DRAFT

LEXINGTON, KENTUCKY
LEESTOWN DIVISION
VETERANS AFFAIRS MEDICAL CENTER
ETHANOL-85 (E85) FUELING STATION EA

Prepared for

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TABLE OF CONTENTS

Page

LIST OF ACRONYMS vii

1.0 PURPOSE AND NEED 1-1
1.1 INTRODUCTION 1-1
1.2 BACKGROUND 1-2

2.0 PROPOSED ACTION 2-1

3.0 ALTERNATIVES 3-1
3.1 NO-ACTION ALTERNATIVE 3-1

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES ... 4-1
4.1 NOISE 4-1
4.1.1 Affected Environment 4-1
4.1.2 Environmental Consequences 4-1
4.2 AESTHETICS AND VISUAL RESOURCES 4-2
4.2.1 Affected Environment 4-2
4.2.2 Environmental Consequences 4-2
4.3 AIR QUALITY 4-3
4.3.1 Affected Environment 4-3
4.3.2 Environmental Consequences 4-3
4.4 SOCIOECONOMICS 4-4
4.4.1 Affected Environment 4-4
4.4.2 Environmental Consequences 4-6
4.5 TRANSPORTATION 4-6
4.5.1 Affected Environment 4-6
4.5.2 Environmental Consequences 4-7
4.6 CULTURAL AND HISTORIC RESOURCES 4-7
4.6.1 Affected Environment 4-7
4.6.2 Environmental Consequences 4-9
4.7 GEOLOGY AND SOILS 4-9
4.7.1 Affected Environment 4-9
4.7.2 Environmental Consequences 4-10
4.8 GROUNDWATER AND WATER QUALITY 4-11
4.8.1 Affected Environment 4-11
4.8.2 Environmental Consequences 4-11
4.9 WETLANDS, FLOODPLAINS, AND SURFACE WATERS 4-12
4.9.1 Affected Environment 4-12
4.9.2 Environmental Consequences 4-12

4.10 VEGETATION AND LAND USE 4-15
4.10.1 Affected Environment 4-15
4.10.2 Environmental Consequences 4-15
4.11 WILDLIFE 4-16
4.11.1 Affected Environment 4-16
4.11.2 Environmental Consequences 4-16
4.12 THREATENED AND ENDANGERED SPECIES 4-17
4.12.1 Affected Environment 4-17
4.12.2 Environmental Consequences 4-17
4.13 SOLID AND HAZARDOUS MATERIALS AND WASTES 4-18
4.13.1 Affected Environment 4-18
4.13.2 Environmental Consequences 4-18
4.14 SAFETY 4-19
4.14.1 Affected Environment 4-19
4.14.2 Environmental Consequences 4-20

5.0 CUMMULATIVE EFFECTS 5-1
5.1 CUMMULATIVE EFFECTS SUMMARY 5-1
5.2 MITIGATION SUMMARY 5-1

6.0 LIST OF PREPARERS 6-1

7.0 REFERENCES 7-1

8.0 PERSONS CONSULTED 8-1

APPENDICES

A. PROGRAM-WIDE ANALYSIS OF ENVIRONMENTAL IMPACTS FROM E85 ALTERNATIVE FUELING FACILITIES AT VETERAN AFFAIRS MEDICAL CENTERS THROUGHOUT THE U.S A-1

B. AGENCY COORDINATION AND SCOPING COMMENTS B-1

LIST OF FIGURES

Figure No. **Page**

2-1. Regional map showing general location of the Lexington LD VAMC 2-2

2-2. Aerial view of the Lexington LD VAMC showing the layout of the campus and the preferred location of the E85 fueling station 2-3

2-3. Facility map of the Lexington LD VAMC highlighting the preferred location for the E85 fueling area 2-4

2-4. Close-up view of the preferred site for the proposed E85 fueling station at the Lexington LD VAMC 2-5

4-1. Mapped wetlands in the immediate vicinity of the Lexington LD VAMC facility, according to the U.S. Fish and Wildlife Service National Wetland Inventory mapping 4-13

4-2. Mapped floodplains in the immediate vicinity of the Lexington LD VAMC facility, according to the Federal Emergency Management Agency. 4-14

