saturated zone within 300 feet of the surface.

There are no specially designated aquifer protection areas within the three sites. A well would not be required at any of the alternative site locations. For more information on potable water supply, please see Section 4.12.1.1.

4.7.1.2 Surface Water

General Vicinity

The proposed project area is within the Mattabasset River Watershed, a subbasin of the Lower Connecticut River Watershed. About 13 percent of the Connecticut River watershed flows through Connecticut. In the area of Middletown, the watershed is characterized by a wide elongated valley floor, less than 500 feet above sea level, with adjacent uplands that rise sharply to an elevation of 500 to 1,000 feet (USGS, 1999). The Mattabasset River has a total drainage area of 109 square miles, including the 39 square miles in the Coginchaug River sub-watershed (MWRA, nd). Average annual precipitation in Middletown, CT is about 52 inches.

Typically, surface waters are classified according to the most beneficial existing and future uses of the waterbody and to provide protection for a variety of uses. On two of the three alternative sites for the Proposed Action, there are four perennial streams: At Cucia Park are Sawmill Brook and Falls Brook and flowing through the Millennium Industrial Park (Ken Dooley Drive) are Richards Brook and East Bradley Brook. Sawmill Brook is classified as Class A for the majority of the stream, except for the most downstream section of around 630 feet in length, as it makes confluence with the Mattabasset River, which has a water quality classification (WQC) of C/B. Richards Brook and East Bradley Brook are Class A. In Connecticut, Class A surface waters are designated for habitat for fish and other aquatic life and wildlife, potential drinking water supplies, recreation, navigation, and water supply for industry and Agriculture (CTDEP, 2002).

In the 2008 State of Connecticut Integrated Water Quality Report prepared by the CTDEP, Sawmill Brook was considered impaired by point or nonpoint pollution sources because of elevated levels Escherichia coli (E. coli) from unknown sources (CTDEP, 2008e). Under section 303(d) of the Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop Total Maximum Daily Load (TMDL) for these waters. A TMDL is a calculation of the maximum

amount of a pollutant that a waterbody can receive and still safely meet water quality standards (EPA, 2009d).

In May 2005, CTDEP established a TMDL for indicator bacteria in the Mattabeset River Regional Basin. The Mattabeset River Regional Basin is comprised of the following segments: Mattabeset River, Coginchaug River, Sawmill Brook, Webster Brook, Willow Brook (Cromwell), Belcher Brook, Miner Brook, Coles Brook, Willow Brook (New Britain), Spruce Brook, Little Brook, and John Hall Brook. The TMDL was approved the USEPA on July 2005 (USEPA, 2005). This TMDL establishes the average percent reduction of current loadings that must be achieved to meet water quality standards. In addition, the TMDL establishes loading allocated to point source discharges (wasteload allocation), loading allocated to nonpoint source sources (load allocation), and margin of safety to account for uncertainties (CTDEP, 2005).

The Mattabeset River Watershed has been the focus of a broad range of water quality improvement activities by a variety of groups and individuals, and has had much attention paid to the watershed. In September 2000, the Management Plan for the Mattabeset River Watershed was established by the Mattabeset River Stakeholder Group. The development of the plan was lead by the Middlesex County Soil and Water Conservation District with the support of about 100 stakeholders from the watershed. This plan was approved by stakeholders, including officials from nine towns. The management plan establishes nine goals to educate the general public about the Mattabeset River watershed; to promote sustainable land use practices; to restore and maintain wildlife habitat; to protect wetland and watercourse areas, to identify, correct, and prevent pollution; to restore and maintain instream and riparian habitat; evaluate and balance instream flow needs; and maintain funding for management plan's objectives (Mattabeset, 2000).

Site Specific

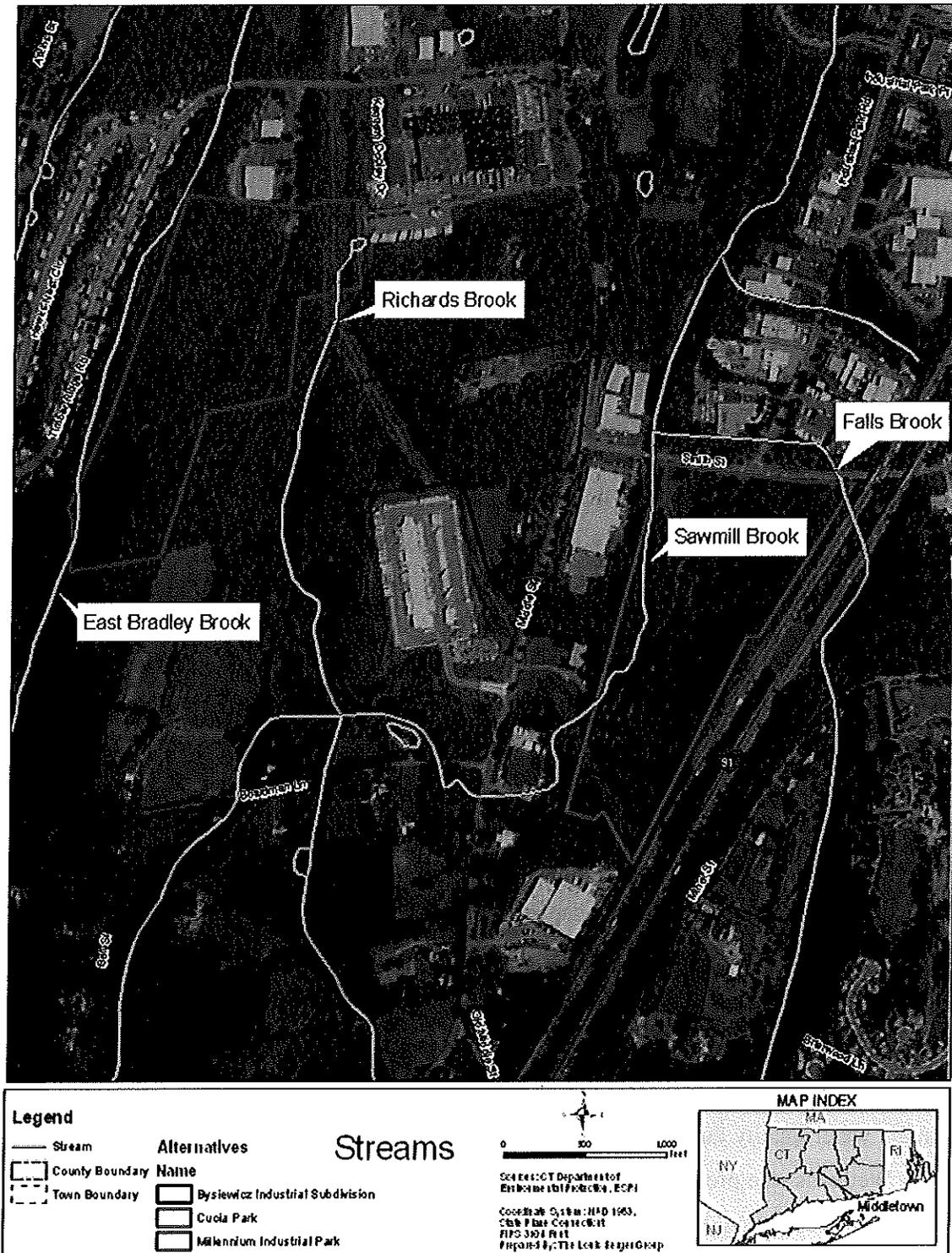
Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Based on site visits and GIS data, no perennial streams or surface waters are located on the Bysiewicz Industrial Subdivision (Liberty Park).

Cucia Park Alternative (Preferred Alternative)

Two perennial streams, Sawmill Brook and Falls Brook, and three ponds are located on the Cucia Park Alternative. Sawmill Brook flows in and out of the site along the western boundary. Sawmill Brook is included in the *2006 Impaired Waters List (Connecticut Waterbodies Not Meeting Water Quality Standards)* due to exceedences of the E. coli bacteria criteria in the *State Water Quality Standards (WQS)* (CTDEP, 2006), and required by the EPA to establish as TMDL for the waterbody. In July 2005, USEPA approved the Mattabesset River Regional Basin E. Coli TMDL which included the impaired segment of Sawmill Brook. Falls Brook briefly flows through the northeastern corner of the Cucia Park Alternative. The segment flowing through the Cucia Park Alternative was classified by CTDEP as a Class A water. Figure 4-8 displays the streams occurring in the vicinity of the three alternative sites.

Figure 4-8: Streams Located in the Vicinity of the Alternative Sites



All three ponds appear to be man-made and are isolated because they have no surface connection with relatively permanent waters. The ponds are surrounded by berms formed from the soil removed to create them. The largest pond, located in the northwestern portion of the park, is 1.19 acres, and is situated within the picnic area of the park. It is bordered by maintained lawn to the east and north, and a hardwood forest to the west and south. The second pond, approximately 0.01 acre, is located in the northern portion of the alternative site. The third pond is approximately 0.36 acres and is located in the northern portion of the project area, within the hard wood forest (USACE, 2009d).

Millennium Industrial Park (Ken Dooley Drive) Alternative

The Millennium Industrial Park (Ken Dooley Drive) Alternative has two perennial streams: Richards Brook and East Bradley Brook. Richards Brook begins from an unnamed pond located in the Millennium Industrial Park (Ken Dooley Drive) and flows south off of the property. A segment of East Bradley Brook flows through the southwest portion of the property. Both segments flow through wooded areas of the property.

4.7.1.3 Wetlands

General Vicinity

Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR, Part 328.3). USACE regulates development in jurisdictional wetlands pursuant to Section 404 of the CWA (33 CFR, Parts 320-330). Wetland ecosystems are valuable natural resources systems in New England because they offer a number of important functions such as flood storage and conveyance, groundwater recharge and discharge, and erosion control. Wetlands help to maintain water quality through the removal and retention of nutrients and reduction of sediment loads. Wetlands also provide important habitat for fish, wildlife, and plant communities, as well as scenic and recreational opportunities (FERC, 1997).

The City of Middletown has evaluated the wetlands within its boundaries to determine priorities for future land use planning, resource protection, and development and enhancement of greenways. Of the three IT sites being evaluated for the construction of a new AFRC, two wetland complexes, Sawmill Brook Wetland System and Richards Brook Wetlands System occur within the vicinity of two of the alternative sites.

At Cucia Park, the Sawmill Brook Wetland System is considered by the City of Middletown as one of its outstanding wetlands. It was ranked 19th of the top 25 wetlands in Middletown. It is a wooded lowland brook with deep pools and very high aesthetic quality. It is part of Sawmill Brook, which flows into the Mattabassett River and connects to Cucia Park by way of Sawmill Brook (City of Middletown, nd-a).

Within the Millennium Industrial Park (Ken Dooley Drive) Alternative, the Richards Brook wetland system is a corridor consisting of two major wetland systems. The southernmost wetland system is very highly rated by the City of Middletown. The stream that flows through the area, south to Sawmill Brook, is Richards Brook. It has valuable wildlife habitat with a rare species of swamp cottonwood observed or noted. The Richards Brook wetland system is not located directly on the Millennium Industrial Park property, but begins on the adjacent Boardman Lane parcel. This wetland complex was ranked 11th in the listing of the City's top 25 wetlands (City of Middletown, nd-a). The other wetland system is part of Bradley Brook and East Bradley Brook which flow north and are tributaries of the Mattabassett River. Middletown classifies this as one of its outstanding wetlands. Again, the Bradley Brook and East Bradley Brook wetland system does not occur on the property, but begins downstream from the parcel. This area is a diverse environment, with wet meadows, swamp, marsh and pond habitats. There is a high diversity of flora and an extensive area for wildlife travel. This wetland was ranked 14th of the top 25 (City of Middletown, nd-a).

Site Specific

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

The wetlands on the Bysiewicz Industrial Subdivision (Liberty Park) Alternative were identified and included in the site development plans by the owner and developer of the industrial subdivision. In April 2006, as part of its Application for Inland Wetlands and Watercourses

Activity for the City of Middletown, the owners of Bysiewicz Industrial Subdivision site identified 2.34 acres of wetlands on the property. The application was filed for the construction of joint driveways for two industrial lots, the associated utilities, and placement of temporary erosion controls which would impact 0.09 acres (City of Middletown, 2006). The application was approved and permit given in June 2006.

Cucia Park Alternative

Site specific wetland delineations were completed on the Cucia Park Alternative in October 2008 to identify the presence or absence of federal jurisdictional wetlands. The investigation found 3.29 total acres of wetlands, including 1.56 acres of palustrine open water ponds; 0.17 acre of palustrine scrub-shrub wetlands; 0.65 acre of palustrine forested wetlands; 0.68 acre of perennial stream; and 0.23 acre of intermittent streams. Figure 4-9 displays the wetlands present on site. The survey identified 9 of 15 wetland sites are considered to be likely under Clean Water Act Section 404 jurisdiction of U.S. Army Corps of Engineers (USACE). A preliminary Jurisdictional Determination (JD) has been submitted to USACE Regulatory Division. The JD process identifies waters of the United States, including wetlands, which are regulated by USACE. The JD process separates USACE-regulated wetland areas from non-wetland areas that are not regulated by USACE. A JD is an essential step in applying for a permit from USACE. For Cucia Park, these sites are PSS2, PFO1, PFO3, PFO4, PFO6, PFO7, R3, R4-1, and R4-2 (see Appendix F).

Millennium Industrial Park (Ken Dooley Drive) Alternative

Approximately 5.3 acres of wetlands were identified on the Millennium Industrial Park (Ken Dooley Drive) property by certified soil scientists of Pinecrest Environmental Services, contractors to the owner and developer of the industrial park. A narrow wetland band extends northward from the southern boundary on this site, and within the wetland band there are several intermittent watercourse channels and depressions. These intermittent watercourse channels and depressions were observed along the wetland corridor. During storm events, the wetland overflows at its northern tip, crosses a dirt path, and enters an incised channel on the eastern side slope. The channel discharges to a wetland area off of the southeastern corner of the property. A small wetland pocket was located approximately 275 feet north of the wetland band and it

appeared to pond shallow surface water. The Pinecrest report mentions the presence and corresponding description of the intermittent watercourse channels through wetland areas.

4.7.1.4 Floodplains

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

The Bysiewicz Industrial Subdivision (Liberty Park) is located outside the 100-year floodplain.

Cucia Park Alternative

About 8.96 acres of floodplain exist on the northwestern corner of the site (Nelson, 2009a).

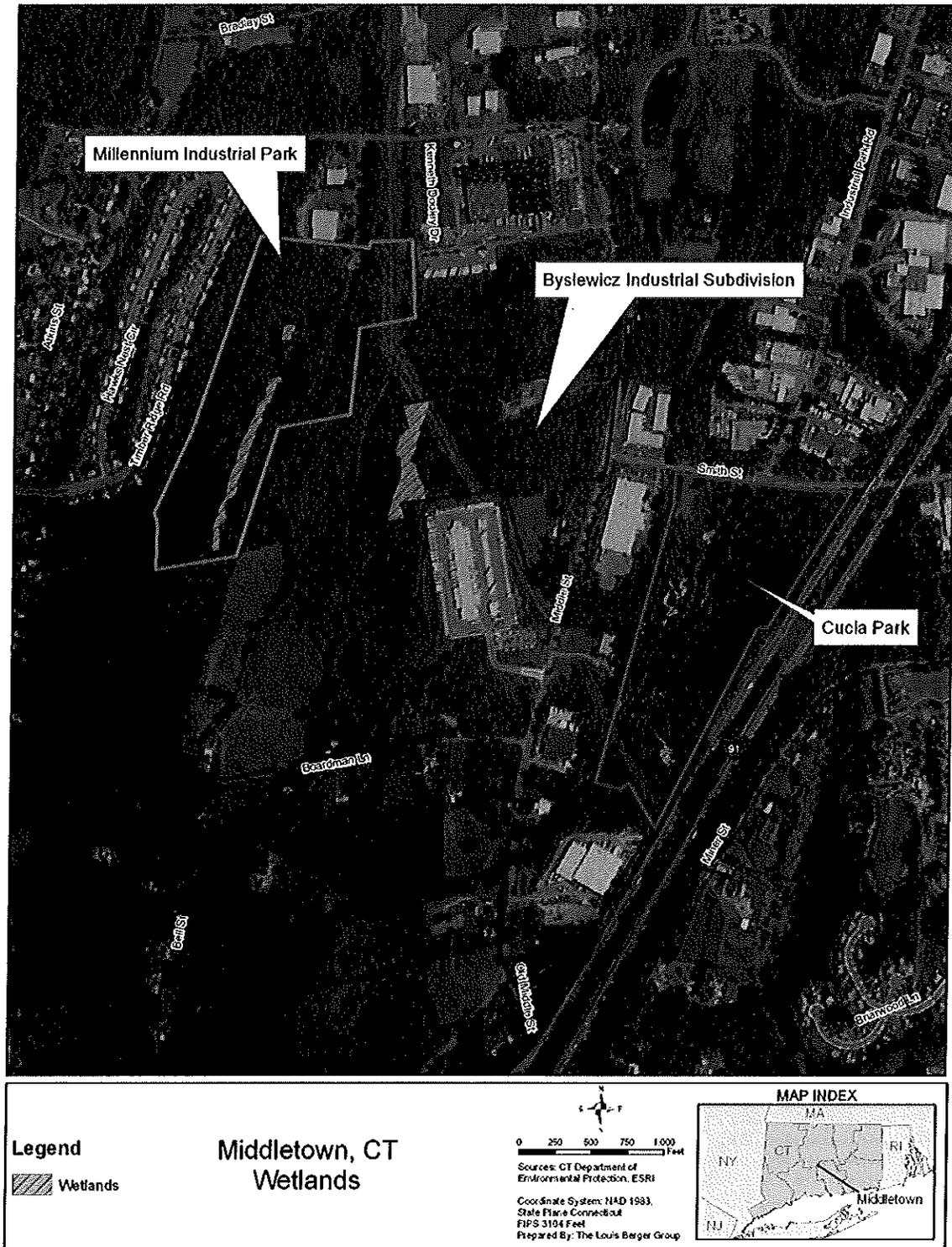
Millennium Industrial Park (Ken Dooley Drive) Alternative

The Millennium Industrial Park (Ken Dooley Drive) parcel is outside of the 100 year floodplain.

4.7.1.5 Coastal Zone

None of the three alternative sites are located in the coastal zone areas designated by the Connecticut Coastal Management Program.

Figure 4-9: Wetlands Present at each Alternative Site Location



4.7.2 Environmental Consequences

Assessments of impacts to water resources at the three alternatives were conducted and the following thresholds are used to describe the level of magnitude of these effects:

No Effect – Current water quality and hydrologic conditions would not be altered or conditions do not exist for impacts to occur.

No Significant Effect – Impacts (chemical, physical; or biological effects) would be either not detectable, or detectable, but at or below water quality standards or criteria. Alterations in water quality and hydrologic conditions relative to historical baseline may occur, however, only on a localized and short-term basis.

Significant Effect – Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be locally, slightly and singularly, exceeded on either a short-term or prolonged basis.

4.7.2.1 No Action Alternative

Under the No Action Alternative there would be no effect on surface water, wetlands, hydrogeology/groundwater, or floodplains.

General Vicinity Impacts

General construction and operational impacts of the AFRC would not incur direct impacts to hydrology/groundwater, surface waters, or floodplains. Indirect impacts could occur from construction related to clearing and grading activities exposing soil to erosion forces, reduction of vegetation along streambanks, and uncontrolled spills of fuel and lubricants associated with vehicle maintenance and operation.

The potential impact of erosion from construction can be reduced through the use of appropriate and application erosion control methods. For this reason, the use and adherence of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and City of Middletown's regulations would ensure that erosion would be minimized. The 2002 Connecticut Guidelines

for Soil Erosion and Sediment Control fulfills the requirements of Connecticut's Soil Erosion and Sediment Control Act. Because more than 0.5 acres would be disturbed as a result of the implementation of the Proposed Action, a soil erosion and sediment control plan would be required. Soil erosion and sediment control plans include a narrative describing the project and a map illustrating what is contained in the plan. The map can include site drawings and the erosion and sediment control drawings. Once prepared, the plan must be submitted to local planning and zoning commissions for review and certification for adequacy. Additional regulatory agencies such as the Middletown Inland Wetlands and Watercourses Agency and the CTDEP may also request the submission of the plan for review. The guidelines provide the guidance needed to develop effective measures to minimize soil and erosion from construction and operation. Examples of measures included in the guidelines are vegetative soil covers such as the use of sod and temporary seedings; non-living soil protection techniques like erosion control blankets, stone slope protection, landscape mulch; and stabilization structures such as riprap, temporary lined chute, and gabions.

During the construction and operation of the facility, the recommendations from the Management Plan for the Mattabesset River Watershed would be implemented when possible. One recommendation was the use of low impact development (LID) techniques to reduce runoff, reduce pollution from runoff, and increase infiltration. LID techniques could include use of porous pavement, vegetated swales, and grassed filter strips.

Site Specific Impacts

4.7.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Hydrogeology/Groundwater - No significant effects to groundwater resources would be expected. Potential impacts to hydrology/groundwater resources would be avoided or minimized by the use of standard and identified site-specific construction techniques. Construction and operation of facilities on the site would adhere to existing applicable groundwater protection protocols as required under the Safe Drinking Water Act.

Leaks from vehicles and vehicle maintenance operations could pose a potential threat to groundwater resources. Vehicle operations and maintenance performed at the OMS only involves small amounts of fuels, oils, and lubricants, thus substantially reducing the potential for

larger spills or leaks. The potential for spills and leaks to impact groundwater would be minimized by the paving of the MEP area thus preventing infiltration of pollutants into the soils and groundwater, on-site clean-up procedures and equipment, the installation of an Oil Water Separator (OWS) associated with the OMS, and adherence to U.S. Army safety procedures for vehicle maintenance and the operation of equipment. Specific methods for preventing the infiltration of pollutants into the soils and groundwater are contained in Section 4.13 Hazardous and Toxic Substances.

All of these measures would help ensure that any potential effects to groundwater would have no significant effects.

Surface Water – There are no surface waters within the site, and therefore no direct effects to surface waters. The closest waterbody to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative is Richards Brook, located less than a 0.25 mile to the west.

An increase in impervious surfaces (e.g., paved parking areas and building rooftops) is expected from implementation of the Proposed Action. The Bysiewicz Industrial Subdivision (Liberty Park) Alternative preliminary site designs show 519,140 square feet of impervious surface (12 acres).

The OMS conducts routine vehicle maintenance operations (e.g. oil changes etc.) so the potential for fuel and lubricant spills at the proposed facilities suggests that there may be minor effects associated with the operation of the new AFRC. The proposed OMS design would include floor drains that convey flow through OWSs prior to entering the sanitary sewer. Each connection to the sanitary sewer would require review and permitting by the City of Middletown. Final facility designs will dictate the appropriate stormwater management approach.

As a result of these control measures, effects on surface waters would not be significant.

Wetlands – No significant effect would be expected. The Proposed Action is not expected to impact the existing wetlands.

Floodplains – There are no floodplains within the alternative site location. No effect would be expected.

Coastal Zone – No effect would be expected.

4.7.2.3 Cucia Park Alternative (Preferred Alternative)

Hydrogeology/Groundwater - No significant effects to groundwater resources would be expected. Construction and operation of facilities on the site would adhere to existing applicable groundwater protection protocols as required under the Safe Drinking Water Act.

Although construction of near-surface soil compaction can occur during clearing and grading, localized decreases in ground recharge rates and changes to overland water flow are not expected to be significant. These impacts would be short-term and minor and not expected to significantly effect groundwater resources.

Leaks from vehicles and vehicle maintenance operations could pose a threat to groundwater resources. However, the potential for spills and leaks to impact groundwater would be minimized by the paving of the MEP area thus preventing infiltration of pollutants into the soils and groundwater, on-site clean-up procedures and equipment, the installation of an OWS(s) associated with the OMS, and adherence to Army safety procedures for vehicle maintenance and the operation of equipment. In addition, vehicle operations and maintenance performed at the OMS only involves small amounts of fuels, oils, and lubricants, thus substantially reducing the potential for larger spills or leaks.

All of these measures would help ensure that any potential effects to groundwater would have no significant effects.

Surface Water – No significant effects on surface waters would be expected. None of the activities of the facilities would contribute additional bacteria loads to Sawmill Brook and the activities would be consistent with the allocations established by the Mattabesset River Regional Basin TMDL.

Impacts to surface waters from construction of the facilities may include erosion and increased amounts of sediment to surface waters. The site layout has been designed to minimize impact and allow adequate space for erosion control measures to protect existing resources. During site preparation, earthworks, and construction activities, BMPs for erosion and sedimentation controls would ensure that stormwater runoff would not impact surface waters. These controls

may include but are not limited to; silt fence, temporary seeding, wood fiber blanket, creating temporary sedimentation basins at points of concentrated flow, permanent seeding and vegetation. Regular inspection and monitoring of soil and erosion controls during construction would ensure proper function of the controls and prevent further impacts to surface waters. General permits associated with stormwater from construction activities would be obtained from and administered by CTDEP.

An increase in impervious surfaces (e.g., paved parking areas and building rooftops) is expected from implementation of the Proposed Action. The Cucia Park Alternative is planned to have 478,159 square feet of impervious surface (11 acres). This increase would be accommodated by the stormwater system in place such that current and post-development stormwater runoff at the site would be largely unchanged. Stormwater runoff will be conveyed either by surface flow or catch basins and pipe to either underground detention areas or surface detention basins. The detention areas will provide rate control and water quality management. The final location of any storm water facility is to be determined by the design build contractor. When possible, LID techniques to reduce runoff, reduce pollution from runoff, and increase infiltration will be implemented.

The OMS conducts routine vehicle maintenance operations (e.g. oil changes etc.) so the potential for fuel and lubricant spills at the proposed facilities suggests that there may be minor effects associated with the operation of the new AFRC. The proposed OMS design would include floor drains that convey flow through OWSs prior to entering the sanitary sewer. Each connection to the sanitary sewer would require review and permitting by the City of Middletown. Final facility designs will dictate the appropriate stormwater management approach.

Wetlands – The proposed construction on the Cucia Park Alternative would incur 11,636 SF (0.267 acres) of unavoidable wetland losses. To avoid and minimize impacts to these resources, the design of the facility was required to incur the least amount of impact to the wetland areas and designed to meet LEED Silver Standards (see Section 4.12 Utilities for additional information). The acreages needed to meet the Army's needs required identification of buildable areas on the site based on Federal AT/FP setback requirements from the property lines. The remainder of the design sited the roads, parking areas, and buildings to avoid wetlands to the greatest degree possible. The siting review to minimize impacts to wetlands includes multiple

options for floor plans, roadways, parking lot layouts, earthwork, and grading. Design options to minimize wetland disturbances include providing for underground storm water detention structures, and providing pervious pavement areas to reduce the amount of surface area disturbed and the extent of surface storm water retention areas required.

The expected impact on wetlands for the Cucia Park Alternative would require a U.S. Army Corps of Engineers Regulatory Division permit application under the District Engineer's Connecticut State Programmatic General Permit 2 under Section 404 of the Clean Water Act, which includes application to the CTDEP for a State Water Section 401 Water Quality Certification.

Because the Saw Mill Brook Wetland System was considered to be an outstanding wetland, the wetlands lost to the construction of the facility will be mitigated. The mitigation could include replication or enhancement of wetlands for the Eastern box turtle.

The Department of Planning, Conservation and Development for the City of Middletown has identified six locations that could be supported by the City of Middletown for potential wetlands mitigation. These properties include: Tuttle Place, Smith Park, Galluzzo Pond, Mile Lane 1, High School, Spencer School.

Incorporation of the City of Middletown's Inland Wetlands and Watercourses Agency's general provisions found in Section 9.9 of the Inland Wetlands and Watercourses Regulations would be included in the designs to the extent practical. These general provisions include but are not limited to:

- Before any activity begins, the wetland boundaries will be flagged with continuous construction ribbon and shall be kept in good repair for the duration of the project. The flagging will be visible above the basic ground level vegetation. In addition, no disturbance or activity either permanent or temporary is allowed within 100 feet of the wetland boundaries other than those to be impacted.
- Construction management practices will be used, consistent with the requirements of the terms and conditions of the U.S. Army Corps of Engineers, State of Connecticut Section 401 Water Quality Certification, and Army construction standards, to control storm water discharges and to prevent erosion and sedimentation and to otherwise prevent pollution of wetlands and watercourses.

Floodplains – No effect would be expected. No construction would occur within the floodplain.

Coastal Zone - No effect would be expected.

4.7.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Hydrogeology/Groundwater - No significant impacts to groundwater resources would be expected. Construction and operation of facilities on the site would adhere to existing applicable groundwater protection protocols as required under the Safe Drinking Water Act. Leaks from vehicles and vehicle maintenance operations could pose a threat to groundwater resources. However, the potential for spills and leaks to impact groundwater would be minimized by the paving of the MEP area thus preventing infiltration of pollutants into the soils and groundwater, on-site clean-up procedures and equipment, the likely installation of an OWS(s) associated with the OMS, and adherence to Army safety procedures for vehicle maintenance and the operation of equipment. In addition, vehicle operations and maintenance performed at the OMS only involves small amounts of fuels, oils, and lubricants, thus substantially reducing the potential for larger spills or leaks.

All of these measures would help ensure that any potential effects to groundwater would have no significant effects.

Surface Water – No significant effects on surface waters would be expected. East Bradley Brook and Richards Brook flow through the corners of the property and would not be directly affected by construction and operation of an AFRC. Any potential impacts stemming from increased erosion would be minimized using the BMPs stated under the Cucia Park Alternative discussion. An increase in impervious surfaces (e.g., paved parking areas and building rooftops) is expected from implementation of the Proposed Action. The Millennium Industrial Park (Ken Dooley Drive) Alternative preliminary site designs show 502,325 square feet of impervious surface (12 acres).

Wetlands – The majority of the 5.28 acres of wetlands at this site would be avoided and protected from future development. The loss of 8,145 SF (0.187 acres) of forested wetlands would be impacted and would require mitigation. The site layout has been designed to minimize the impact to existing and allow adequate space for erosion control measures to protect the

wetlands to remain. Wetlands located on the eastern portion of the parcel would be lost. Based on the type of wetland, there are mitigation ratios to reduce the impacts.

The expected impact on wetlands for the Millennium Industrial Park (Ken Dooley Drive) Alternative would require a Corps of Engineers Regulatory Division permit application under the District Engineer's Connecticut State Programmatic General Permit 2 under Section 404 of the Clean Water Act, which includes application to the CTDEP for a State Water Section 401 Water Quality Certification.

Mitigation requirements could be accommodated on-site. As a result of mitigation, no significant effect would be expected.

Floodplains – No effect would be expected. Any construction would take place outside of the 100 year floodplain.

Coastal Zone - No effect would be expected.

4.8 BIOLOGICAL RESOURCES

4.8.1 Affected Environment

4.8.1.1 Vegetation

Approximately 13,800 acres of Middletown's 27,200 acres are forested lands, which includes deciduous, coniferous, and mixed forests (CTDEP, 1995).

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

The Bysiewicz Industrial Subdivision (Liberty Park) consists of approximately 33 acres of vacant land. The entire property is being developed by the current owner has been cleared of vegetation with minor vegetation strips bordering the perimeter of the site. There are isolated areas of grass and shrubs scattered around the perimeter of the site. Briars (*Smilax* spp.) and poison ivy (*Toxicodendron radicans*) occur in the wetland areas located on the western edge of the Bysiewicz Industrial Subdivision (Liberty Park) site (Franz and Stallings, 2008).

Cucia Park Alternative (Preferred Alternative)

The alternative site at Cucia Park is a 42 acre municipal park owned by the City of Middletown. The site is comprised primarily of mixed hardwood forest (approximately 36 acres) with few shrubs and saplings, and a sparse herbaceous layer. Upland forested areas are dominated by vegetation including red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), green ash (*Fraxinus pennsylvanica*), American hornbeam (*Carpinus caroliniana*) trees, shrubs, and saplings, and poison ivy, and multiflora rose (*Rosa multiflora*) in the herbaceous layer. Forested wetland areas are dominated by red maple, American elm (*Ulmus Americana*), and green ash trees; and silky dogwood (*Cornus amoenum*) shrubs. Scrub-shrub wetland areas are dominated by speckled alder (*Alnus rugosa*), winterberry (*Ilex verticillata*), sensitive fern (*Onoclea sensibilis*), and halberdleaf tearthumb (*Polygonum arifolium*) (USACE, 2009d).

The northwestern portion of the parcel contains an approximate 2.5-acre developed area composed of a 1.19-acre man-made pond, maintained lawn, and a small parking area. Additionally, there is an approximate 1.5-acre maintained utility line right of way in the southern portion of the site that is composed of primarily scrub shrub and herbaceous plants.

Millennium Industrial Park (Ken Dooley Drive) Alternative

This alternative site includes the 39 acre Millennium Industrial Park on Ken Dooley Drive. The site consists of forested, scrub/shrub, and emergent wetlands and upland areas of mixed hardwood/coniferous forests, hardwood forests, scrub/shrub areas, old fields, pasturelands, and barnyard areas. Vegetation management has historically occurred in these areas (e.g., tree and brush removal) and is evident from the recent logging activities observed at the site (USACE, 2008e).

Forested areas make up the majority of the 39 acre Millennium Industrial Park (Ken Dooley Drive) Alternative site (CTDEP, 1995) and contain species including American beech, white oak (*Quercus alba*), northern red oak (*Q. rubra*), tulip poplar (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), green ash, American elm, eastern hemlock (*Tsuga canadensis*), red maple, swamp white oak (*Q. bicolor*), and pin oak (*Q. palustris*) in the canopy. Understory trees include hop hornbeam (*Ostrya virginiana*), red maple, and black birch (*Betula lenta*). Common shrubs are arrow-wood (*Viburnum dentatum*), spicebush (*Lindera benzoin*), and common

winterberry (*Ilex verticillata*). The hop sedge (*Carex lupulina*) and the greater bladder sedge (*C. intumescens*) are present, along with various forbs and ferns (USACE, 2008d).

4.8.1.2 Wildlife

Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Wildlife species occurring at the site would be minimal as wildlife habitat on-site is minimal. The entire property has been disturbed by construction and/or stripped to exposed soils and bedrock. What little habitat that does occur on this site is limited to the wetlands areas located on the western edge of the property.

Cucia Park Alternative (Preferred Alternative)

Wildlife species occurring on the site would be those commonly found in forested tracks in suburban areas of Connecticut. Wildlife species expected to occur include grey squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), eastern chipmunk (*Tamias striatus*), white-tailed deer (*Odocoileus virginianus*), eastern bluebird (*Sialia sialis*), and woodpeckers (CTDEP, 2008c).

During the October 2008 wetlands investigation of this alternative site, small birds, including Northern cardinals (*Cardinalis cardinalis*) and woodpeckers, and squirrels were observed in the forested areas. Canada geese were observed in the two ponds. Several frogs and small fish were observed in the portion of Sawmill Brook that is located within Cucia Park and fresh water mussel shells were found on the stream banks (USACE, 2009d).

Millennium Industrial Park (Ken Dooley Drive) Alternative

Wildlife species occurring on the site would be commonly found in forested tracks in suburban areas of Connecticut. In addition to those species occurring at nearby Cucia Park, other species occurring on the site could include red fox (*Vulpes vulpes*), woodchuck (*Marmota monax*), and opossum (*Didelphis virginianus*) (CTDEP, 2008c).

Two listed state designated endangered, threatened, or special status species and its habitat occur in the vicinity of the Millennium Industrial Park (Ken Dooley Drive) Alternative site. A field search for the squarrose sedge (*Carex squarrosa*) and Eastern box turtle (*Terrapene c. carolina*),

both Species of Special Concern, was conducted in September 2008 on a 23 acre portion of the Ken Dooley property where the access roadway was originally projected for the adjacent 88-acre Boardman Lane property.. Detailed information regarding these two species and its habitat, as well as the findings of the field search, are found in Section 4.8.1.3 Threatened, Endangered, and Sensitive Species.

4.8.1.3 Threatened, Endangered, and Sensitive Species

To comply with requirements of Section 7 of the Endangered Species Act (ESA), the U.S. Fish and Wildlife Service (USFWS) was consulted regarding the presence of federally listed or proposed endangered or threatened species and/or their critical habitat in the three alternatives site project area. In addition, the State of Connecticut Wildlife Diversity Program and State Geological and Natural History Survey program were consulted for review of the rare and endangered species databases maintained by the State of Connecticut.

In New England, the FWS maintains a website to determine if any federally-listed species occur in the vicinity of the project location. The three-step process provided on the website was followed, including reviewing species information within the State of Connecticut. Based on these consultations, no federally listed or proposed endangered or threatened species were identified that may occur in the vicinity of the three alternatives site project area, with the exception of the bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*), both of which have been removed from the federal endangered species list. The bald eagle was removed from the endangered species list in 2007 and the peregrine falcon in 1999 (50 CFR Part 17). A letter from the USFWS documenting this process is provided in Appendix A.

Two state-listed species of concern occur or may potentially occur in the project area: The Squarrose sedge (*Carex squarrosa*) and the Eastern box turtle (*Terrapene carolina carolina*).

Squarrose sedge

Habitats include forested and emergent wetlands, wet meadows, wet, deciduous woods, bottomlands, and stream-banks. In addition, the surveyor's experience with this species suggests that it is generally found in forested wetlands and emergent wetlands both with only seasonally high water tables or shallow standing water. These can occur as isolated depression or on more

open floodplains. For forested wetland sites, a moderately open emergent and/or shrub understory is usually present; for emergent wetlands, associated vegetation is typically not dense. This species is commonly associated with other sedges (*Carex* spp.).

The squarrose sedge was identified on the Boardman Lane property, which is no longer being considered as a site for the AFRC.

Eastern box turtle

The eastern box turtle is common throughout the United States. In Connecticut, the eastern box turtle is near the northeastern range limit of this species (CT DEP, 2009). The eastern box turtle requires old field and deciduous forest habitats, which can include power lines and logged woodlands. They are often found near small streams and ponds. The adults are completely terrestrial but the young may be semi-aquatic and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year (Victoria, 2009).