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LIST OF ACRONYMS

ARPA	Archeological Resources Protection Act
AST	Above Ground Storage Tank
AT/FP	Antiterrorism/Force Protection
BMPs	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
E85	Ethanol 85 Fuel
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FFV	Flex Fuel Vehicle
LD	Leestown Division
NAAQS	National Primary and Secondary Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Agency
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

PPA	Pollution Prevention Act
RCRA	Resource Conservation and Recovery Act
SF	Square Feet
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SPCC	Spill Prevention, Control and Countermeasure
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VA	U.S. Department of Veterans Affairs
VAMC	VA Medical Center
VHA	Veterans Health Administration

1.0 PURPOSE AND NEED

1.1 INTRODUCTION

In response to recent federal initiatives, the Department of Veterans Affairs (VA) is considering alternatives for reducing the intensity of fossil fuel use at its facilities. In accordance with these initiatives, the VA proposes to install and operate ethanol-85 (E85) fueling stations at many of its VA medical centers (VAMCs). The VAMCs have most of the flex-fuel vehicles (FFVs) that are used by VA personnel such as ambulances, cars, trucks and buses. In addition, VAMCs are often near or collocated with other regional VA facilities whose personnel would also have access to an E85 station once installed. The purpose of installing E85 fuel tanks at VAMC campuses is to support the support the existing VHA FFV fleets that are currently underutilized owing to lack of E85 availability, and to reduce the number of DOE waivers that are currently needed by the VA to comply with Section 701 [42 U.S.C. 6374(a)(3)(E)] of the Energy Policy Act of 2005 requiring federal fleets to replace petroleum use with alternative fuels. If FFVs are eventually phased out and replaced with hybrid vehicles, any E85 tank could be used for gasoline (E10) and almost all hybrid vehicles run on gasoline. There is some interest in fueling hybrids with E85 (Flex Fuel hybrids), but they are not widely available at this time.

The Veterans Health Administration (VHA) FY2009 Minor Construction budget included $7 million for constructing alternative fuel stations. However, that amount was insufficient to adequately fund E85 fueling stations on all VAMC campuses. To facilitate their decision-making, the VA commissioned a study to identify optimal locations for constructing fueling stations within the limits of available funding. The results of this study gave priority to 92 facilities distributed among 44 states (Versar 2009).[1] To evaluate and address the potential environmental impacts of this action, a program-wide analysis has been prepared in accordance with the National Environmental Policy Act (NEPA). The *Program-wide Analysis of Environmental Impacts from E85 Alternative Fueling Facilities at Veterans Affairs Medical Centers throughout*

[1] The VHA has acquired additional funding for the project since the 2009 study resulting in more sites being considered for E85 fueling stations than were initially identified. However, the total number of sites evaluated has not changed because some of the original candidate sites have been dropped after further consultation.

the U.S. examines the potential environmental impacts of installing and operating E85 fueling stations at VAMCs at the priority facilities; it is included as Appendix A of this site-specific EA.

1.2 BACKGROUND

The program-wide analysis provides an overall assessment of impacts of the proposed action from a programmatic, or national, perspective and identifies the key regulatory requirements under which the NEPA process must be implemented. The program-wide analysis considers three technological alternatives for installing an E85 fueling station: (1) installation of an above ground storage tank (AST); (2) installation of an underground storage tank (UST); and (3) conversion of an existing UST to E85 fuel, as well as the No-action Alternative to not install E85 at any of the VAMCs. Given the scope of what is being proposed at each facility, the environmental resources at most VAMCs would be affected similarly, regardless of what technological alternative was used. However, for many resources, the alternatives may have different effects at the regional or local level, and these site-specific effects are addressed in each site-specific EA. In addition, each EA considers any alternative locations for siting the E85 fueling station at individual VAMCs.

This site-specific EA has been prepared in the same accord as the program-wide analysis, but it will focus on the environmental issues that are specific to the Lexington, Kentucky VAMC Leestown Division surroundings and existing environmental resources beyond what is considered in the program-wide analysis. The medical center is located at 2250 Leestown Road, in Lexington, Kentucky, and will herein be referred to as the Lexington LD VAMC. It offers inpatient treatment, nursing home care, hospice and respite services, home based primary care, mental health, and substance abuse treatment as well as primary care and women health. The focus of this EA is the potential effects of the Proposed Action on existing conditions related to cultural resources, aquatic resources, solid and hazardous materials and wastes, as well as terrestrial natural resources. It also identifies any mitigation that would be required to enable the installation of the E85 fueling station at the proposed site.

The Council on Environmental Quality (CEQ) develops implementation regulations and oversees the efforts of federal agencies as they implement their NEPA programs. CEQ issued NEPA implementation regulations in 1978, which are included in Title 40, Code of Federal Regulations (CFR), Parts 1500-1508. This site-specific EA is tiered from the program-wide analysis and complies with the NEPA, CEQ regulations, and VA regulations for implementing the NEPA (38 CFR Part 26). It also addresses all applicable laws and regulations, including but not limited to the following:

- National Historic Preservation Act (NHPA)
- Archeological Resources Protection Act (ARPA)
- Clean Air Act (CAA)
- Clean Water Act (CWA)
- Endangered Species Act (ESA)
- Pollution Prevention Act (PPA)
- Resource Conservation and Recovery Act (RCRA)

The program-wide analysis is included as Appendix A of this site-specific EA. The draft site-specific EA will be made available to local, state, federal, and tribal government agencies for a 30-day comment review period to meet the intent of National Environmental Policy Act (NEPA) and 38 CFR 26.9. Agency coordination and scoping comments will be included in Appendix B of the Final EA.

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2.0 PROPOSED ACTION

Under the Proposed Action, a 5,000 gallon E85 AST alternative fueling station would be constructed and operated at the Lexington LD VAMC located approximately 5 miles northwest of the VAMC facility in Lexington, Kentucky (Figure 2-1). Figure 2-2 shows an aerial view of the campus and the surrounding area. The proposed location for the E85 fueling station is near the Transportation Building and Utility Shop along the southern periphery of campus where the facility operations and maintenance areas are located (Figures 2-3 and 2-4). Additional road improvements would be needed to provide access for vehicles and fuel delivery trucks. The estimated footprint of the AST, including a concrete pad and sufficient access to the tank, would be approximately 225 square feet (SF), assuming that a light-weight, double-walled tank is installed. The proximity to existing electrical power, required safety setbacks from buildings and property lines, and the VA Antiterrorism/Force Protection (AT/FP) requirements were considered during the site-selection process.