The eastern box turtle occurs on all three proposed sites that are zoned industrial by the City of Middletown. The Bysiewicz Industrial Subdivision (Liberty Park) Alternative contains habitat for the eastern box turtle in and near the wetlands on the western (back) property line. Eastern box turtle near the existing wetlands of the Bysiewicz Industrial Subdivision (Liberty Park) have been identified by wildlife biologists from U.S. Army Corps of Engineers and 99th RSC. The western boundary line of this site borders the same wetland complex also occurring on the Boardman Lane Property. The Connecticut Natural Heritage Database stated habitat for the eastern box turtle exists on the Cucia Park Alternative and the Millennium Industrial Park (Ken Dooley Drive) Alternative. The CTDEP Natural Heritage Database has recorded an eastern box turtle specimen at Cucia Park. Field surveys completed on the Millennium Industrial Park (Ken Dooley Drive) Alternative and its adjacent Boardman Lane property have confirmed individuals of eastern box turtles and its habitat are present.

4.8.2 Environmental Consequences

The following thresholds were used to determine the magnitude of effects on wildlife and wildlife habitat and vegetation, with separate criteria being used to evaluate impacts to threatened and endangered species:

No Effect – No impacts to native species, their habitats, or the natural processes sustaining them would occur, or such conditions do not exist for impacts to occur.

No Significant Effect – Impacts would be detectable, but would not be expected to be outside the natural range of variability and would not have any long-term effects on native species, their habitats, or the natural processes sustaining them. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.

Significant Effect – Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to threatened and endangered species were classified using the following terminology, as defined under the USFWS and the National Marine Fisheries Service (USFWS & NMFS, 1998):

No effect – The proposed action would not affect a listed species or designated critical habitat OR listed species or designated critical habitat are not present.

May affect / not likely to adversely affect – Effects on special status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or completely beneficial.

May affect / likely to adversely affect – When an adverse effect to a listed species may occur as a direct or indirect result of proposed actions and the effect is either not discountable or completely beneficial.

Likely to jeopardize proposed species/adversely modify proposed critical habitat – The appropriate conclusion when the Army identifies situations in which actions could jeopardize the continued existence of a proposed species or adversely modify critical habitat to a species within and/or outside the project site boundaries.

4.8.2.1 No Action Alternative

Under the No Action Alternative, the proposed new AFRC would not be constructed on the alternative sites; therefore, no impacts to biological resources would occur.

4.8.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Vegetation – Implementation of the Proposed Action at the Bysiewicz Industrial Subdivision Alternative site would have no significant effects on vegetation. The impact to vegetation from construction and operation at the Bysiewicz Industrial Subdivision (Liberty Park) Alternative site would be the removal of minimal amounts of vegetation as the majority of the property has been disturbed by construction activities. The wetland areas on the western edge of the property also contain minimal vegetation, such as briars and poison ivy. These wetland areas would not be affected from the construction of the proposed AFRC. Site development would not remove any forested areas. New native landscaped vegetation would be planted once construction is complete. Native shrub and tree species would be planted where possible. No significant effects to vegetation would be expected.

Wildlife – Almost no wildlife habitat occurs on the majority of the property as the site is disturbed by construction activities and is characterized by exposed soils and bedrock. The impact to wildlife and wildlife habitat from construction and operation at the Bysiewicz Industrial Subdivision (Liberty Park) Alternative site would be the permanent alteration of the

minimal wildlife habitat occurring onsite. The majority of the property has been disturbed by construction activities. Wildlife habitat occurring on-site is limited to the wetland areas on the western edge of the property. These wetland areas would not be affected from the construction of the proposed AFRC. No significant effects on wildlife would be expected.

4.8.2.3 Cucia Park Alternative (Preferred Alternative)

Vegetation – The primary impact to vegetation from construction and operation at Cucia Park would be the permanent alteration of about 28 acres of forestland to accommodate the facility. This represents about 78 percent of the total 36 acres of forested land located within Cucia Park and approximately 0.2 percent of the total 13,800 acres of forested land located in the City of Middletown (CTDEP, 1995). The actual total acreage of forested land and vegetation disturbed would depend upon the final design and layout of the new facilities. Forested land located within the Cucia Park Alternative site totals approximately 36 acres, which represent less than 0.3 percent of the total forested land existing in the City of Middletown. As a result, no significant effects to vegetation would be expected.

Site development would remove existing forestland. New native landscaped vegetation would be planted. Native shrub and tree species would be planted where possible. The Army will identify individual tree species currently existing on site to protect during construction where possible.

Forestry BMPs and practices to control soil erosion and sedimentation during clearing and construction activities would be implemented to minimize potential impacts to adjacent forested habitats and water quality. The areas to be disturbed would be limited to the planned footprint areas plus a minimal amount of adjacent construction staging area. The Cucia Park area is designated as IT, zoned for commercial development. Loss of vegetation at this site is expected from construction activities and not considered significant.

Wildlife – The primary impact to wildlife and wildlife habitat from construction and operation at Cucia Park would be the permanent alternation of approximately 28 acres of forested habitat would be removed to accommodate the facilities of the new AFRC. The actual total acreage of forested habitat disturbed would depend upon the final design and layout of the facilities.

Most wildlife would disperse and avoid construction and operation activities. Construction activities would likely result in the mortality of some less mobile fauna such as reptiles, amphibians, nesting birds, and small mammals. Most wildlife would be expected to relocate from areas within or immediately surrounding construction areas. After construction is completed, it is expected that some of the displaced species, particularly birds, would return and use the open areas adjacent to the developed areas. Affected wildlife populations would likely not be adversely affected due to the remaining wildlife habitats that would support viable populations in the area. No significant adverse impacts to wildlife on the project sites are expected under this alternative.

4.8.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Vegetation – The primary impact to vegetation from construction and operation at the Ken Dooley Drive Alternative site would be the permanent alteration of about 35 acres of forested land to accommodate the new AFRC. This represents approximately 0.3 percent of the total 13,800 acres of forested land located in the City of Middletown. As a result, no significant effects to vegetation would be expected.

Site development would remove existing forestland. New native landscaped vegetation would be planted. Native shrub and tree species would be planted where possible.

Forestry BMPs and practices to control soil erosion and sedimentation during clearing and construction activities would be implemented to minimize potential impacts to adjacent forested habitats and water quality. Additionally, the areas to be disturbed would be limited to the planned footprint areas plus a minimal amount of adjacent construction staging area.

Wildlife – The primary impact to wildlife and wildlife habitat from construction and operation at the Millennium Industrial Park (Ken Dooley Drive) Alternative site would be the permanent alternation of approximately 35 acres of forested habitat would be removed to accommodate the facilities of the new AFRC. The actual total acreage of forested habitat disturbed would depend upon the final design and layout of the facilities.

Most wildlife would disperse and avoid construction and operation activities. Construction activities would likely result in the mortality of some less mobile fauna such as reptiles,

amphibians, nesting birds, and small mammals. Most wildlife would be expected to relocate from areas within or immediately surrounding construction areas. After construction is completed, it is expected that some of the displaced species, particularly birds, would return and use the open areas adjacent to the developed areas. Affected wildlife populations would likely not be adversely affected due to the remaining wildlife habitats that would support viable populations in the area. No significant adverse impacts to wildlife on the project sites are expected under this alternative.

4.8.2.5 Threatened, Endangered, and Sensitive Species

The general construction and operational impacts of the proposed project discussed on biological or wetland resources are also applicable to endangered and threatened fish, wildlife, and vegetation species. Because the distribution and abundance of Federal- and state-listed endangered and threatened species are limited, any impact could affect the size or viability of these populations. Habitat availability is believed to be the primary limiting factor of some endangered and threatened species. Therefore, the loss or alteration of suitable habitat could contribute to the decline of some species' populations in the regional area (FERC, 1997).

Federally-listed Species

With the exception of occasional, transient endangered bald eagles or peregrine falcons, there are no known Federally listed or proposed, threatened and endangered species under jurisdiction of the U.S. Fish and Wildlife Service in the project area (FWS, 2009). There are no federally-listed species or their habitats on any of the three alternative sites, therefore effects to federal endangered and threatened species are not expected to occur.

State-listed Special Concern Species

Squarrose sedge has been identified only on the Boardman Lane property. With the property on Boardman Lane no longer under consideration for construction and operation of an AFRC, the issues of potential impacts to the sedge are eliminated.

For eastern box turtle, the potential to impact any habitat and individuals on the Bysiewicz Industrial Subdivision (Liberty Park) has been eliminated to the extent practical. The primary concern with construction and operation of the Preferred Alternative is the potential impact to

individuals or habitat of the eastern box turtle, a State-listed Species of Special Concern.

At the Bysiewicz Industrial Subdivision (Liberty Park) site, the City of Middletown Inland Wetlands and Watercourses Agency issued a permit in 2006. In addition, the Army Reserves' design, construction, and operation of the AFRC at this site keeps the facility significantly away from the known eastern box turtle habitat area and on the highly developed industrial lots of the industrial park. Effects to eastern box turtle habitat and species are not expected. If the potential sale of three lots within the property goes through, the government would not acquire this site. Copies of correspondence on these species are in Appendix A.

For the two remaining alternatives, to minimize impacts to the eastern box turtle, the Connecticut Wildlife Division has recommend that in areas where suitable habitat exists that are proposed to be developed, the U.S. Army should:

1. install silt fencing around the work area prior to construction;
2. conduct a search by a knowledgeable individual each day prior to construction of the work area looking for turtles;
3. workers are apprised of the possible presence of box turtles and a description of the species
4. Eastern box turtles that are discovered be moved, unharmed, to an area immediately outside of the fenced or construction area in the same direction that it was walking;
5. No vehicles or heavy machinery should be parked in any eastern box turtle habitat.
6. Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging individuals; and
7. Grass mowing should be limited to a few times per year, either just before or just after the active season, which April to October, with precautions is taken to avoid mowing in June.

Standard protocols for protection of wetlands should be followed and maintained during the course of the construction project. Additionally, all silt fencing would be removed after soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted. The time of year when this work will take place will affect these species if they are present on the site when the work is scheduled.

To minimize potential impact to the eastern box turtle, the Army will adopt recommendations 1, 2, 3, 4, and 6. For recommendation 5, vehicles and heavy machinery placement is unavoidable. For recommendation 7, professional landscaping or impervious surfaces would encompass the

property once construction is complete. The final landscaping design would incorporate green technologies where applicable and mirror the current vegetation standards for the industrial park.

Additionally, to further minimize the potential for impact to the eastern box turtle identified at each of the two remaining sites, the Army would conduct a number of coordination and construction practices to:

- Connecticut DEP and the Middletown Conservation Commission will notified seven days prior to beginning of construction activities; and
- Prior to daily construction activities, the site will be investigated for individual species, and construction crews will be educated to identify the species and what measures can be taken to avoid impact during site development.
- Required wetland mitigations for unavoidable wetland losses will intentionally be designed to enhance or create eastern box turtle habitat to the extent practical.

No significant effect to the species is expected with implementation of mitigation measures.

4.9 CULTURAL RESOURCES

This section presents information on buildings, sites, structures, districts, and objects eligible for or included in the National Register of Historic Places (NRHP); cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990; Native American sacred sites for which access is protected under the American Indian Religious Freedom Act (AIRFA) of 1978; archaeological resources as defined by the Archaeological Resources Protection Act of 1979; and archaeological artifact collections and associated records as defined by 36 CFR Part 79.

Eligibility for the NRHP is established according to the official Criteria of Evaluation issued by the Department of the Interior. The criteria are based upon:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded or may be likely to yield, information important in prehistory or history.

An additional category of cultural resource is cemeteries or burial grounds. However, cemeteries are not normally eligible for the NRHP unless they possess other significant qualities of design or association.

4.9.1 Affected Environment

The affected environment for cultural resources consists of the three sites under consideration for acquisition for the AFRC Middletown plus any adjacent historic properties on or eligible for the NRHP that may be impacted by the construction or operation of the AFRC.

4.9.1.1 Prehistoric and Historic Background

The natural environment of the Connecticut River Valley, the setting for human occupation, is a pattern of sandstone ridges interspersed with small brooks and adjacent wetlands. In the Ice Age it was the southern extent of a glacial lake. The three alternative sites are located in the Westfield and Highland neighborhoods of Middletown within the drainage of the Mattabeset River, a tributary of the Connecticut River. There is a mixture commercial and industrial development along with contemporary and historic houses (City of Middletown, nd-c).

Prehistory

Only a brief summary of the prehistory of the affected environment is given below due to the absence of potentially significant archaeological resources found at the three sites during the Phase 1 Cultural Resource Survey (See Section 4.9.1.2).

The prehistory of this region of the Northeast is conventionally divided into the Paleo-Indian (12,000 - 8,000 Before Common Era (B.C.E.)), Archaic (8000.-1000 B.C.E.), and Woodland

(1000 B.C.E.-1650 Common Era (C.E.)). The Paleo-Indian Period in Connecticut is little known. Only a few isolates of the diagnostic fluted projectile points have been found in Western Connecticut indicating the presence of seasonal camps. The hunter/gatherers of this period are thought to have subsisted from small game, fishing, and readily available plants. Only by the Late Archaic Period with its far more specialized tools suitable for exploiting the denser deciduous broadleaf forest environment that now prevailed is there a gradual increase in sites. By the end of the Archaic, heavy ceramics such as soapstone appear in sites, implying a more settled habitation. In the Woodland Period, which extends essentially until the Contact, pottery, an indication of base camps occupied for greater periods of time; horticulture; and some trade goods all make their appearance (USACE, 2008e).

The Contact Period

Following the initial coastal reconnaissance of North America by Giovanni di Verrazano in 1525, the area of what is now Connecticut was initially explored by Adrian Block of the United Company of New Netherlands in the early 1600's. Settlers from the Massachusetts Bay Colony arrived in the Upper Connecticut River Valley in the 1630's seeking desirable land. In 1633, a trading post was started in Windsor and in 1634, a settlement at Wethersfield (USACE, 2008e). The New Haven Colony was established in 1639 and effectively incorporated into Connecticut in 1665. Settlers encountered a Native American population that numbered around 6,000-7,000 in the territory of present day Connecticut (City of Middletown, nd-c). In central Connecticut, the Wampanoags, a branch of the Algonquin federation, were in control. The local Wampanoag leader in the area of Middletown in the 1630's was Sowheag, who eventually conveyed most of the land of the future Mattabesset Township to the Governor of Connecticut. Final title with the exception of two tracts at Newfield and Chatham was obtained in 1762. However, by 1785, the Wampanoag had quit the region (USACE, 2008e).

The first farming settlements outside of Middletown, such as Westfield, were established between 1700 and 1720. Some community bases crafts such as milling and smithing were practiced in addition to subsistence farming. By the latter half of the eighteenth century, the economy had been transformed by commercial shipping between Connecticut, the West Indies, and other colonies. Wharves on the river accommodated the smaller vessels such as sloops, ketches, and schooners that were used in carrying this trade. In 1795, Middletown, with a

population well over 5,000 was designated as the official port of entry for the Connecticut River and provided with a Custom House. In this period shipbuilding and manufacturing, aided by the water power of the falls along the Connecticut River, took hold. Paper and powder mills, wool factories, and a sword and pistol factory were established at Middletown. Only the failure of the town to attract a mainline railroad connection inhibited its growth in the mid nineteenth century (City of Middletown, nd-c).

4.9.1.2 Status of Cultural Resource Inventories and Section 106 Consultations

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to assess whether an action constitutes an undertaking which has the potential to affect cultural resources on or eligible for the NRHP. The construction and operation of the AFRC would be an undertaking with the potential to affect NRHP eligible historic properties such as archaeological sites or historic buildings if any such resources were located in the property's s area of potential effect (APE) Because the three action alternatives selected for further evaluation in this EA require the acquisition of non-Federal property, for which none of the cultural resource surveys normally required for Federal property under Section 110 of NHPA have been done, it was necessary for the Army, in consultation with Connecticut State Historic Preservation Office (CT SHPO), to carry out a Phase I Cultural Resources Survey of the Bysiewicz Industrial Subdivision (Liberty Park), Cucia Park, and Boardman Lane and Millennium Industrial Park (Ken Dooley Drive) sites so that the potential for impacts to significant historic properties could be assessed. In 2008 the Mobile District of USACE contracted with Brockington and Associates, Inc. to carry out archaeological and historical investigations of the four sites. Since the award of that contract, the Boardman Lane site has been deleted as a site carried forward for analysis in this EA.

The *Draft Cultural Resources Survey of the Proposed Middletown Army Reserve Center*, which is available in Appendix E, was submitted to the CT SHPO for comments at the end of 2008. The January 16, 2009 response of the CT SHPO is available in Appendix A. The response from the CT SHPO is described further in the environmental consequences section. Figure 4-10 displays all historic properties within the vicinity of the alternative site locations. With the deletion of the Boardman Lane site from further consideration, the National Register of Historic Places eligibility of the Noah Bacon Homestead, 19 Bell Street, and Old Westfield Cemetery

properties, which were only within the area of potential effect of the AFRC if sited on Boardman, has become moot.

The Management Summary of the *Draft Cultural Resources Survey of the Proposed Middletown Army Reserve Center* is excerpted below for each of the remaining candidate sites. In addition, the concurrence or non-concurrence of the CT SHPO for the preliminary NRHP eligibility determinations in the *Draft Survey* is given.