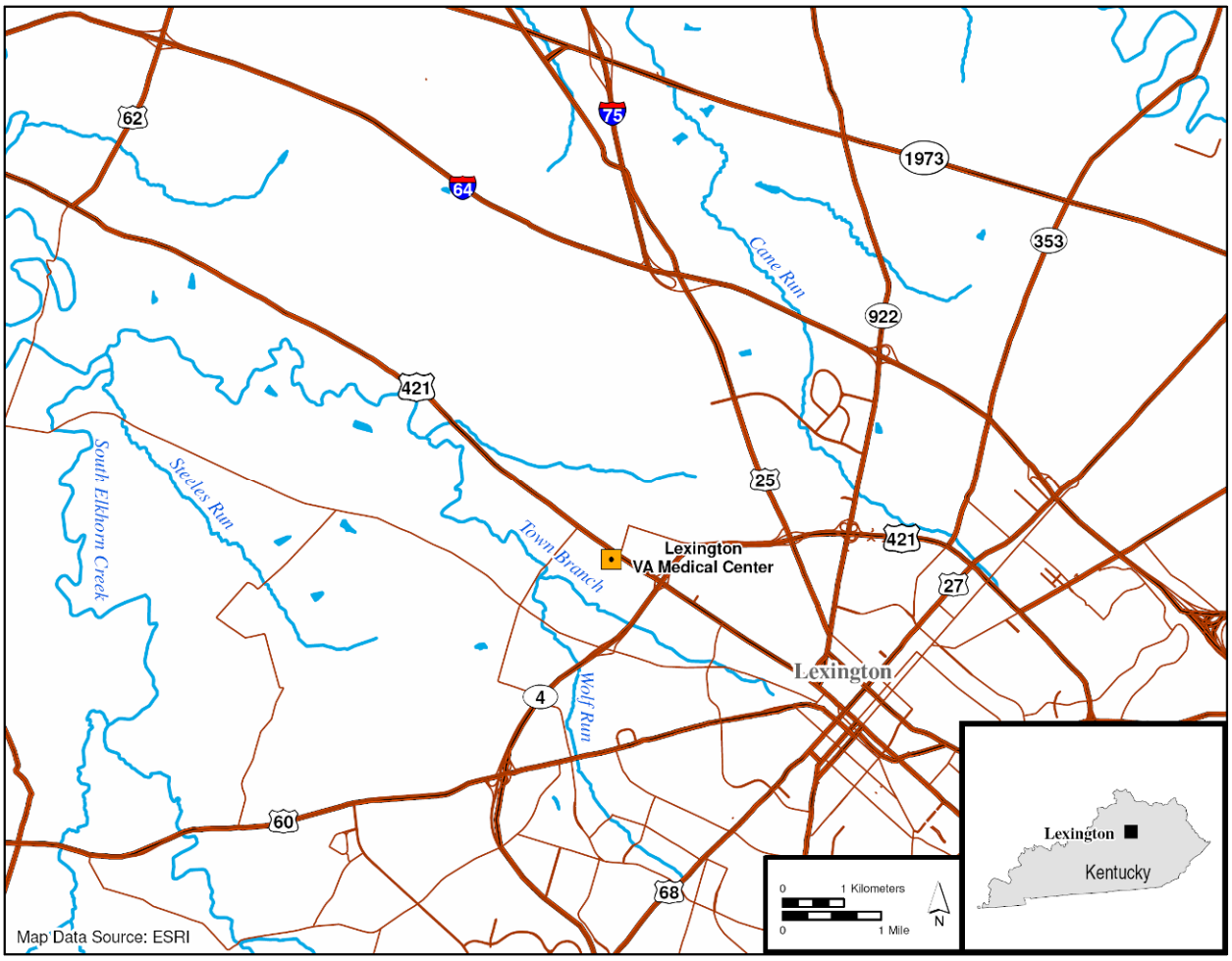

Figure 2-1. Regional map showing general location of the Lexington LD VAMC

Figure 2-2. Aerial view of the Lexington LD VAMC showing the layout of the campus and the preferred location of the E85 fueling station

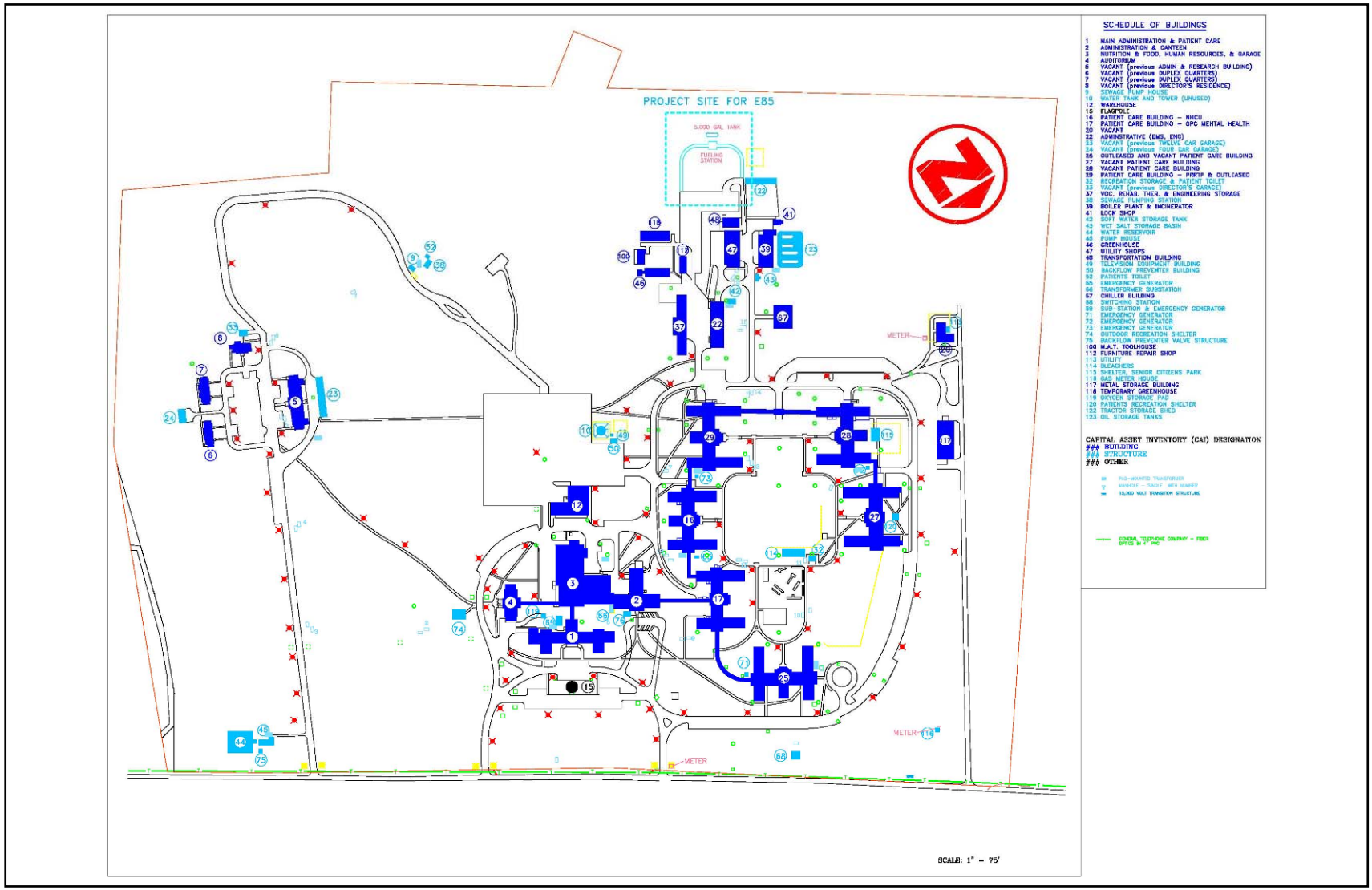

Figure 2-3. Facility map of the Lexington LD VAMC highlighting the preferred location for the E85 fueling area