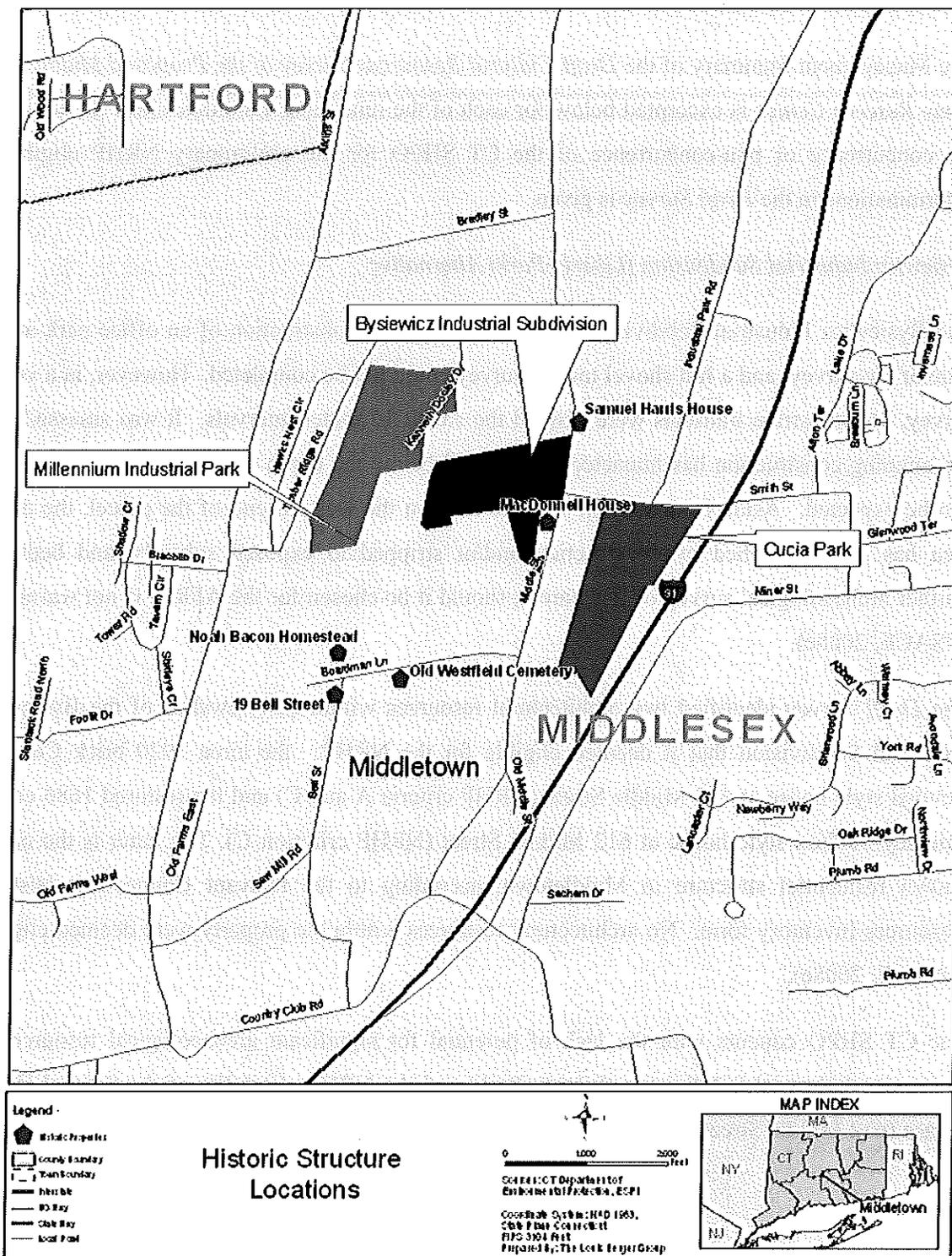
Bysiewicz Industrial Subdivision (Liberty Park) Alternative

The Bysiewicz Industrial Subdivision site was undergoing construction of an office park at the time of the survey, and a full shovel testing survey could not be completed. However, in a visual survey, 36 pedestrian transects were walked the site at 15 meter intervals. It was assessed that the ongoing construction has impacted the lot well below the depth at which cultural resources can be expected. Aside from a small wetland area on the western end of the parcel, the entire area has been disturbed by construction and/or stripped to exposed subsoils, and bedrock. Further archaeological survey of this parcel, should it be chosen for the AFRC, is not warranted (USACE, 2008e).

The *Draft Survey* identified two architectural resources within the viewshed of the Bysiewicz Industrial Subdivision that it deemed eligible for the NRHP: the circa 1920 brick Colonial Revival style house at 475 Middle Street (NRHP criteria A and C) and the restored 1686 center chimney Saltbox style house at 612 Middle Street (NRHP criterion C). The latter is the oldest known residential structure in Middletown, according to the relevant Connecticut Historic Resources Inventory form. No architectural resources within the property were deemed eligible (USACE, 2008e).

The CT SHPO concurs with the lack of potential for significant archaeological resources at Bysiewicz Industrial Subdivision (Liberty Park) and the NRHP eligibility of the Samuel Harris House (612 Middle Street) but not the MacDonnell House (475 Middle Street).

Figure 4-10: Historic Property Locations



Cucia Park Alternative (Preferred Alternative)

The Cucia Park site is located in an existing recreation 'pocket park' along Smith Street, between I-91 and existing commercial development along Middle Street. It is formerly the site of the MacDonnell Brick Company, closed in the 1960's. In this parcel, a steep ridge along I-91 in the eastern boundary of the parcel gives way to wetlands along Sawmill Brook in the southern and eastern edge of the property. Two ponds are located along the brook, surrounded by a small picnic area and gravel parking lot. A total of 749 shovel tests examined at Cucia Park revealed only the dumping of modern trash and debris associated with the recent use of the park or with MacDonnell Brick (USACE, 2008e).

The houses at 475 and 612 Middle Street evaluated in the *Draft Cultural Survey* as NRHP eligible are also within the viewshed of the Cucia Park site (USACE, 2008e).

The CT SHPO concurs with the lack of potential for significant archaeological resources at Cucia Park. As indicated above, it concurs with the NRHP eligibility of the Samuel Harris House (612 Middle Street) but not the MacDonnell House (475 Middle Street).

Millennium Industrial Park (Ken Dooley Drive) Alternative

The Millennium Industrial Park is located off of Ken Dooley Drive, west of the Bysiewicz Industrial Subdivision. It is bound by commercial building along Ken Dooley Drive to the north, a power line easement to the east, and Bradley Creek, running behind residential homes along Timber Ridge Road to the west. Much of the eastern portion of the site is an extension of the wetlands along Richards Brook found on the Boardman Lane site. The western portion is also a continuation of the ridges within the Boardman Lane site. The area was actively being logged during the course of the field survey. In 724 examined shovel tests across the site, only a single, isolated historic ceramic was identified. There are no architectural resources within or near the Ken Dooley Drive site (USACE, 2008e).

The CT SHPO concurs with the lack of potential for significant archaeological resources at Ken Dooley Drive.

In summary, no archaeological sensitivity was found at any of the three EA alternative sites. No NRHP eligible architectural resources were located at any of the alternative sites, although both

the Bysiewicz Industrial Subdivision and Cucia Park had a visual link to the Samuel Harris House at 612 Middle Street, confirmed as NRHP eligible by the CT SHPO. That office has requested an opportunity to comment upon the design of the AFRC's landscape design with regard to an effect upon the Samuel Harris House and the Old Westfield Cemetery and historic documentation of those resources.

4.9.1.3 Native American Resources

The Army has sent correspondence to the Mashantucket Pequot and Mohegan Indian tribes seeking their review of the *Draft Cultural Resources Survey* (See Appendix A). There are no items of Native American cultural patrimony or sacred sites present at any of the three alternative sites known at this time.

4.9.2 Environmental Consequences

Potential impacts to cultural resources have been evaluated based on the extent of resources that are eligible for or listed on the NRHP in the area. This analysis parallels the procedures for determining the effects of a Federal undertaking upon historic properties under 36 CFR 800 implementing Section 106 of the NHPA.

For each valid alternative in the EA, an assessment has been made of what NRHP resources, if any, are within its potential area of impact and the reasonably foreseeable nature and extent of any impact. Usually, Cultural Resource Management Plans and underlying historic architectural and archaeological studies for Federal installations provide sufficient data to make this assessment. Where such information is inadequate, the requirement for additional effort to identify historic properties is noted.

The following provides an explanation of the characterization of impacts to cultural resources as "no effect, not significant, and significant" in comparison with the terminology of "no effect, no adverse effect, and adverse effect" used in NHPA.

Section 106 Scale

Per 36 CFR 800.11 (i) *effect* means alteration to the characteristics of a historic property that qualify it for inclusion or eligibility for the National Register. Per 36 CFR 800.5 (a) (1), the effect becomes *adverse* when "an undertaking may alter, directly or indirectly, any of the

characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." Examples of adverse effects include: the physical destruction of all or part of the historic property; an alteration of the property that is not consistent with the Secretary of Interior's Standards for the Treatment of Historic Properties (36 CFR 68); the removal of the property from its historic setting; changing the character of the property's use or of the physical features of its setting that contribute to its significance; and the introduction of visual, aural, and atmospheric elements that diminish the integrity of the property's significant historic features.

Environmental Impacts to Cultural Resources vs. the Section 106 Scale

No Effect – This equates to *no effect* for Section 106.

No Significant Effect – An impact that alters or has the potential to alter the historic characteristics or setting of an NRHP property but does not diminish its integrity. This equates to *no adverse effect* for Section 106.

Significant Effect – An impact that diminishes or destroys the integrity of an NRHP property. This equates to *adverse effect* for Section 106.

In the practice of Section 106 consultation, adverse effects can often, but not always, be mitigated, when the loss of integrity of the NRHP resource is justified, balanced against other competing interests. The results of the consultation process are usually memorialized in a Section 106 Memorandum of Agreement containing mitigation stipulations. Neither the initial identification of a significant impact to cultural resources or a determination of adverse effect under Section 106 necessarily precludes a FNSI under NEPA. The loss of NRHP cultural resources would have to be major in scale and importance and without any acceptable feasible mitigation measures to negate a FNSI.

4.9.2.1 No Action Alternative

Under the No Action Alternative, there would be no effect to cultural resources.

4.9.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Archaeology – There would be no effect to NRHP eligible archaeological resources.

Built Environment – The Samuel Harris House, 612 Middle Street, confirmed as NRHP eligible is located near the eastern edge of the Bysiewicz Industrial Subdivision (Liberty Park) parcel. The parcel is already undergoing development as an industrial park. The CT SHPO has requested that the Army prepare historic documentation of the Samuel Harris House and afford the SHPO an opportunity to review landscape plans for the AFRC, presumably to insure the creation of a visual buffer. If these mitigation measures are followed, there would be no significant effect to NRHP eligible architectural resources.

4.9.2.3 Cucia Park Alternative (Preferred Alternative)

Archaeology – There would be no effect to NRHP eligible archaeological resources.

Built Environment - The visual separation by distance and the intervening existing commercial development along Middle Street would appear to preclude the creation of an adverse impact upon the settings of the historic Samuel Harris House at 612 Middle Streets. However, this assessment should be confirmed by the CT SHPO, as the SHPO letter in Appendix A which requests documentation and visual buffering of the house is not specific to the location chosen for the AFRC. There would be no significant effect to NRHP eligible architectural resources.

4.9.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Archaeology – There would be no effect to NRHP eligible archaeological resources.

Built Environment - There are no NRHP eligible architectural resources on or near the Millennium Industrial Park (Ken Dooley Drive) site. Therefore there would be no effect to NRHP eligible architectural resources.

4.10 SOCIOECONOMICS

4.10.1 Affected Environment

The Region of Influence (ROI) for this action is defined as Middlesex County, Connecticut. This county comprises the area in which the predominant socioeconomic effects of the federal action would take place. The geographical extent of the ROI is based on the residential distribution of

the installation's military, civilian, and contracting personnel, and the location of businesses that provide goods and services to the installation and its employees.

The baseline year for the socioeconomic analysis is 2007; and, though the analysis tries to reflect the most current conditions, much of the economic and demographic data for the ROI are only available through 2006. The description of the affected environment is based on the most recent data available to accurately reflect the current economic and social conditions of the ROI.

4.10.1.1 Economic Development

Regional Economic Activity

A majority of the region's economy is composed of non-farm, private sector industries, the largest of which are healthcare and social assistance, manufacturing, and retail (U.S. BEA, 2006). Private industry accounts for about 88 percent of jobs in the ROI. The three largest industries employ 34.8 percent of the labor market. Government and government enterprise also comprise a portion of the job economy at 11.28 percent. The majority of government workers are employed by the state, at 94.6 percent of total government workers. Farm jobs comprise 0.75 percent of the employment market in to ROI (U.S. BEA, 2006).

In 2007, about 57 percent or 93,210 people in the ROI were in the labor force (Stats Indiana, 2008a). The unemployment rate of the ROI for 2007 was 4.0 percent, below the national average of 4.6 percent during the same period (Stats Indiana, 2008a, U.S. BLS, 2008). It was also lower than the state average of 4.6 percent in 2007 (Stats Indiana, 2008b). However, the ROI's annual unemployment rate has increased from 3.4 percent in 2000 (U.S. Census, 2000).

4.10.1.2 Demographics

U.S. Census Bureau confirmed the ROI's population to be 164,150 in 2007 (Stats Indiana, 2008a). The population of Middlesex County grew 27.3 percent over the past three decades, averaging about 1 percent growth per year. Population data for the ROI, Connecticut, and the U.S. overall are provided in Table 4-14 for comparison purposes.

Table 4-14: Population Trends, 1980 -2006

Location	1980	1990	2000	2007
Middlesex	129,017	143,196	155,071	164,150
Connecticut	3,107,564	3,287,116	3,405,565	3,502,309
United States	226,542,250	248,790,925	281,421,906	301,621,157

Source: Stats Indiana, 2008a

Housing

In 2007 there were an estimated 72,188 housing units in the ROI, 89.7 percent of which were occupied. During this time period, 67.6 percent of housing units were owner-occupied while 22.1 percent were renter occupied. The 2007 median home value in the ROI was \$309,300; this value is higher than the U.S. average of \$185,200 (U.S. Census, 2007). Housing characteristics for the ROI are represented in Table 4-15.

Table 4-15: Housing Characteristics for Middlesex County

	Middlesex County
Total Housing Units	72,188
Occupied Housing Units	64,770
Owner-occupied	48,790
Renter-occupied	15,980
Vacant Housing Units	7,418
Median Home Value (Owner-occupied)	\$309,300

Source: U.S. Census 2007

Quality of Life

Quality of life refers to those amenities available to an installation's military personnel, their dependents, and civilian employees and which contribute to their well-being. The relative importance of these amenities to a person's well-being is subjective (e.g., some individuals consider educational opportunities essential to their well-being, others may place a high value on the availability of health care services, and still others may hold public safety as their primary quality of life concern). BRAC quality of life analyses typically address issues relating to potential impacts of the Proposed Action on the availability of public services and leisure

activities that contribute to quality of life of the affected installation's workforce and their dependents.

Health Care Facilities

There are numerous health care services and facilities available throughout the ROI. The major hospital that serves Middlesex County is Middlesex County Hospital (Duncan, 2008). The hospital offers a number of services and specialties as well as community programs and support groups (Middlesex Hospital, 2008).

Law Enforcement and Fire Protection

There are 16 fire departments in Middlesex County, one for each township and three in the City of Middletown. There are also a number of law enforcement agencies that have stations within Middlesex County. The Middletown Police Department consists of 102 sworn officers and 42 civilian full and part-time personnel. The Department also has a number of specialized units, such as a SWAT Team, that serve the Middletown area (Middletown Police Department, 2008, Duncan, 2008). The City of Middletown also intends to construct a new fire house and training facility on Mile Lane. This new facility will be a one-engine company (Ouellette, 2009).

Educational Services for DoD Dependents

The U.S. Department of Education provides federal impact aid to school districts that have federal lands within their jurisdiction. This federal impact aid is authorized under Public Law 103-282 as payment in lieu of taxes that would have been paid if the land were not held by the federal government. School districts receive federal impact aid for each federally connected student whose parent or parents live on or work on federal property. The amount of federal impact aid a school receives is dependent on the number of "federal" students the district supports in relation to the total district student population. Schools received more federal impact aid for those students whose parents both live and work on federal property. Total federal impact aid varies year by year according to congressional appropriations for the program, but in general federal impact aid has ranged from \$250 to \$2,000 per student.

Schools

The upper portion of Middlesex County has its own school system while the lower portion of the county has a regional school system (Duncan, 2008). There are 15 independent school districts within Middlesex County. During the 2005-2006 school year, over 33,882 students were enrolled in Middlesex County's 54 schools (NCES, 2006).

4.10.1.3 Environmental Justice

On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The EO is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify potential disproportionately high and adverse impacts from proposed actions and to identify alternatives that might mitigate these impacts. Data from the U.S. Department of Commerce 2000 Census of Population and Housing were used for this environmental justice analysis. Minority populations included in the census are identified as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Hispanic, of two or more races, and other. Poverty status, used in this EA to define low-income status, is reported as the number of persons with income below the poverty level. The 2000 Census defines the poverty level as \$8,794 of annual income, or less, for an individual, and \$17,603 of annual income, or less, for a family of four.

In 2006, the median household income was \$68,739 for Middlesex County residents, larger than the Connecticut state median of \$63,422 and the U.S. median of \$48,451. Per capita personal income for 2006 was \$32,588. In 2006, 7.4 percent of individuals living in the ROI lived below the poverty level, lower than the U.S. average of 13.3 percent. It is also slightly lower than the Connecticut state-wide poverty rate of 8.3 percent (U.S. Census 2006a, 2006b).

In 2006, the ROI's population was comprised of the following racial and ethnic groups: 89.3 percent white, 4.6 percent black, 2.2 percent Asian, 0.1 percent American Indian and Alaska Native, and 3.7 percent Hispanic. Note that these figures do not add to exactly 100 percent because the Hispanic population may be counted as white, black, and/or Hispanic by the U.S. Census Bureau, and therefore there is a level of "double-classification." The elderly (65 and

older) accounted for 14 percent of the ROI's population and the median age in the county is 40.7 (U.S. Census, 2006a). The demographic breakdown of residents of the ROI and Connecticut is presented in Table 4-16 below.

Table 4-16 Demographic Breakdown by Race

Race/Region	Middlesex County, Connecticut	Connecticut	United States
White	89.3%	80.1%	74.1%
Black/African American	4.6%	9.4%	12.4%
Asian	2.2%	3.3%	4.3%
American Indian or Alaskan Native	0.1%	0.2%	0.8%
Native Hawaiian and other Pacific Islander	0.0%	0.0%	0.1%
Hispanic	3.7%	11.2%	14.7%

Source: U.S. Census 2006a, 2006b

Protection of Children

On April 21, 1997, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was issued. This EO directs each federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. EO 13045 recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children's neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their body weight than adults; children's size and weight may diminish their protection from standard safety features; and children's behavior patterns make them more susceptible to accidents because they are less able to protect themselves. For example, elevated blood lead levels in children are associated with development impairments, including reductions in IQ. Young children in particular are at higher risks for exposure to lead based paint and lead contaminated soils because of their behavioral traits.

Therefore, to the extent permitted by law and regulations, and consistent with the agency's mission, President Clinton directed each federal agency to (1) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children, and (2) ensure that the agency's policies, programs, and standards address disproportionate health risks to children that result from environmental health risks or safety risks. Examples of risks to children include increased traffic volumes and industrial or production-oriented activities that would generate substances or pollutants children may come into contact with or ingest. Actions or alternatives indicating potential disproportionate risks to children will be identified and addressed in the Environmental Consequences Section of this EA.

4.10.2 Environmental Consequences

The economic effects of implementing the Proposed Action are estimated using the Economic Impact Forecast System (EIFS) model, a computer-based economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment associated with the renovation of housing represent the direct effects of the action. Based on the input data and calculated multipliers, the model estimates changes in sales volume, income, employment, and population in the ROI, accounting for the direct and indirect effects of the action.

For purposes of this analysis, a change is considered significant if it falls outside the historical range of ROI economic variation. To determine the historical range of economic variation, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. This analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The historical extremes for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. If the estimated effect of an action falls above the positive RTV or below the negative RTV, the effect is considered to be significant. Appendix C discusses this methodology in more detail.

Impacts to socioeconomics were identified using the following criteria:

No Effects – No change to socioeconomic conditions.

No Significant Effect – A change that does not fall outside the historic range of ROI economic variation.

Significant Effect – A change is considered significant if it falls outside the historical range of ROI economic variation.

A peak year for spending was determined using construction cost data; the peak year for all alternatives was determined to be 2010.

4.10.2.1 No Action Alternative

No direct or indirect effects would be expected. Under the No Action Alternative, the working population and expenditures would remain unchanged from baseline levels and no new construction would take place. Therefore, economic activity levels and ROI population growth would be the same as under the baseline conditions. In addition, there would be no disproportionately high and adverse impacts to minority or low income populations. Hence, the No Action Alternative would not result in any environmental justice impacts.