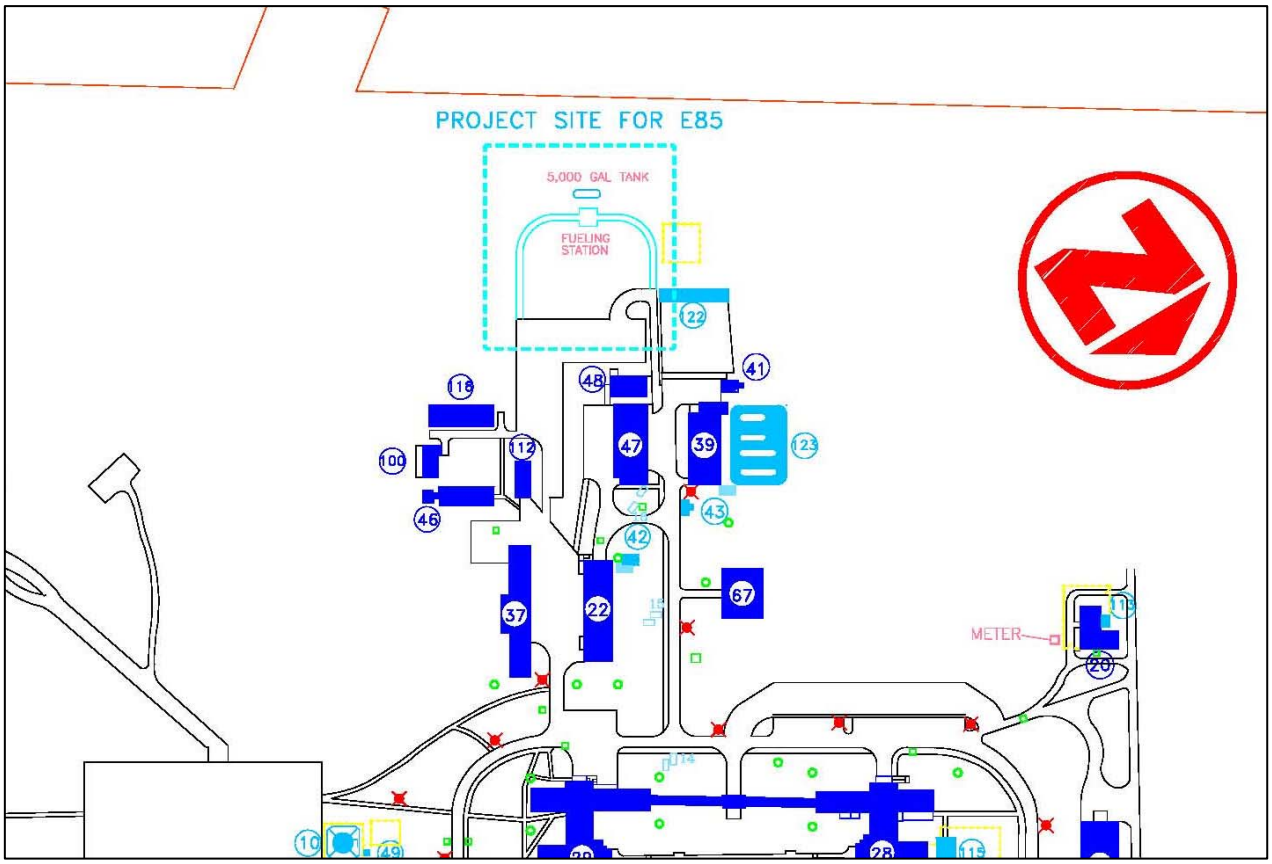

Figure 2-4. Close-up view of the preferred site for the proposed E85 fueling station at the Lexington LD VAMC

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3.0 ALTERNATIVES

3.1 NO-ACTION ALTERNATIVE

CEQ regulations prescribe analysis of the No-action Alternative, which serves as the benchmark against which the environmental, social, and economic effects of the Proposed Action and other reasonable alternatives can be evaluated. In this site-specific EA, the benchmark is not to install an alternative E85 fueling station on the Lexington LD VAMC campus. The No-action Alternative would not support the existing VHA FFV fleets that are currently underutilized owing to lack of E85 availability, nor would it reduce the number of VA waiver requests to DOE under Section 701 of EPACT 2005. It would also not help the VA to meet the sustainability goals of EO 13514 for federal agencies, which include using vehicles that reduce the agency's total consumption of petroleum products for fleets of motor vehicles by a minimum of 2% annually through the end of fiscal year 2020, compared to the baseline of fiscal year 2005.

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4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 NOISE

4.1.1 Affected Environment

The potential impacts of noise associated with the construction and operation of an E85 fueling station are addressed in the program-wide analysis (Appendix A). The Lexington LD VAMC provides medical services to veterans and maintaining a serene environment for patients is important. Noise is generally regulated by a local ordinance that is established by a village, town, or city, or other local jurisdiction. Noise ordinances often relate to land use zoning with different maximum levels prescribed for residential, commercial, and industrial areas. Some noise ordinances impose restrictions by time of day with reduced noise levels during nighttime hours.

4.1.2 Environmental Consequences

4.1.2.1 Proposed Action

The various equipment options and related activities associated with the Proposed Action are expected to result in only minor increases in noise levels for the operation of an E85 fueling station. Short-term but measurable increases in noise levels are expected during construction. The relationship between noise level and distance from a vehicle are evaluated under a worst-case scenario in the program-wide analysis, and the traffic associated with the proposed fueling would not have a significant noise impact at any sensitive receptor. Additionally, the proposed fueling station at the Lexington LD VAMC would be located away from any patient care buildings.

4.1.2.2 No-action Alternative

The installation and operation of an E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts due to noise under the No-action Alternative. All VA

personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.2 AESTHETICS AND VISUAL RESOURCES

4.2.1 Affected Environment

The significance of potential effects on aesthetics and visual resources is based on the level of sensitivity in the areas affected by the Proposed Action. Visual sensitivity is defined as the degree of public interest in a visual resource and the concern over potential adverse changes in the quality of that resource. The Lexington LD VAMC campus is in a park-like setting with the medical facilities on maintained, landscaped grounds. Some areas of the campus may have historically significant buildings or structures that are currently listed, or are eligible for listing, on the National Register of Historic Places, or they may be recognized by state historical preservation agencies. Cultural and historical resources at the Lexington LD VAMC are discussed in Section 4.6.

4.2.2 Environmental Consequences

4.2.2.1 Proposed Action

Effects on aesthetics and visual resources as a result of the Proposed Action are not anticipated at the Lexington LD VAMC. The surrounding viewshed was considered when selecting the site for the fueling area. Actions such as constructing an enclosure or the planting of trees and shrubs around the periphery of the tank could offset any effects on aesthetics and visual resources at the selected site if needed.