4.10.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Economic Development

In 2010, \$30,399,360 would be spent on construction, generating \$33,276,790 in direct spending and an additional \$53,908,390 in indirect spending. This increase in spending would represent a 1.19 percent increase in the region's sales volume, a minor beneficial impact that falls short of the regions positive RTV value of 15.64 percent. The Bysiewicz Industrial Subdivision (Liberty Park) Alternative would also generate minor positive changes in other economic indicators measured by the EIFS model, including a 0.38 percent increase in income and 0.52 percent increase in employment. There would be 100 full-time personnel, 30 incoming from the U.S. Army Reserve and 70 from the CTARNG. Of these full time personnel 17 would be civilians. Tables 4-17, 4-18, and 4-19 provide summaries of the EIFS model inputs, outputs, and RTV values respectively.

One economic impact that could not be factored into the EIFS model was the effect of loss of property tax revenues on the ROI. Under this alternative, the ROI would lose annual property tax revenue on the Bysiewicz Industrial Subdivision (Liberty Park) property due to transfer of ownership from private to government possession. The associated loss of local revenue may have minor negative impacts on the City. However, the negative impact may be offset by the positive

changes generated by construction spending. Impacts to economic development are not expected to be significant.

Table 4-17: Forecast Input for the EIFS Model (Peak Year = 2010)

EIFS Report Middlesex County, CT– Forecast Input	
Variable	Value
Change In Local Expenditures	30,399,360
Change In Civilian Employment	17
Average Income of Affected Civilian	\$65,805
Percent Expected to Relocate	0
Change In Military Employment	83
Average Income of Affected Military	\$48,735
Percent of Military Living On-base	0
Employment Multiplier	2.62
Income Multiplier	2.62

Table 4-18: EIFS Report for Bysiewicz Industrial Subdivision (Liberty Park) Alternative – Forecast Output

Forecast Output		
Variable	Value	Percentage
Employment Multiplier	2.62	
Income Multiplier	2.62	
Sales Volume – Direct	\$33,276,790	
Sales Volume – Induced	\$53,908,390	
Sales Volume – Total	\$87,185,180	1.19%
Income – Direct	\$9,922,402	
Income - Induced	\$8,438,813	
Income – Total (place of work)	\$18,361,210	0.38%
Employment – Direct	230	
Employment – Induced	210	
Employment – Total	440	0.52%
Local Population	207	
Local Off-base Population	207	0.14%

Table 4-19: EIFS Report for Middlesex County, CT– RTV Summary

RTV Summary				
	Sales Volume	Income	Employment	Population
Positive RTV	15.64%	13.66%	6%	1.79%
Negative RTV	-4.74%	-4.09%	-3.4%	-0.76%

Demographics

No effects are expected. Under the Bysiewicz Industrial Subdivision (Liberty Park) Alternative, none of the new full time personnel would be moving into the region; rather, they would be commuting from the adjacent New Haven County. Therefore new personnel would not have an impact on the demographic make-up of the ROI.

Housing

No effects on housing are expected as none of the new personnel would be moving into the region; rather they would be commuting from their current locations.

Quality of Life

No significant effects on quality of life are expected as none of the new personnel would be moving into the region.

Environmental Justice

The Bysiewicz Industrial Subdivision (Liberty Park) is located in an area zoned for industrial use. Additionally, minority and low-income communities are not disproportionately represented within the ROI. Therefore, the Bysiewicz Industrial Subdivision (Liberty Park) Alternative would not have significant adverse impacts on low-income or minority communities and no environmental justice effects are expected.

Protection of Children

The Bysiewicz Industrial Subdivision (Liberty Park) Alternative would not have significant adverse impacts on children; therefore, no effects are expected.

4.10.2.3 Cucia Park Alternative (Preferred Alternative)

The demographic, housing, quality of life, and environmental justice effects as well as effect on children from this alternative are the same as those for the Bysiewicz Industrial Subdivision Alternative.

The economic effects at this site, as determined by EIFS, are the same as those for the Bysiewicz Industrial Subdivision (Liberty Park) Alternative, excluding the potential impact from the loss of property tax revenue. There would be no loss of property tax revenue under this alternative as the site is currently owned by the City of Middletown. As the property owner, the City of Middletown would benefit from the sale of the parcel.

4.10.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

The demographic, housing, quality of life, and environmental justice effects as well as effect on children from this alternative are the same as those for the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

The economic effects of the Millennium Industrial Park (Ken Dooley Drive) Alternative as measured by EIFS are the same as those for the Bysiewicz Industrial Subdivision (Liberty Park) Alternative. Under this alternative, the ROI would lose the annual property tax revenue due to transfer of ownership from private to government possession.

4.11 TRANSPORTATION

This section summarizes the current and future traffic operations and travel characteristics for roadways that could be affected by the proposed AFRC. The 'action' analysis was performed for three alternative sites in the study area. The 2011 No Action Alternative was evaluated and used as a baseline for comparison to each of the 'action' alternatives as a means to measure relative effects for the study area transportation network in 2011. As a result of the transportation analyses examined within this section, appropriate mitigation measures would be proposed for locations where significant effects were identified.

4.11.1 Affected Environment

4.11.1.1 Roadways and Traffic

The Bysiewicz Industrial Subdivision (Liberty Park) is located on the west side of Middle Street between Smith Street and Timber Ridge Road. Access to the site would be through a connector road that intersects with Middle Street. A permanent paved access road has been constructed but is currently blocked as a means to prohibit public traffic from entering or exiting the site. Since none of the properties in the subdivision are open for business, this site currently does not generate any business traffic. However, there is sporadic traffic that accesses the site due to construction activity. Traffic on this roadway would increase when the industrial park adds new businesses.

Cucia Park is located on the south side of Smith Street between Middle Street and Industrial Park Road. The site is currently used as a public park and generally generates low levels of traffic. The existing driveway that connects to Smith Street is very close to the Industrial Park Road intersection.

Millennium Industrial Park (Ken Dooley Drive) is located at the south end of the current Ken Dooley Drive terminus. Although direct access to the site would be from Ken Dooley Drive, site traffic access from Timber Ridge Road off of Middle Street. This site is currently vacant and does not generate any traffic.

4.11.1.2 Public Transportation

Railways

The closest rail station to the study area is the Meridan Station, which is located approximately five miles from the three sites. The Meridan Station is served by Amtrak's Northeast Regional Line with service operating between Boston and Washington, D.C.

Buses

The three sites are served by the Middletown Area Transit Westlake Route E, which operates in a circular route along Industrial Park Road, Smith Street, Westlake Drive, East Street, Ridgewood Road, and Camp Street. This route connects to shopping, retail, and hotel locations in the area but does not serve many residential communities. The closest bus stop is located at

Industrial Park Road and Aetna Drive, approximately one-mile from the sites. The frequency of service is hourly Monday through Friday from 7:05 a.m. to 6:05 p.m.

4.11.1.3 Key Analysis Locations

The study area for transportation consists of 10 intersections including four that are signalized and six that are unsignalized. These locations were selected for traffic analysis based upon their proximity to the proposed development parcels, roadway traffic volumes, and potential effect of development generated traffic on each location (Figure 4-11). The key analysis locations within the project study area are as follows:

Signalized Intersections

- Middle Street and Smith Street (weekdays only)
- Middle Street and Route 372
- Industrial Park Rd/ I-91 Southbound (SB) Off ramp and Route 372
- I-91 Northbound (NB) On/Off ramps and Route 372

Unsignalized Intersection

- I-91 NB On/Off ramps and Country Club Road
- Middle Street/ I-91 SB On ramp and Country Club Road
- Middle Street and I-91 SB Off ramp
- Middle Street and Boardman Lane
- Industrial Park Road and Smith Street
- Middle Street and Timber Ridge Road

4.11.1.4 Traffic Volume Development

In order to assess traffic conditions within the study area, comprehensive traffic data was required during the weekday morning and evening and Saturday evening peak periods. The traffic data were used as the basis for analyzing the existing operating conditions at the key intersections within the study area. The traffic data required includes manual turning movement counts, automatic traffic recorder (ATR) counts, and physical inventories of the key intersections within the study area. Manual turning movement counts were conducted during the winter of 2008 at the 10 key intersection locations in the study area on one weekday from 6:30 to 9:30 a.m.

and from 3:30 to 6:30 p.m. and on one Saturday from 3:00 to 6:00 p.m. The full traffic impact analysis, including methodology, is available in Appendix H.

The weekday morning and weekday and Saturday afternoon peak hour volumes were determined based on the highest hourly volumes projected for the proposed project. These periods are 7:00 to 8:00 a.m. and 4:30 to 5:30 p.m. on a weekday and 5:00 to 6:00 p.m. on a Saturday.

4.11.1.5 Intersection Level of Service Analysis Methodology

The purpose of the capacity analysis is to determine the operational characteristics of key signalized and unsignalized intersections within the study area. The capacity analysis methodology is based on the concepts and procedures in the Highway Capacity Manual (HCM) 2000 published by the Transportation Research Board, National Research Council, Washington, DC. The weekday peak hour data were analyzed to determine existing level of service (LOS) at intersections under various traffic flow conditions. LOS ratings range from A (no congestion on the road) to F (roadways that are overcapacity). The varying LOS ratings can be described as:

LOS A describes operations with very low delay. This occurs when signal progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.

LOS B describes operations with low but increased delay. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.

LOS C describes operations with moderate delay. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

LOS D describes operations with heavy delay. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines substantially.

LOS E describes very heavy delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios near capacity.

LOS F typically describes ever increasing delays as queues begin to form. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios with cycle failures. Poor progression and long cycle lengths may also be contributing to such delays.

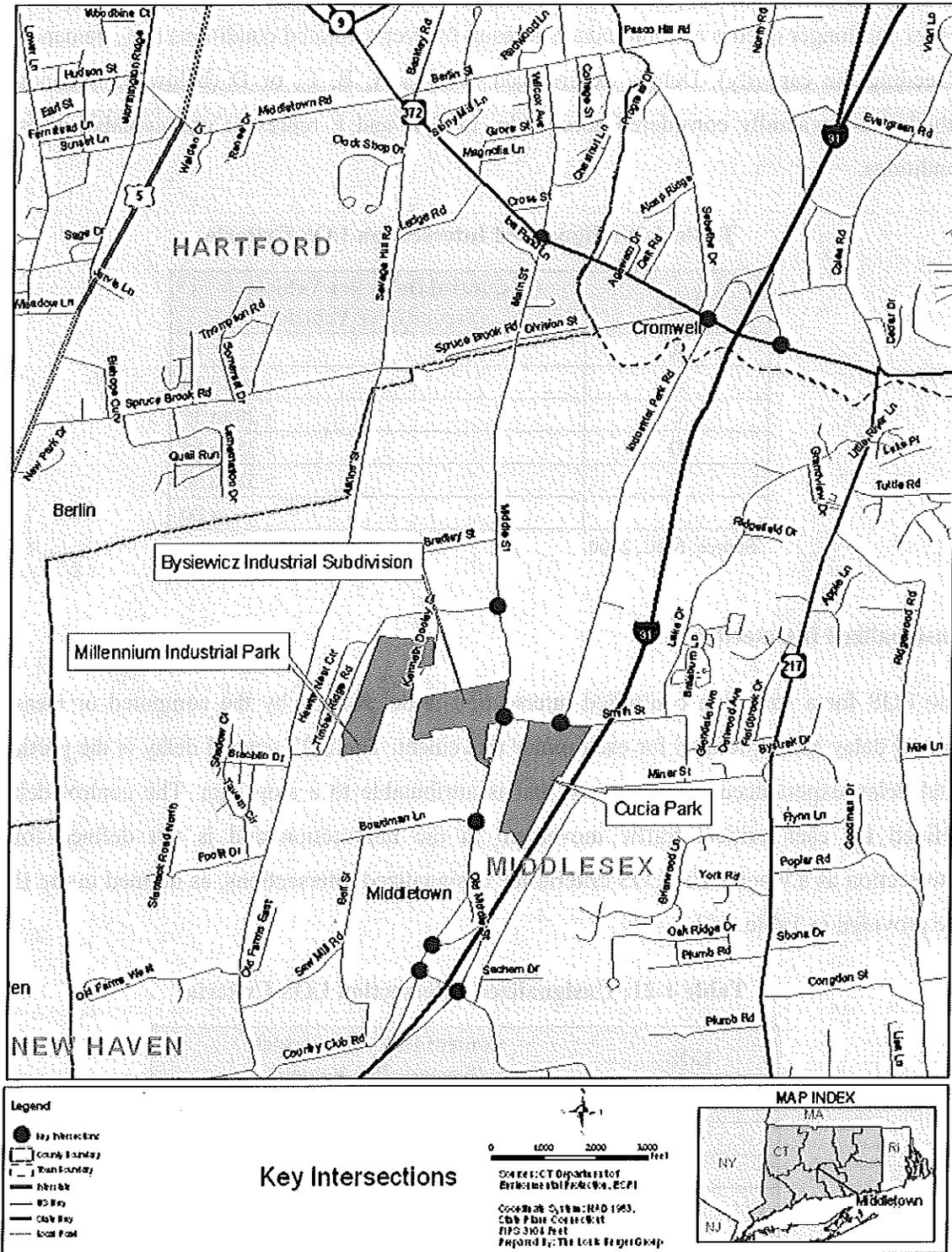
The following sections describe the methodology used to analyze the study area intersections and the results of the analysis.

Detailed capacity analyses were conducted at the 10 key signalized and unsignalized intersections in the study area using the Synchro software program based upon the analytical procedures described in the HCM. The criteria used to define LOS for signalized and unsignalized intersections are described in the following sections.

Signalized Intersection

The LOS of a signalized intersection is defined in terms of control delay per vehicle (seconds per vehicle). Control delay is the portion of total delay experienced by a motorist that is attributable to the traffic signal. It is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The LOS criteria for signalized intersections, as defined in the HCM, are provided in Table 4-20.

Figure 4-11: Key Analysis Intersections



LOS A describes operations with minimal delays, up to 10 seconds per vehicle, while LOS F describes operations with delays in excess of 80 seconds per vehicle. Under LOS F, excessive delays and longer queues are common as a result of over-saturated conditions (i.e., demand rates exceeding the capacity). Delays experienced at LOS A, B, C, or D (below 55 seconds per vehicle) are generally considered acceptable. LOS E and F represent unacceptable operating conditions.

Table 4-20: Signalized Intersection LOS Criteria

LOS	Control Delay per Vehicle (Seconds Per Vehicle)
A	≤ 10
B	> 10 to 20
C	> 20 to 35
D	> 35 to 55
E	> 55 to 80
F	> 80

Source: NRC, 2000.

Unsignalized Intersection

The LOS for a stop sign controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. The LOS control delay is the portion of total delay experienced by a motorist that is attributable to a stop sign. The control delay is defined for each critical traffic movement in the intersection and is not defined for the intersection as a whole. The LOS criteria for unsignalized intersections, as defined in the HCM, are provided in Table 4-21.

Table 4-21: Unsignalized Intersection LOS Criteria

LOS	Control Delay per Vehicle (Seconds Per Vehicle)
A	≤ 10
B	>10 to 15
C	>15 to 25
D	>25 to 35
E	>35 to 50
F	>50

Source: NRC 2000.

4.11.1.6 Existing Conditions Analysis

Detailed capacity analyses were conducted at the 10 key intersections during daily weekday a.m and p.m. and Saturday p.m. peak operating conditions for the Existing Conditions using the Synchro software package. Traffic volumes, intersection geometry (lane utilization, lane widths, etc.), and signal timing data were collected in the field during the critical peak hours and were used in the analysis. The results of the capacity analyses for the weekday a.m and p.m. and Saturday p.m. peak hours for the Existing Conditions (2008) are summarized in Table 4-22. Based upon the results, most intersections operate at an acceptable LOS D or better during the weekday a.m and p.m. and Saturday p.m. peak hours. One intersection operates at LOS F during the p.m. peak hour and one intersection operates at LOS E during the a.m. peak hour. Figures displaying the LOS rating for each intersection are available in Appendix H.

Table 4-22: Existing (2008) Intersection LOS

Intersection	North-South Street	East-West Street	Type	AM Peak LOS (delay)	PM Peak LOS (delay)	Saturday Peak LOS (delay)
1	I-91 NB On/Off ramps	Country Club Road	U	D (33.6)	B	A
2	Middle Street/ I-91 SB On ramp	Country Club Road	U	E (35.7)	B	A
3	Middle Street	SB Off ramp	U	C	C	A
4	Middle Street	Boardman Lane	U	A	A	A
5	Middle Street	Smith Street	S**	C	C	B
6	Industrial Park Road	Smith Street	U	C	F (53.2)	B
7	Middle Street	Timber Ridge Road	U	B	C	A
8	Middle Street	Route 372	S	A	C	B
9	Industrial Park Rd/ I-91 SB Off ramp	Route 372	S	C	D (47.9)	D (38.8)
10	I-91 NB On/Off ramps	Route 372	S	C	D (47.7)	B

U = unsignalized intersection, S = signalized intersection

** Operates as a one-way stop controlled intersection on Saturdays: the north-south movement is on flashing yellow and the westbound movement is on flashing red.

4.11.2 Environmental Consequences

The following criteria have been developed to assess the transportation impacts for each of the alternatives:

No Effect – No alterations of traffic patterns and trends would result from the action.

No Significant Effect – Short- or long-term alterations of traffic patterns and trends would result from the action. The intersections may reach capacity but this change would be temporary or managed through improvements.

Significant Effect – Traffic patterns would be permanently altered from the action. The intersections would reach capacity and extensive delays would develop.

For purposes of analysis, 2011 was utilized for future comparisons since this is the projected opening year of the proposed project.

4.11.2.1 No Action Alternative

Implementation of the No Action Alternative would not alter the existing transportation infrastructure at the sites being considered under the Proposed Action or in surrounding areas. Therefore, no effects would be expected.

Traffic Volume Development

In order to project future 2011 No Action Alternative traffic volumes in the study area, the 2008 traffic volumes were increased by a linear factor of 1.75% per year (5.25% for the period) to reflect background growth between 2008 and 2011. This growth factor was calculated based on historical two-way Average Daily Traffic (ADT) volumes collected on roadways within the study area by the Connecticut DOT as part of the "Traffic Count Locator" program.

Aetna's corporate offices in Middletown are within the study area along Aetna Drive between Middle Street and Industrial Park Road. Aetna has announced that it plans to close this facility by 2010 and move about 4,000 employees outside of the study area to other facilities. For projecting future traffic volumes in the study area, a conservative approach has been taken. It has been assumed that the facility will be fully occupied through 2011 (either by Aetna or someone

else). If Aetna moves and no other company replaces their employees after 2010, traffic volumes within the study area will diminish significantly.

No Action Alternative Analysis

Detailed capacity analyses were conducted at the 10 key intersections during weekday a.m and p.m. and Saturday p.m. peak operating conditions for the No Action Alternative using the Synchro software package. Traffic volumes, intersection geometry (lane utilization, lane widths, etc.), and signal timing data were collected in the field during the critical peak hours and were used in the analysis. The results of the capacity analyses for the weekday a.m and p.m. and Saturday p.m. peak hours for the No Action Alternative (2011) are summarized in Table 4-23. Figures displaying the LOS rating for each intersection are available in Appendix H. Based upon the results, most intersections are projected to operate at an acceptable LOS D or better during the weekday a.m and p.m. and Saturday p.m. peak hours. Two intersections are projected to operate at LOS E during both the a.m. and p.m. peak hours and one intersection is projected to operate at LOS F during the p.m. peak hour.

Table 4-23: No Action Alternative (2011) Intersection LOS

Intersection	North-South Street	East-West Street	Type	AM Peak LOS (delay)	PM Peak LOS (delay)	Saturday Peak LOS (delay)
1	I-91 NB On/Off ramps	Country Club Road	U	E (39.0)	B	A
2	Middle Street/ I-91 SB On ramp	Country Club Road	U	E (40.6)	B	A
3	Middle Street	SB Off ramp	U	C	C	B
4	Middle Street	Boardman Lane	U	B	A	A
5	Middle Street	Smith Street	S**	C	C	B
6	Industrial Park Road	Smith Street	U	D (28.1)	F (75.2)	B
7	Middle Street	Timber Ridge Road	U	B	C	A
8	Middle Street	Route 372	S	A	C	B
9	Industrial Park Rd/ I-91 SB Off ramp	Route 372	S	D (37.3)	E (56.0)	D (37.6)
10	I-91 NB On/Off ramps	Route 372	S	D (38.5)	E (58.0)	B

U = unsignalized intersection, S = signalized intersection

** Operates as a one-way stop controlled intersection on Saturdays: the north-south movement is on flashing yellow and the westbound movement is on flashing red.

4.11.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Construction of this alternative would be completed by 2011. No significant effects on traffic would be expected during the construction years of the proposed facility. However, some short-term adverse impacts could occur depending on the measures taken to manage disruptions, such as requiring most of the construction vehicles delivering materials to do so outside peak traffic hours and designating sufficient parking and storage space for construction related vehicles and materials. The construction project would be relatively small and construction related traffic is not expected to be significant. This limited traffic would not have an effect on the level of service.

Approximately 100 full-time employees would access the site on weekdays. Most of these employees would arrive to the site during the morning peak period and depart the site during the afternoon peak period. The 895 reservists projected to be assigned to this AFRC would only access the site on weekends and not all on the same weekend. Since drilling occurs over the course of three weekends a month, not all units drill on the same weekend. As a result, the maximum number of reservists projected to access the site on any weekend would be 441. It is anticipated that the reservists would travel between the site and their homes/hotel on both Saturday and Sunday when they train since there will be no berthing facilities on the site. As was the case on a weekday, personnel would arrive to the site during the morning peak period and depart the site during the afternoon peak period on both weekend days.

An estimate of the trips generated by the proposed AFRC was prepared using the procedures established by the Institute of Transportation Engineers (ITE) *Trip Generation*, Seventh Edition. The AFRC use was modeled as an office building (General Office Building - Code 710) because the full-time employees and reservists are projected to arrive up in the morning, stay throughout the day, and leave in the evening similar to office workers. Based on a survey of office developments, the trips generated were associated to an independent variable and time period of analysis (a.m. and p.m. peak hours on weekdays) through a regression analysis. Because the number of employees (full-time and reservists) is projected, this was used as the independent variable for projecting the total number of trips generated by the AFRC during the a.m. and p.m. peak hours. Since the arrival and departure patterns of reservists on weekends would be similar

to office workers, the General Office Building - Code 710 was used for the Saturday p.m. peak hour.

The directional distribution of trips entering and exiting the proposed development site were also estimated based upon the General Office Building Code (710) for the weekday a.m. and p.m. peak hours. The number of trips was calculated based upon 88 percent entering and 12 percent exiting during the a.m. peak hour and 17 percent entering and 83 percent exiting during the p.m. peak hour. These percentages were used to calculate the number of vehicles projected to exit the site during the a.m. peak hour and enter the site during the p.m. peak hour. These same percentages were used to calculate both weekday and weekend trips.

Using the trip generation procedure outlined by the ITE, the trips projected by the Proposed Action were estimated (Table 4-24). These trips reflect the net increase in activity as the result of the implementation of the project.

Table 4-24. Additional Trips Generated by the Bysiewicz Industrial Subdivision Alternative

	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Weekday						
Armed Forces Reserve Center	59	8	67	17	81	97
Weekend						
Armed Forces Reserve Center	210	29	239	38	185	223

Detailed capacity analyses were conducted at the 10 key intersections during weekday a.m and p.m. and Saturday p.m. peak operating conditions for the Bysiewicz Industrial Subdivision Alternative using the Synchro software package. The results of the capacity analyses for the weekday a.m and p.m. and Saturday p.m. peak hours for the Bysiewicz Industrial Subdivision Alternative (2011) are summarized in Tables 4-25 through 4-27, respectively. Figures displaying the LOS for each intersection are available in Appendix H. Based upon the results, no significant effects would be expected for the operations of the proposed AFRC during the weekday a.m and p.m. and Saturday p.m. peak hours.

Table 4-25: Alternative Comparison (2011): Weekday AM Peak Hour Intersection LOS

Intersection	North-South Street	East-West Street	Type	No Action LOS (delay)	Cucia LOS (delay)	Bysiewicz LOS (delay)	Dooley/Boardman LOS (delay)
1	I-91 NB On/Off ramps	Country Club Road	U	E (39.0)	E (40.7)	E (40.7)	E (40.7)
2	Middle Street/ I-91 SB On ramp	Country Club Road	U	E (40.6)	E (43.3)	E (43.3)	E (43.3)
3	Middle Street	SB Off ramp	U	C	C	C	C
4	Middle Street	Boardman Lane	U	B	B	B	B
5	Middle Street	Smith Street	S	C	C	C	C
6	Industrial Park Road	Smith Street	U	D (28.1)	D (29.0)	D (28.1)	D (28.1)
7	Middle Street	Timber Ridge Road	U	B	B	B	B
8	Middle Street	Route 372	S	A	A	A	A
9	Industrial Park Rd/ I-91 SB Off ramp	Route 372	S	D (37.3)	D (37.7)	D (39.7)	D (39.7)
10	I-91 NB On/Off ramps	Route 372	S	D (38.5)	D (39.7)	D (39.7)	D (39.7)

U = unsignalized intersection, S = signalized intersection

Table 4-26: Alternative Comparison (2011): Weekday PM Peak Hour Intersection LOS

Intersection	North-South Street	East-West Street	Type	No Action LOS (delay)	Cucia LOS (delay)	Bysiewicz LOS (delay)	Dooley/Boardman LOS (delay)
1	I-91 NB On/Off ramps	Country Club Road	U	B	B	B	B
2	Middle Street/ I-91 SB On ramp	Country Club Road	U	B	B	B	B
3	Middle Street	SB Off ramp	U	C	C	C	C
4	Middle Street	Boardman Lane	U	A	A	A	A
5	Middle Street	Smith Street	S	C	D (35.3)	C	C
6	Industrial Park Road	Smith Street	U	F (75.2)	F (122.6)	F (75.2)	F (75.2)
7	Middle Street	Timber Ridge Road	U	C	C	C	C
8	Middle Street	Route 372	S	C	C	C	C
9	Industrial Park Rd/ I-91 SB Off ramp	Route 372	S	E (56.0)	E (57.6)	E (58.6)	E (58.6)
10	I-91 NB On/Off ramps	Route 372	S	E (58.0)	E (65.2)	E (65.2)	E (65.2)

U = unsignalized intersection, S = signalized intersection

Table 4-27: Alternative Comparison (2011): Saturday PM Peak Hour Intersection LOS

Intersection	North-South Street	East-West Street	Type	No Action LOS (delay)	Cucia LOS (delay)	Bysiewicz LOS (delay)	Dooley/Boardman LOS (delay)
1	I-91 NB On/Off ramps	Country Club Road	U	A	A	A	A
2	Middle Street/ I-91 SB On ramp	Country Club Road	U	A	A	A	A
3	Middle Street	SB Off ramp	U	B	B	B	B
4	Middle Street	Boardman Lane	U	A	A	A	A
5	Middle Street	Smith Street	S**	B	B	B	B
6	Industrial Park Road	Smith Street	U	B	B	B	B
7	Middle Street	Timber Ridge Road	U	A	A	A	B
8	Middle Street	Route 372	S	B	B	B	B
9	Industrial Park Rd/ I-91 SB Off ramp	Route 372	S	D (37.6)	D (39.2)	D (39.9)	D (39.9)
10	I-91 NB On/Off ramps	Route 372	S	B	B	B	B

U = unsignalized intersection, S = signalized intersection

** Operates as a one-way stop controlled intersection on Saturdays: the north-south movement is on flashing yellow and the westbound movement is on flashing red.

4.11.2.3 Cucia Park Alternative (Preferred Alternative)

Construction of the Cucia Park Alternative would also be completed by 2011. No significant effects on traffic would be expected during the construction of the proposed facility. Some short-term adverse impacts could occur depending on the measures taken to manage disruptions, such as requiring most of the construction vehicles delivering materials to do so outside peak traffic hours and designating sufficient parking and storage space for construction related vehicles and materials. The construction project would be relatively small and construction

related traffic is not expected to be significant. This limited traffic would not have an effect on level of service.

The same number of full-time employees (approximately 100) would access the site on weekdays. Most of these employees would arrive to the site during the morning peak period and depart the site during the afternoon peak period. It is also assumed that a peak total of 441 would be expected to access the site on a weekend. Since there will be no berthing facilities on the site, it is anticipated that all of the reservists would travel between the site and their homes/hotel on both Saturday and Sunday when they train.

The same directional distribution of trips projected to enter and exit the proposed development site and the same number of trips projected to be generated by the AFRC during the weekday and weekend a.m. and p.m. peak hours as the previous alternative was assumed. Detailed capacity analyses were conducted at the 10 key intersections during weekday a.m and p.m. and Saturday p.m. peak operating conditions for the Cucia Park Alternative using the Synchro software package. The results of the capacity analyses for the weekday a.m and p.m. and Saturday p.m. peak hours for the Cucia Park Alternative (2011) are summarized in Tables 4-25 through 4-27, respectively. Figures displaying the LOS for each intersection are available in Appendix H. Based upon the results, no significant effects would be expected for the operations of the proposed AFRC during the weekday a.m and p.m. and Saturday p.m. peak hours. The projected traffic would not have an effect on level of service.

4.11.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Construction of the Millennium Industrial Park (Ken Dooley Drive) Alternative would be completed by 2011. No significant effects on traffic would be expected during the construction of the proposed facility. As was the case with the previous alternative, some short-term adverse impacts could occur depending on the measures taken to manage disruptions, such as requiring most of the construction vehicles delivering materials to do so outside peak traffic hours and designating sufficient parking and storage space for construction related vehicles and materials. The construction project would be relatively small and construction related traffic is not expected to be significant. This limited traffic would not have an effect on level of service.

The same number of full-time employees (approximately 100) would access the site on weekdays. It is also anticipated that most of these employees would arrive to the site during the morning peak period and depart the site during the afternoon peak period. It is also assumed that a peak total of 441 would be expected to access the site on a weekend. Since there will be no berthing facilities on the site, it is anticipated that all of the reservists would travel between the site and their homes/hotel on both Saturday and Sunday when they train.

The same directional distribution of trips projected to enter and exit the proposed development site and the same number of trips projected to be generated by the AFRC during the weekday and weekend a.m. and p.m. peak hours as the previous alternative was assumed. Detailed capacity analyses were conducted at the 10 key intersections during weekday a.m and p.m. and Saturday p.m. peak operating conditions for the Millennium Industrial Park (Ken Dooley Drive) Alternative using the Synchro software package. The results of the capacity analyses for the weekday a.m and p.m. and Saturday p.m. peak hours for the Millennium Industrial Park (Ken Dooley Drive) Alternative (2011) are summarized in Tables 4-25 through 4-27, respectively. Figures displaying the LOS for each intersection are available in Appendix H. Based upon the results, no significant effects would be expected for the operations of the proposed AFRC during the weekday a.m and p.m. and Saturday p.m. peak hours. The projected traffic would not have an effect on level of service.

4.12 UTILITIES

4.12.1 Affected Environment

The ROI is defined as utility services on the Bysiewicz Industrial Subdivision (Liberty Park), Cucia Park, and Millennium Industrial Park (Ken Dooley Drive) sites and any potential effects on public utility service providers in the area of these sites. Local municipal utility entities provide all major utilities (electricity, water, natural gas, sewer) and are accessible to each site. The proposed AFRC facilities would be able to tie into each of the existing local municipal utility systems. Each of the sites under consideration is located in a developed industrial area and adequate services currently exist at each of those location. The proposed AFRC facilities would be able to tie the existing utility services at each site.

4.12.1.1 Potable Water Supply

Bysiewicz Industrial Subdivision (Liberty Park). Potable water services are provided by the Middletown Water and Sewer. Potable water is currently available on the Bysiewicz Industrial Subdivision site. A water line has been installed from Middle Street along Bysiewicz Drive into the development (USACE, 2009a). The proposed AFRC facilities would be able to tie into the existing municipal water main along Middle Street (USACE, 2008a; Nelson, 2009b). The water main has been extended Domestic service water pressure is adequate to support the proposed facility (Nelson, 2009). Fire hydrant flow testing and coordination with the Middletown water and Sewer Department will be required to verify the pressure and capacity at the site (RSP, 2009).

Cucia Park (Preferred Alternative). Potable water services are provided by the Middletown Water and Sewer. Similar to the Bysiewicz Industrial Subdivision, potable water service is currently available on the proposed Cucia Park site. The proposed AFRC facilities would be able to tie into the municipal water main service on the site (USACE, 2008a). Domestic service water pressure is adequate to support the proposed facility, however, fire pressure will have to be verified (Nelson, 2009b).

Millennium Industrial Park (Ken Dooley Drive). Potable water services are provided by the Middletown Water and Sewer. Similar to the Bysiewicz Industrial Subdivision, potable water is currently available at the proposed Millennium Industrial Park (Ken Dooley Drive) Alternative site. The proposed AFRC facilities would be able to tie into the municipal water main service at the street curb (USACE, 2008a). Domestic service water pressure is adequate to support the proposed facility, however, fire pressure will have to be verified (Nelson, 2009b).

4.12.1.2 Sanitary Sewer Service

Bysiewicz Industrial Subdivision (Liberty Park). Sanitary sewer service is currently available on the Bysiewicz Industrial Subdivision (Liberty Park) site (USACE, 2008a; Nelson, 2009b). Sanitary sewer services are provided by the Middletown Water and Sewer. A sanitary sewer line from Middle Street has been installed on the centerline of Bysiewicz Drive into the development. A sanitary sewer line runs north-south on and along the west Property boundary. The right-of-way for the sanitary sewer line has been cleared on the Property (USACE, 2009a). The proposed

AFRC facilities would be able to tie into the existing municipal sanitary sewer lines on the site (USACE, 2008a). Based on discussions with the Middletown Water and Sewer, adequate sewer capacity is available at the site (Nelson, 2009b).

Cucia Park (Preferred Alternative). Sanitary sewer service is currently available on the Cucia Park site (USACE, 2008a). Sanitary sewer services are provided by the Middletown Water and Sewer. A sanitary sewer line runs north-south through the west side of the Cucia Park site (USACE, 2009b). Based on discussions with the Middletown Water and Sewer, adequate sewer capacity is available at the site (Nelson, 2009b).

Millennium Industrial Park (Ken Dooley Drive). Sanitary sewer service is currently available at the Millennium Industrial Park (Ken Dooley Drive) site. Sanitary sewer services are provided by the Middletown Water and Sewer. A sanitary sewer line runs north-south through the east side of the site. The house on the site is connected to the public sanitary sewer (USACE, 2009c). The proposed AFRC facilities would be able to tie into the existing municipal sanitary sewer lines at the street curb (USACE, 2008a). Based on discussions with the Middletown Water and Sewer, adequate sewer capacity is available at the site (Nelson, 2009b).

4.12.1.3 Electrical Service and Distribution

Bysiewicz Industrial Subdivision (Liberty Park). Electrical power is currently available on the Bysiewicz Industrial Subdivision Alternative site (USACE, 2008a). Electrical Power is provided by Connecticut Light & Power, Northeast Utilities (CL&P). An electric power line and associated cleared right-of-way crosses the west side of the site in a southeast-northwest direction (USACE, 2009a). Electrical power supply currently consists of a 13.8 KV electrical lines that run along Middle Street (Nelson, 2009b). CL&P would provide underground distribution from the 13.KV lines to pad-mounted transformers. The maximum service that can be provided from a single transformer is 3,000 amps at 480 volts (Nelson, 2009b). The proposed facility would require approximately 4,000 amps at 480 volts so more than one transformer would be necessary. The proposed AFRC facilities would be able to tie into existing electrical lines on the site (USACE, 2008a). CL&P has indicated that adequate capacity is available (Blume, 2009). Coordination with the CL&P would be conducted regarding specific size and

location of services to the proposed project site during the design phase of the project (Nelson, 2009b)

Cucia Park (Preferred Alternative). Electrical power to Cucia Park is provided by Connecticut Light & Power (CL&P), Northeast Utilities (USACE, 2008a). An electric power line and associated cleared right-of-way crosses the Cucia Park site in a northwest-southeast direction on the south side of the property (USACE, 2009b). The proposed AFRC facilities would be able to tie into existing electrical lines on the site (USACE, 2008a). CL&P has indicated that adequate capacity is available (Blume, 2009). Coordination with the CL&P would be conducted regarding specific size and location of services to the proposed project site during the design phase of the project (RSP, 2009).

Millennium Industrial Park (Ken Dooley Drive). Electrical power to the Millennium Industrial Park (Ken Dooley Drive) is provided by CL&P. An electric power line and associated cleared right-of-way cross the site in a north-south direction on the northeast corner of the site (USACE, 2009c). The proposed AFRC facilities would be able to tie into existing electrical lines at the street curb (USACE, 2008a). The site is located in a developed area and electrical power capacity is anticipated to be sufficient for the new AFRC facilities. CL&P has indicated that adequate capacity is available (Blume, 2009). Coordination with the CL&P would be conducted regarding specific size and location of services to the proposed project site during the design phase of the project (Nelson, 2009b).

4.12.1.4 Stormwater System

Connecticut's stormwater program requires stormwater be treated to the maximum extent practicable. BMP's must also be designed to remove 80% of the total suspended solids (TSS) load. Owners of construction activities which disturb more than one acre are required to obtain and meet the requirements of an NPDES permit including the development and implementation of construction site erosion control plan, stormwater management plan, and stormwater pollution prevention plan.

Bysiewicz Industrial Subdivision (Liberty Park). The Bysiewicz Industrial Subdivision site is not developed and has been cleared by the owner (USACE, 2008a). The eastern portion of the site drains to the Middle Street drainage system to the east. The central portion of the site drains

primarily to the west to the site wetlands. The western edge of the site drains to the onsite wetlands complex and to Richards Brook (Nelson, 2009b). Stormwater runoff from new impervious areas will drain to the south and west to new on site stormwater management facilities before it drains into the wetlands complex or adjacent receiving water bodies. A storm sewer has been installed along the access road into the site. This storm sewer flows into a storm sewer system along the west side of Middle Street. Storm water runoff from the east side and northeast corner of the site may drain into the Middle Street storm sewer system (Nelson, 2009b).