4.2.2.2 No-action Alternative

The installation and operation of an E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts on aesthetics and visual resources under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.3 AIR QUALITY

4.3.1 Affected Environment

Federal law designates six air pollutants as criteria contaminants and requires special measures to limit their presence in the nation's air: sulfur dioxide; nitrogen dioxide; ozone; carbon monoxide; particulate matter (fine particles less than 2.5 microns in size as $PM_{2.5}$ and coarser particles up to 10 microns in size as PM_{10}); and lead. The U.S. Environmental Protection Agency (EPA) sets the National Ambient Air Quality Standards (NAAQS) for air pollutants as required under the Clean Air Act (CAA), last amended in 1990 (40 CFR part 50). Parts of the country where the air quality standards are exceeded for one or more of the criteria pollutants are designated as non-attainment areas. The EPA requires each state government to adopt a State Implementation Plan (SIP) that prescribes control strategies to reduce air pollution in nonattainment areas and to evaluate periodically the effectiveness of the strategies prescribed in its SIP. The Lexington LD VAMC is located in Fayette County, which is not designated as a non-attainment area for any of the six criteria contaminants.

4.3.2 Environmental Consequences

4.3.2.1 Proposed Action

Potential emissions due to the operation of an E85 fueling station are described in detail in the program-wide analysis. The CAA requires some gasoline dispensing facilities located in areas classified as extreme, severe, serious or moderate nonattainment of the 1-hour ozone standard, to have Stage II vapor recovery systems in place and operational depending on tank size and throughput requirements which vary by state. Since the majority of E85 fuel capable vehicles have onboard refueling vapor recovery systems installed, the U.S. EPA will allow states flexibility to exempt E85 refueling equipment from Stage II vapor recovery requirements, consistent with its December 12, 2006, memorandum (U.S. EPA 2006). However, the state makes the final decision in their SIP. Air emission requirements for Kentucky are listed in the Appendix of the program-wide analysis.

No significant effects on air quality are anticipated from the Proposed Action. The VA FFVs would need to access E85 whether or not it is available at the Lexington LD VAMC. Having the E85 station located on site would reduce the distance VA employees would need to travel to refuel. Since model year 2000, fuel tank venting has been controlled by onboard refueling vapor recovery devices installed in all cars running on E85 or gasoline. Evaporative emissions from fuel or vapor leaks are less prevalent due to ongoing improvements in leak-resistant materials and fittings.

4.3.2.2 No-action Alternative

The installation and operation of an E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts on air quality under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.4 SOCIOECONOMICS

4.4.1 Affected Environment

The program-wide analysis defines socioeconomic aspects of the environment, including those pertaining to environmental justice and disproportionate risks to children, and identified laws and regulations affecting these resources. In brief, socioeconomics comprises the basic attributes and resources associated with the human environment, particularly population and economic activity. Economic activity typically encompasses employment, personal income, and economic growth. Factors that affect these fundamental socioeconomic components also influence other issues such as housing availability and the provision of public services. The Lexington LD VAMC is located in the southeastern part of Lexington, Kentucky.

Lexington (officially Lexington-Fayette Urban County) is the second-largest city in Kentucky and the 65th largest in the United States. Known as the "Thoroughbred City" and the "Horse Capital of the World", it is located in the heart of Kentucky's Bluegrass region. The Lexington-Fayette Metropolitan Statistical Area (MSA) includes Bourbon, Clark, Fayette, Jessamine, Scott,

and Woodford counties. The MSA population in 2006 was estimated at 436,684. The Lexington-Fayette-Frankfort-Richmond, KY Combined Statistical Area had an estimated population of 645,006 in 2006. This includes the metro area and an additional seven counties.

As of the census of 2000, there were 260,512 people, 108,288 households, and 62,915 families residing in the city. The population density was 915.6 people per square mile (353.5/km²). There were 116,167 housing units at an average density of 408.3/mi² (157.6/km²). The racial makeup of the city was 81.04% White, 13.48% African American, 0.19% Native American, 2.46% Asian, 0.03% Pacific Islander, 1.21% from other races, and 1.58% from two or more races. Hispanics or Latinos of any race were 3.29% of the population.

There were 108,288 households out of which 27.3% had children under the age of 18 living with them, 43.5% were married couples living together, 11.5% had a female householder with no husband present, and 41.9% were non-families. 31.7% of all households were made up of individuals and 7.5% had someone living alone who was 65 years of age or older. The average household size was 2.29 and the average family size was 2.90.