Stormwater management for any construction and operation on the site would be regulated by state and federal stormwater management regulations and employment of stormwater management BMPs during and after construction of new facilities. A stormwater management plan and State Pollutant Discharge Elimination System (SPDES) permit would be required. See Section 4.7 of this EA for further discussions on stormwater.

Cucia Park (Preferred Alternative). The Cucia Park site is not developed and is well vegetated with grass and trees (USACE, 2008a). Stormwater runoff from the proposed site primarily infiltrates the ground surface. Stormwater from a culvert discharges from I-91 onto the Cucia Park site on the south side of the property in an east-west direction; it has caused some erosion in the area. A concrete-lined channel located on the northeast corner of the site conveys a stream north from I-91 across the property and under Smith Street (USACE, 2009b). Stormwater management for construction and operation on the site would be regulated by state and federal stormwater management regulations and employment of stormwater management BMPs.. See Section 4.7 of this EA for further discussions on stormwater.

Millennium Industrial Park (Ken Dooley Drive) The Millennium Industrial Park (Ken Dooley Drive) site is not developed and well vegetated with grass and trees (USACE, 2008a). Stormwater management for construction and operation on the site would be regulated by state and federal stormwater management regulations and employment of stormwater management BMPs during and after construction of new facilities. A stormwater management plan and State Pollutant Discharge Elimination System (SPDES) permit would be required. See Section 4.7 of this EA for further discussions on stormwater.

4.12.1.5 Natural Gas

Bysiewicz Industrial Subdivision (Liberty Park). A natural gas main is located along Middle Street in the vicinity of the site (Nelson, 2009b). Gas service to the proposed AFRC facilities would be provided by tapping into the gas main along Middle Street and extending the service onto the Bysiewicz site to the proposed facilities (Nelson, 2009b). Natural Gas is provided by Yankee Gas Services Company, Northeast Utilities (USACE, 2009a). The site is located in a developed industrial area and natural gas capacity is adequate for the industrial area. Based on discussions with Yankee Gas, adequate natural gas capacity is available at the site.

Cucia Park (Preferred Alternative). Natural Gas to the Cucia Park site is provided by Yankee Gas Services Company, Northeast Utilities (USACE, 2009b). The proposed AFRC facilities would be able to tie into existing natural gas lines (USACE, 2008a). The site is located in a developed industrial area and natural gas capacity is adequate for the industrial area. Based on discussions with Yankee Gas, adequate natural gas capacity is available at the site (Nelson, 2009b).

Millennium Industrial Park (Ken Dooley Drive) Natural Gas to the Ken Dooley Drive site is provided by Yankee Gas Services Company, Northeast Utilities (USACE, 2009c). The proposed AFRC facilities would be able to tie into existing natural gas lines at the street curb (USACE, 2008a). The site is located in a developed industrial area and natural gas capacity is adequate for the industrial area. Based on discussions with Yankee Gas, adequate natural gas capacity is available at the site.

4.12.1.6 Communications

Bysiewicz Industrial Subdivision (Liberty Park). Telephone and fiber optic data services to the site are provided by AT&T. AT&T has indicated that copper voice service and fiber optics data are available to the site from a pedestal adjacent to the site on Middle Street (Nelson, 2009b)

Cable TV (CATV) service is provided by Comcast Business Services. CATV service is available to the site at a pedestal on Smith Street (Nelson, 2009b).

Cucia Park (Preferred Alternative). Similar to the Bysiewicz Industrial Subdivision site, telephone and fiber optic data services are provided by AT&T. AT&T has indicated that copper

voice service and fiber optics data are available to the site from a pedestal adjacent to the site (Nelson, 2009b)

Cable TV (CATV) service is provided by Comcast Business Services. CATV service is available in the vicinity of the site (Blume, 2009).

Millennium Industrial Park (Ken Dooley Drive) Similar to the Bysiewicz Industrial Subdivision site, telephone and fiber optic data services are provided by AT&T. AT&T has indicated that copper voice service and fiber optics data are available to the site from a pedestal adjacent to the site (Nelson, 2009b)

Cable TV (CATV) service is provided by Comcast Business Services. CATV service is available in the vicinity of the site (Blume, 2009).

4.12.1.7 Solid Waste

Bysiewicz Industrial Subdivision (Liberty Park). Solid waste generated by the proposed AFRC would be disposed of through the services of private contractors who would collect and transport waste to transfer stations in the Middlesex County area. The waste would be properly disposed at a licensed landfill or other waste disposal sites.

Cucia Park (Preferred Alternative). Similar to the Bysiewicz Industrial Subdivision site, solid waste generated by the proposed AFRC would be disposed of through the services of private contractors who would collect and transport waste to transfer stations in the Middlesex County area.

Millennium Industrial Park (Ken Dooley Drive). Similar to the Bysiewicz Industrial Subdivision (Liberty Park) site, solid waste generated by the proposed AFRC would be disposed of through the services of private contractors who would collect and transport waste to transfer stations in the Middlesex County area. The waste would be properly disposed at a licensed landfill or other waste disposal sites.

4.12.2 Environmental Consequences

To assess whether impacts to utilities were potentially significant, the following impact thresholds were used to define significance for each utility:

No effect – The proposed action does not impact the human or natural environment

No Significant Effect – An impact to the human and/or natural environment would occur, but it is less than thresholds indicated below for “significant effect.”

Significant Effect – thresholds for significance are defined below:

General Utility Construction – Impacts from construction of utilities would be considered potentially significant if expected to cause human health and safety issues considerably above industry norms, or Army acceptable standards and there were no ways to mitigate the disruptions.

Potable Water Supply – Impacts would be considered potentially significant if the proposed action would require more potable water than could be reliably provided by the available potable water sources, leading to shortages, or if regulatory limitations would potentially be exceeded. Major systemic distribution constraints could also be potentially significant; however, the fact that major investments would be required to provide potable water reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction and would prevent shortages or harm to the environment.

Wastewater System – Impacts would be considered potentially significant if the proposed action would require more wastewater treatment capacity than could be reliably provided or potentially leading to the discharge of effluents in excess of regulatory standards. Major shortfalls in collection capacity could also be potentially significant; however, the fact that major investments would be required to collect wastewater reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction and would prevent overflows or harm to the environment.

Stormwater System – Impacts would be considered potentially significant if the proposed action would not comply with State or Federal laws governing stormwater discharges.

Energy Sources – Impacts would be considered potentially significant if the proposed action would require energy in quantities that would exceed local and/or regional

capacities for supply, leading to potentially unreliable service or shortfalls of power. Major systemic distribution constraints could also be potentially significant; however, the fact that major investments would be required to provide energy reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction and would prevent shortages that could affect the AFRC mission.

Communications – Impacts would be considered potentially significant if the proposed action would require communication systems to meet mission requirements that could not be provided without major modifications to the existing systems.

Municipal Solid Waste – Impacts would be considered potentially significant if the proposed action would require collection and/or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

4.12.2.1 No Action Alternative

Under the No Action Alternative, no changes would occur in Middletown, CT and current conditions would prevail without change. No effects on utilities would occur.

4.12.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

The overall effects on utilities as a result of implementing the Bysiewicz Industrial Subdivision (Liberty Park) Alternative would be negligible with no significant effects. The increase in the site's workforce would likely only result in a negligible effect on utility demand. It is anticipated that existing utility services at the site would be able to meet the demand of the proposed facilities. The design of the proposed AFRC facilities would be in compliance with E.O. 13423 and would meet Leadership in Energy and Environmental Design (LEED™) design standards, which could include water efficient landscaping, minimum requirements for energy performance, and construction activity pollution prevention.

Potable Water Supply – No significant effects would result from implementing the Bysiewicz Industrial Subdivision Alternative. The service provider has indicated that adequate supply is available to support the new facility. The exact load required for the new facilities will be

determined during the design process. There are existing potable water supply lines at the site that can be accessed to provide potable water to the proposed facilities. The proposed new facility would be in compliance with E.O. 13423 and would meet LEED™ design standards. The new facility would likely be outfitted with Energy Star rated water-efficient control devices which would decrease the amount of water usage.

Sanitary Sewer System – No significant effects would be expected from implementing the Bysiewicz Industrial Subdivision Alternative. The new facilities would tie into the existing municipal sewer system lines at the proposed sites. The service provider has indicated that adequate capacity is available to support the new facility. The exact sanitary sewer design would be developed during the project design process.

Electric Service and Distribution – No significant effects would be expected from implementing the Bysiewicz Industrial Subdivision Alternative. No new transmission supply lines would be needed as they currently exist at the proposed site location. The new facility would be in compliance with E.O. 13423 and would meet the LEED™ design standards. The likely installation of Energy Star rated energy-efficient interior and exterior lighting fixtures would decrease the overall utility demand. Per UFC 4-171-05, the new facility will require 0.2 fc average from dusk to dawn and the POV parking lot will require 0.2 fc from dusk to a pre-determined timer off setting. These light levels are typically obtained using 400 watt, pulse start, metal halide fixtures on 30-foot poles (Blume, 2009).

Storm Water System – No significant effects to stormwater would be expected from implementing the Bysiewicz Industrial Subdivision Alternative. Stormwater runoff will be conveyed by surface flow or catch basins and pipe to either underground detention areas or surface detention basins. The detention areas will provide rate control and water quality management. The specific location and design of storm water management facilities will be determined during the design phase (Nelson, 2009b). The proposed facilities are not expected to significantly increase the amount of stormwater runoff. The proposed facilities would comply with all applicable state and federal regulatory and permitting requirements for stormwater during construction and operation of the facility.

Natural Gas – No significant effects would be expected from implementing the Bysiewicz Industrial Subdivision Alternative. A negligible increase in natural gas usage would result from the increase in the workforce population; however, the service provider has indicated that adequate supply is available to support the new facility. The exact requirement would be determined in the design phase of the project.

Communications – No effects would be expected to communications from implementing the Bysiewicz Industrial Subdivision Alternative. Communication lines exist at the proposed site locations and the service provider has indicated that adequate supply is available to support the new facility.. The exact requirement would be determined in the design phase of the project.

Solid Waste – No significant adverse effects would be expected from implementing the Bysiewicz Industrial Subdivision Alternative, though short-term minor adverse effects would occur. Debris from construction of the new facilities would temporarily increase the amount of solid waste generated by the proposed site. Wastes would be transported offsite to the regional landfill. The exact requirement would be determined in the design phase of the project.

4.12.2.3 Cucia Park Alternative (Preferred Alternative)

Potable Water Supply – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Sanitary Sewer System – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Electric Service and Distribution – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Storm Water System – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Natural Gas – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Communications – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Solid Waste – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

4.12.2.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Potable Water Supply – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Sanitary Sewer System – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Electric Service and Distribution – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Storm Water System – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Natural Gas – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Communications – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Solid Waste – Impacts under this alternative would be expected to be similar to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

4.13 HAZARDOUS AND TOXIC SUBSTANCES

Hazardous materials are substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present a substantial danger to public health or the environment if released. These typically include reactive materials such as explosives, ignitables, toxics (such as pesticides), and corrosives (such as battery acid). When improperly stored, transported, or otherwise managed, hazardous materials can significantly affect human health and safety and the environment.

4.13.1 Affected Environment

4.13.1.1 Hazardous Materials Use

All three sites are currently vacant and hazardous materials are not used on any of the sites. Environmental Condition of Property (ECP) assessments were conducted at the Bysiewicz Industrial Subdivision (Liberty Park), Cucia Park, and Millennium Industrial Park (Ken Dooley Drive) sites in January 2009. No evidence of previous or current hazardous materials usage at the sites was identified (USACE, 2009a, b, and c).

4.13.1.2 Hazardous Waste Storage and Handling Areas

There are no known hazardous waste storage or handling areas at any of the three sites. Based on the ECPs conducted in January 2009, no evidence of previous or current hazardous waste storage and handling at the Bysiewicz Industrial Subdivision, Cucia Park, and Ken Dooley Drive sites was identified (USACE, 2009a, b, and c).

4.13.1.3 Site Contamination Cleanup

The ASIV indicated that there are environmental concerns present at the Cucia Park and Millennium Industrial Park (Ken Dooley Drive) sites (USACE, 2008a). The concerns were related to soil contamination on adjacent property. An ECP conducted subsequent to the ASIV found no environmental contamination or concerns. Based on the ECPs conducted in January 2009, no evidence of known or suspected site releases, contamination or cleanup at the Bysiewicz Industrial Subdivision (Liberty Park), Cucia Park, and Millennium Industrial Park (Ken Dooley Drive) sites was identified (USACE, 2009a, b, and c).

4.13.2 Environmental Consequences

For the purposes of assessing the significance of impacts related to hazardous and toxic substances, the following impact thresholds were developed:

No Effect – There would be no increase in the amount of hazardous materials or waste handled, stored, used, or disposed of.

No Significant Effect – Action would result in an increase in the amount of materials or waste to be handled, stored, used, or disposed; but all hazardous or toxic materials and/or

wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks.

Significant Effect – Action would result in a substantial generation or increase (more than 100%) in the amount of materials or waste to be handled, stored, used, or disposed of, and this could not be safely or adequately handled or managed by the proposed staffing, resulting in unacceptable risk, exceedance of available waste disposal capacity, or probable regulatory violation. Site contamination conditions would preclude development of the site for the proposed use.

4.13.2.1 No Action Alternative

No effects would be expected for under the No Action Alternative. The proposed new facilities would not be constructed.

4.13.2.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Implementing this alternative would result in no significant adverse effects related to hazardous materials, use, handling, and storage.

The proposed AFRC building would consist primarily of office space and administrative service areas. There would be minimal use of hazardous materials, such as janitorial products and printing supplies. Any hazardous materials will be handled and stored in accordance with applicable regulations and label precautions and will not have any significant adverse impacts, though some negligible long-term adverse effects would be expected from the minimal use of hazardous materials and waste generated by the proposed facilities.

The proposed facility would include vehicle service bays for routine vehicle maintenance and a controlled waste storage area. Routine vehicle maintenance activities require the use of several types of hazardous materials. All hazardous materials would be handled and stored in appropriate hazardous materials cabinets or containers in accordance with applicable regulations and label precautions. The facility design includes floor drains that convey flow through oil-water separators. Within the vehicle maintenance areas, floors are sloped to trench drains at the perimeter of the maintenance bays which captures the vehicle maintenance wastewater and does not allow the effluent to flow outdoors. The exterior wash bay is also sloped to a catch basin to

contain the effluent which is also not allowed to flow to the outdoors. The wash bay is covered and contains rolled curbs to minimize storm water entry into the sanitary water system. The effluent from these areas is directed to an exterior oil/water separator. There is no valve or bypass which would prevent vehicle maintenance wastewater from entering the oil/water separator which complies with the State of Connecticut General Permit for the Discharge of Vehicle Maintenance Wastewater (Nelson, 2009b).

Hazardous wastes would be stored in containers and with labels as required by applicable regulations. All hazardous wastes would be transported off-site to licensed treatment or disposal facilities by approved licensed contractors. Any spills or releases of hazardous wastes at the proposed facilities would be handled according to applicable regulations. Hazardous waste generators in Connecticut must comply with standards including registration, on-site management, reporting and recordkeeping. Generators are responsible for making a hazardous waste determination and correct generator status determination. Small quantity generators (SQGs) are those who generate between 100 and 1000 kg of hazardous waste in a calendar month or 1 kg or less of acutely hazardous waste. SQGs must get an EPA Identification number and comply with specific requirements.

Based on the potential for small spills and the overall use of hazardous materials and disposal of hazardous waste, negligible short- and long-term adverse impacts would be expected from implementation of the this alternative. The possibility for even these very small amounts of materials to migrate off-site or impact area natural resources would be greatly reduced by the use of drip trays, mats, OWS, and the application of standard BMPs.

4.13.2.3 Cucia Park Alternative (Preferred Alternative)

The impacts of implementing this alternative would be the same as the Bysiewicz Industrial Subdivision Alternative and no significant effects would result from related to hazardous materials, use, handling, and storage.

4.13.2.4 Ken Dooley Dr/Boardman Lane Alternative

The impacts of implementing this alternative would be the same as the Bysiewicz Industrial Subdivision Alternative and no significant adverse effects would result from related to hazardous materials, use, handling, and storage.

4.14 CUMULATIVE EFFECTS SUMMARY

A cumulative impact is defined as “the impacts on the environment that result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertake such other action” (40 CFR 1508.7). The section goes on to note: “such impacts can result from individually minor but collectively significant actions taking place over a period of time.” Cumulative impacts associated with implementation of the Proposed Action would include any impacts from other on-going actions in Middletown, CT that would be incremental to the impacts of constructing and operating the proposed AFRC.

Past, present and future projects within the City of Middletown include:

Past

- Downtown Parking (began in 2005)
- Miller and Bridge Street neighborhood relocation and demolition (initiated in 1999)

Present

- South Cove Waterfront Development
- Hiking and Biking Trails Creation and Enhancement
- Portland Chemical Clean-up (ongoing since 2001)

Future

- Construction of a new Fire Training Facility
- Maromas Open Space Enhancement
- Middletown Farm Viability Study
- North End Redevelopment
- Closing of the Aetna Insurance Complex

4.14.1 No Action Alternative

Implementation of the No Action Alternative would avoid new impacts that could interact with the impacts of other past, present, and reasonably foreseeable actions. Therefore, there would be no cumulative impacts associated with the No Action Alternative.

4.14.2 Bysiewicz Industrial Subdivision (Liberty Park) Alternative

Land Use

The Bysiewicz Industrial Subdivision (Liberty Park) Alternative is consistent with the current zoning and the goal of the City of Middletown to develop the northwestern portion of the City as an industrial zone. No other cumulative projects occurring within this section of the City.

Aesthetic and Visual Resources

The Bysiewicz Industrial Subdivision (Liberty Park) Alternative would be expected to be consistent with the aesthetic quality of the surrounding buildings. None of the cumulative projects are expected to interfere with existing viewsheds. As a result, these projects will not adversely cause significant impacts when added cumulatively to the effects of other construction.

Air Quality

Cumulative impacts to air quality would be associated with construction and operation of the proposed projects at the Bysiewicz Industrial Subdivision (Liberty Park) Alternative site. Increase in annual emissions from the construction activities from the Proposed Action would not be significant, making up no more than ten percent of the available regional emission inventory for PM_{2.5}, VOCs or NO_x. Additionally, no pollutant would exceed their respective *de minimis* level during construction or operation of the proposed projects

Noise

Construction and operation of the proposed AFRC at Bysiewicz Industrial Subdivision (Liberty Park) would not contribute to cumulative noise levels in the area as there are no current or proposed future actions scheduled to occur within or adjacent to the alternative site location.

Geology and Soils

Impacts to geology, topography, soils, and prime farmlands are site-specific and are not affected by cumulative development in the region. Cumulative impacts would only occur if development were to occur within or immediately adjacent to the site where the proposed actions were to occur, or if development on the site affected geologic resources of the site where other development may occur. Because there are no current or proposed future actions scheduled to occur within or adjacent to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative site, there would be no significant cumulative impacts to the geology, topography, or soils within or immediately adjacent to the project area.

Water Resources

Cumulative effects result from the incremental consequences of an action when added to other past and reasonable foreseeable future actions (40 CFR 1508.7). Cumulatively, the increase in impervious surfaces has the potential to cause more water to flow over land as runoff, prior to entering into streams and their tributaries, often resulting in changes in the water cycle, impacts to riparian areas, and increases in water pollution, which eventually would decrease water quality. Mitigation measures aimed at minimizing adverse cumulative effects include the: reduction and/or maintenance of point and non-point sediment; compliance with general construction permit limits and requirements; and implementation of stormwater pollution control plans including application of BMPs. No significant effect would be expected.

Biological Resources

No cumulative impacts to vegetation or and no significant impacts to wildlife are expected as a result of implementing the Proposed Action on this alternative site. The entire property has been disturbed by construction and stripped to exposed soils and bedrock; almost no vegetation or wildlife habitat occurs within these disturbed areas. Vegetation and wildlife habitat occurring on-site is limited the wetland areas on the western edge of the property; which would not be affected by the new AFRC facilities. There are no federal rare, threatened, or endangered species present on the Bysiewicz Industrial Subdivision (Liberty Park) Alternative site. Design, construction, and operation of the AFRC at this site would keep the facility significantly away from the known

eastern box turtle habitat area and on the highly developed industrial lots of the industrial park. No cumulative effects to eastern box turtle habitat and species are expected.

Cultural Resources

There are no cumulative impacts for Cultural Resources. The Area of Potential Effect (APE) of the AFRC project for the Bysiewicz Industrial Subdivision (Liberty Park) Alternative would be limited to the site and its immediate vicinity. As none of the projects considered for cumulative impacts are in the immediate vicinity of the alternative site, there is no potential for a cumulative impact.

Socioeconomics

The addition of the Fire Station Training facilities, Maromas Open Space Enhancement and expanded biking and hiking trails would be expected to have positive effects on the quality of life for the City of Middletown.

All other cumulative projects would be expected to have a positive effect on economic development due to increased construction spending over current proposed levels. Increased construction spending will contribute to raised incomes, higher sales volume, and increased employment. Whether or not these effects will be significant depends on whether or not this spending will contribute to percentage increases in these categories above historical RTV values. The construction of an AFRC at the Bysiewicz Industrial Subdivision (Liberty Park) Alternative would not affect the future development of these programs.

Transportation

The background projects proposed in the vicinity of the study area were evaluated as they pertain to traffic cumulative impacts. In view of the size of some projects, distance from the project sites of others, and uncertainty of some project details (they are still in the early planning stages), the 1.75% per year background growth between 2008 and 2011 used to develop the no build condition traffic volumes would sufficiently represent all of the foreseeable planned projects in the area. To be conservative, Aetna's plan to close their 4,000 employee facility in the study area by 2010 was not considered in the future 2011 traffic analysis. If Aetna moves and no other company replaces their employees after 2010, traffic volumes within the study area would

diminish significantly. As the background growth has already been accounted for, there are not expected to be any cumulative impacts to transportation for the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Utilities

The recent past and present projects are not expected to have a cumulative impact on the ability of the providers to continue to provide ample utility services to the installation. The cumulative projects do not require an additional demand on utilities in the foreseeable future for the Bysiewicz Industrial Subdivision (Liberty Park) Alternative.

Hazardous and Toxic Substances

The quantities of hazardous material required for and hazardous waste generated from the Bysiewicz Industrial Subdivision (Liberty Park) Alternative would be minimal and is not anticipated to contribute to the cumulative impacts. Hazardous materials within the City of Middletown are expected to decrease overall as a result of the Portland Chemical Clean-up, which is on-going.

4.14.3 Cucia Park Alternative (Preferred Alternative)

Cumulative impacts for this alternative are expected to be identical to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative with the exception of the following resource areas:

Biological

Cumulative impacts to biological resources from the Cucia Park Alternative would not be significant. Some species may be temporarily discouraged from the area from dust, erosion, and noise, while some may be displaced permanently from the areas through loss of habitat. Affected wildlife populations would likely not be adversely affected due to the remaining wildlife habitats that would support viable populations in the area. There are no federal- or Connecticut state-listed rare, threatened, or endangered species present on the Cucia Park Alternative site. Use of certain Connecticut Wildlife Division recommendations and mitigation measures to minimize impacts to eastern box turtles (detailed in Section 4.8.2.5) would ensure that cumulative impacts do not become significant.

Water Resources

Cumulative effects result from the incremental consequences of an action when added to other past and reasonable foreseeable future actions (40 CFR 1508.7). Cumulatively, the increase in impervious surfaces has the potential to cause more water to flow over land as runoff, prior to entering into streams and their tributaries, often resulting in changes in the water cycle, impacts to riparian areas, and increases in water pollution, which eventually would decrease water quality. Mitigation measures aimed at minimizing adverse cumulative effects include the: reduction and/or maintenance of point and non-point sediment; compliance with general construction permit limits and requirements; and implementation of stormwater pollution control plans including application of BMPs. In addition, the proposed action may result in effects to forested wetland areas. These effects would be mitigated through permit mitigation requirements as stipulated by the US Army Corps of Engineers Section 401 Programmatic General Permit.

4.14.4 Millennium Industrial Park (Ken Dooley Drive) Alternative

Cumulative impacts for this alternative are expected to be identical to the Bysiewicz Industrial Subdivision (Liberty Park) Alternative with the exception of the following resource areas:

Biological

Cumulative impacts to vegetation and wildlife resulting from implementation of this alternative would be similar to those of the Cucia Park Alternative.

4.15 MITIGATION SUMMARY

Mitigation measures are discussed as part of this EA to minimize and compensate for the unavoidable loss of wetlands. Best Management Practices would be implemented in association with the Preferred Alternative.

Mitigation

The proposed activity at the Preferred Alternative site, Cucia Park, impacts 0.26 acres of inland wetlands or waters, inclusive of direct, indirect and temporary impacts (includes areas or waters flooded, dewatered or cut). This impact would require obtaining a U.S. Army Corps of Engineers Regulatory Division permit through the District Engineer's Connecticut State Programmatic General Permit 2. This effort under Section 404 of the Clean Water Act, also includes application to the CTDEP for a State Water Section 401 Water Quality Certification. A preliminary jurisdictional determination has been filed with the New England District, U.S. Army Corps of Engineers Regulatory Division.

At Cucia Park, construction will result in the unavoidable loss of about 0.26 acres of wetlands requiring replication or compensation for the loss at a rate to be determined with the final completion of the formal permitting through the U.S. Army Corps of Engineers and State of Connecticut. As final design plans and specifications move forward, additional agreements on the mitigation plan development will be addressed through the Corps and State of Connecticut because mitigation requirements may be project specific.

Where on-site wetland mitigation may not be available, in an effort to determine locations where off-site mitigation for construction of a new AFRC at Cucia Park could be completed if required, preliminary discussions with the Department of Planning, Conservation and Development for the City of Middletown have identified six locations that could be supported by the City of Middletown for potential wetlands mitigation. These properties include: Tuttle Place, Smith Park, Galluzzo Pond, Mile Lane 1, High School, Spencer School. Mitigation required for construction of a new AFRC on the Millennium Industrial Park (Ken Dooley Drive) Alternative site could be performed on-site.

Creation or enhancement of wetland resources is preferred to include habitats that may be utilized by eastern box turtle. The efforts would require design to enhance a combination of upland/wetland habitats since the species have an extremely small home range and are found near small streams and ponds

Best Management Practices

A number of BMPs are identified and are to be carried out as part of a pro-active environmental stewardship to minimize and offset the potential environmental impacts associated with the construction and operation of an AFRC on the Preferred Alternative site.

Construction

The impacts of construction are typically temporary and can be minimized by use of appropriate erosion and sedimentation controls and spill controls. These controls may include but are not limited to silt fence, temporary seeding, wood fiber blanket, creating temporary sedimentation basins at points of concentrated flow, permanent seeding and vegetation. General construction permits associated with stormwater from construction activities would be obtained from and administered by CTDEP. Adherence to Connecticut's Soil Erosion and Sediment Control handbook, and Middletown's erosion control standards minimizes soil and erosion from construction and BMPs for erosion and sedimentation controls would ensure that stormwater runoff would not impact surface waters. While there is an impaired waterway on the Preferred Alternative site, the waterway was listed on the 303(d) List for bacteria only. Therefore, the activities that would occur at the new AFRC would not further impact this waterway.

Typical mandatory construction requirements have site specific plans prepared and approved prior to construction. These include:

- A Sediment and Stormwater Plan and a National Pollutant Discharge Elimination System (NPDES) permit would be required.
- A Notice of Intent for Storm water Discharges Associated Construction Activity under a NPDES General Permit would be submitted to the CTDEP. The Sediment and Storm water Plan would include BMPs to be used during site preparation, earthworks, and construction activities at the site. Site-specific BMPs would be based on proper design, run-off calculation, slope factors, soil type, topography, construction activities involved, and proximity to water bodies. Potential BMPs may include installation of silt fences, coverage of soil piles with mulch, installation of hay bales, and maintaining exposed surface soils in a damp state. Any storm water discharged off-site via the storm water drainage ditches would meet all state and local regulatory and permit requirements.
- Forestry BMPs and practices to control soil erosion and sedimentation during clearing and construction activities would be implemented to minimize potential impacts to adjacent forested habitats and water quality.

Site-Specific

Visual/Aesthetics resources: Adverse effects would be minimized if the design of the proposed action incorporates the materials, style, color, and articulation of surrounding visual resources.

Noise: Measures that serve to limit noise during construction and demolition include limiting activity at project sites to daytime hours; limiting truck traffic ingress/egress to daytime hours; promoting awareness that producing prominent discrete tones and periodic noises (e.g., excessive dump truck gate banging) should be avoided as much as possible; requiring that work crews seek pre-approval for any weekend activities, or activities outside of daytime hours; and employing noise-controlled construction equipment to the maximum extent possible. Noise impacts can be further reduced by employing noise-controlled construction equipment to the extent possible and confining construction activities to normal working hours, between 7:00 a.m. and 6:00 p.m. on weekdays, when existing ambient noise levels in the vicinity of the site are at their highest.

Compliance with the OSHA standards for occupational noise exposure associated with construction (29 CFR 1926.52) would address the construction workers hearing protection. The arrival and staging of heavy equipment and materials would be scheduled to occur during normal work hours to the greatest extent possible to avoid noise disturbances to adjacent properties.

Vegetation: Cucia Park has a number of large diameter trees on site. To minimize their losses, certain individual tree species currently existing on site will be identified and preserved during construction, where possible.

Species of Special Concern: With no federally protected species present in the Preferred Alternative area, efforts to avoid and minimize impacts to state-listed species were incorporated to the extent practical. Though habitat for the Eastern Box Turtle has been reported within and near the Cucia Park Alternative, the Army will incorporate measures recommended by the CT Department of Environmental Protection, where applicable, to minimize potential habitat and its loss for the State-listed Special Concern Species, Eastern Box Turtle. These include:

- Installation of silt fencing around the work area prior to construction. These are to be removed after soils are stable so that reptile and amphibian movement between adjacent uplands, wetlands, and floodplains are not restricted

- Conducting a search by a knowledgeable individual each day prior to construction of the work area looking for turtles;
- Ensuring workers are apprised of the possible presence of box turtles and a description of the species;
- Movement of Eastern box turtles that are discovered in the construction work areas, or if nearby be moved, unharmed, to an area immediately outside of the fenced or construction area in the same direction that it was walking;
- Not parking vehicles or heavy machinery outside of construction work areas in areas that could be eastern box turtle habitat;
- Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging individuals; and
- Once completed, the project areas that are not under landscaping will have limited grass mowing to a few times per year, either just before or just after the active season, which April to October, with precautions is taken to avoid mowing in June.

Wetlands: In addition to compliance with all federal and state requirements, incorporation of the City of Middletown's Inland Wetlands and Watercourses Agency's general provisions found in Section 9.9 of the Inland Wetlands and Watercourses Regulations would be included in the designs to the extent practical. These can include:

- Ensuring before an activity begins, the wetland boundaries are flagged with continuous construction ribbon and shall be kept in good repair for the duration of the project. The flagging will be visible above the basic ground level vegetation. In addition, no disturbance or activity either permanent or temporary is allowed within 100 feet of the wetland boundaries other than those to be impacted.
- Construction management practices will be used, consistent with the requirements of the terms and conditions of the U.S. Army Corps of Engineers, State of Connecticut Section 401 Water Quality Certification, and Army construction standards, to control storm water discharges and to prevent erosion and sedimentation and to otherwise prevent pollution of wetlands and watercourses.

5.0 FINDING AND CONCLUSIONS

5.1 FINDINGS

5.1.1 Consequences of the No Action Alternative

Under the No Action Alternative, the proposed new AFRC and the associated facilities would not be constructed, and no environmental impacts would occur.

5.1.2 Consequences of the Proposed Action Alternatives

The Proposed Action would not have any significant adverse effects or impacts on any of the environmental or related resource areas within the local or surrounding areas of the three alternative sites in Middletown CT. For all resource areas, the effects are evaluated to be at No Effect or No Significant Effect levels.

A summary of impacts by resource area for the No Action and three Proposed Action Alternatives is provided in Table 5-1.

Table 5-1. Summary of the Impacts of the Proposed Action Alternatives

Resource Area	No Action Alternative	Bysiewicz Industrial Subdivision (Liberty Park)	Cucia Park	Millennium Industrial Park (Ken Dooley Drive)
Land Use				
<i>Regional Geographic Setting and Location</i>	No effect.	No effect.	No effect.	No effect.
<i>Site Land Use</i>	No effect.	No significant effect.	No significant effect.	No effect.
<i>Current and Future Development in the Region of Influence</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Aesthetic and Visual Resources	No effect.	No significant effect.	No significant effect.	No significant effect.
Air Quality				
<i>Ambient Air Quality Conditions</i>	No effect.	No significant effect.	No significant effect.	No significant effect.

Resource Area	No Action Alternative	Bysiewicz Industrial Subdivision (Liberty Park)	Cucia Park	Millennium Industrial Park (Ken Dooley Drive)
<i>Meteorology/Climate</i>	No effect.	No effect.	No effect.	No effect.
<i>Air Pollutant Emissions at Project Site</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Regional Air Pollutant Emissions Summary</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Noise	No effect.	No significant effect.	No significant effect.	No significant effect.
Geology and Soils				
<i>Geologic and Topographic Conditions</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Soils</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Prime Farmland</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Water Resources				
<i>Surface Water</i>	No effect.	No effect.	No effect.	No significant effect.
<i>Wetlands</i>	No effect.	No effect.	No significant effect – impacts would be mitigated.	No significant effect – impacts would be mitigated.
<i>Hydrogeology/Groundwater</i>	No effect.	No effect.	No effect.	No significant effect.
<i>Floodplains</i>	No effect.	No significant effect.	No effect.	No effect.
<i>Coastal Zone</i>	No effect.	No effect.	No effect.	No effect.
Biological Resources				
<i>Vegetation</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Wildlife</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Threatened, Endangered, and Sensitive Species</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Cultural Resources				

Resource Area	No Action Alternative	Bysiewicz Industrial Subdivision (Liberty Park)	Cucia Park	Millennium Industrial Park (Ken Dooley Drive)
<i>Archaeology</i>	No effect.	No effect.	No effect.	No effect.
<i>Built Environment</i>	No effect.	No effect.	No significant effect.	No significant effect.
<i>Native American Resources</i>	No effect.	No effect.	No effect.	No effect.
Socioeconomics				
<i>Economic Development</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Demographics</i>	No effect.	No effect.	No effect.	No effect.
<i>Environmental Justice</i>	No effect.	No effect.	No effect.	No effect.
<i>Protection of Children</i>	No effect.	No effect.	No effect.	No effect.
Transportation				
<i>Roadways and Traffic</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Public Transportation</i>	No effect.	No effect.	No effect.	No effect.
Utilities				
<i>Potable Water Supply</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Sanitary Sewer System</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Electrical Service and Distribution</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Storm water System</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Natural gas</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Communications</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Municipal Solid Waste</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Hazardous Materials Use, Handling, and Storage				

Resource Area	No Action Alternative	Bysiewicz Industrial Subdivision (Liberty Park)	Cucia Park	Millennium Industrial Park (Ken Dooley Drive)
<i>Uses of Hazardous Materials</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Storage and Handling Areas</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
<i>Site Contamination and Cleanup</i>	No effect.	No significant effect.	No significant effect.	No significant effect.
Cumulative Effects	No effect.	No significant effect.	No significant effect.	No significant effect.

5.2 CONCLUSIONS

The impacts associated with the construction and operation of the proposed AFRC at each of the three alternative sites does not demonstrate adverse impacts that warrant the preparation of an EIS. Moreover, mitigation would be necessary to offset impacts to unavoidable wetlands at the Cucia Park site, as described in Section 4.15. Therefore, the results of the analyses warrant a FNSI.

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8.0 ACRONYMS

ADT	Average Daily Traffic
AFRC	Armed Forces Reserve Center
AIRFA	American Indian Religious Freedom Act
AMSA	Area Maintenance Support Activity
APE	Area of Potential Effect
ARC	Army Reserve Center
ARPA	Archaeological Resources Protection Act
ASIV	Available Site Identification and Validation
AT/FP	Anti-Terrorism/Force Protection
ATR	Automatic Traffic Recorder
B.C.E.	Before Common Era
BMPs	Best Management Practices
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CATV	Cable TV
C.E.	Common Era
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CL&P	Connecticut Light and Power
CT	Connecticut
CTARNG	Connecticut Army National Guard
CTDEP	Connecticut Department of Environmental Protection
CT SHPO	Connecticut State Historic Preservation Office
CWA	Clean Water Act
DD	Department of Defense (form only)
dB	Decibel
dBA	A-weighted decibels

DoD	Department of Defense
EA	Environmental Assessment
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FNSI	Finding of No Significant Impact
FEMA	Federal Emergency Management Agency
HCM	Highway Capacity Manual
HVAC	Heating, Ventilation, and Air Conditioning
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IT	Interstate Trade
ITE	Institute of Transportation Engineers
JD	Jurisdictional Determination
LEED	Leadership in Energy and Environmental Design Standard
LID	Low Impact Development
LOS	Level of Service
MEP	Military Equipment Parking
msl	Mean Sea Level
NAGPRA	Native American Graves Protection and Repatriation Act
NB	Northbound
NDDDB	Natural Diversity Database
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OMS	Organizational Maintenance Shop

OSHA	Occupational Safety and Health Administration
OWS	Oil/Water Separator
POV	Privately-owned Vehicle
RCRA	Resource Conservation and Recovery Act
RSC	Readiness Support Command
RTV	Rational Threshold Value
SB	Southbound
sf	Square Feet
sy	Square Yards
SPDES	State Pollutant Discharge Elimination System
SQG	Small Quantity Generator
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
U.S.	United States
USACE	U.S. Army Corps of Engineers
USAR	U.S. Army Reserve
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VMS	Vehicle Maintenance Shop

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