The age distribution was 21.3% under the age of 18, 14.6% from 18 to 24, 33.2% from 25 to 44, 20.9% from 45 to 64, and 10.0% who were 65 years of age or older. The median age was 33 years. For every 100 females there were 96.5 males. For every 100 females age 18 and over, there were 94.3 males.

The median income for a household in the city was $39,813, and the median income for a family was $53,264. Males had a median income of $36,166 versus $26,964 for females. The per capita income for the city was $23,109. About 8.2% of families and 12.9% of the population were below the poverty line, including 14.3% of those under the age of 18 and 8.6% of those ages 65 and older (http://en.wikipedia.org/wiki/Lexington,_Kentucky).

4.4.2 Environmental Consequences

4.4.2.1 Proposed Action

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC likely would not significantly impact socioeconomic conditions in the surrounding area. If anything, employment and economic conditions within the region of influence would realize short-term, beneficial effects from the additional labor needed to construct the E85 fueling station and install the AST. The benefits would be short-term as existing facilities management personnel would be responsible for maintaining the E85 fueling station once it is operational; the addition of full-time personnel at the VAMC is not anticipated. Because of its location and enclosed campus-like setting, the addition of an E85 fueling station to the VAMC likely would not adversely affect minority or low-income populations, nor pose any additional environmental risk to the health and safety of children. In summary, no significant effects on socioeconomic conditions likely would result under the Proposed Action other than potentially short-term beneficial effects during the construction and installation of the E85 fueling station.

4.4.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts on socioeconomics under the No-action Alternative. All VAMC personnel that currently operate FFVs would continue to use E85 fuel resources from offsite fueling stations. In addition, there would be no potentially short-term, beneficial effects on employment and economic conditions from the installation of an E85 fueling station.

4.5 TRANSPORTATION

4.5.1 Affected Environment

The Lexington LD VAMC is located on a campus that is convenient to the surrounding community. The campus has a network of roadways accessible through multiple entry points and parking areas distributed around the hospital and other medical facilities. The campus is located

within easy access to downtown Lexington. Campus facilities providing infrastructure support are set apart from other facilities. The VAMC currently maintains a boiler plant, emergency generators, and it regularly receives scheduled fuel deliveries.

4.5.2 Environmental Consequences

4.5.2.1 Proposed Action

The installation and operation of the E85 fueling station requires adequate area for infrastructure and setbacks from buildings and other properties. The proposed site for the fueling station at the Lexington VAMC is appropriate for such use, and has adequate space for fueling FFVs as well as accommodating fuel delivery trucks. However, further review and design will be required to ensure that road improvements are made to provide adequate access to the E85 fuel station. No effects on transportation or traffic patterns are anticipated including any additional influx of FFVs from other federal fleets that might use the alternative fueling station.

4.5.2.2 No-action Alternative

The installation and operation of an E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts on transportation under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.6 CULTURAL AND HISTORIC RESOURCES

4.6.1 Affected Environment

The program-wide analysis provides definitions of cultural and historic resources, and in general terms, describes the federal and state regulatory frameworks that are responsible for managing and protecting these resources. As noted in the program-wide analysis, the National Historic Preservation Act of 1966 (NHPA) is the primary federal law that implements regulations affecting cultural and historical resources, and encourages states to develop programs supporting historic preservation. The Kentucky Heritage Council serves as the State Historic Preservation

Office (SHPO), which manages cultural and historic resources within the state, and is responsible for reviewing potential effects on these resources from all new federal projects (http://heritage.ky.gov/envreview/).

As part of the review process for this site-specific EA, a consultation letter will be sent to the SHPO to ascertain whether there are any cultural and historic resources of concern in the vicinity of the proposed project area. The Lexington LD VAMC is located northwestern Lexington, Kentucky, where it is surrounded by a mix of residential communities, several businesses, and rural, agricultural lands in the surrounding area. The nearest property to the VAMC that is listed by the NRHP is Lewis Manor, located approximately 0.6 of a mile to the northwest of the campus facilities. The VAMC is not on the NRHP, however, it is eligible and modifications to the existing site will need to be reviewed by both the local and state historical preservation officer; the property would be located within a Historic District. The locations of other culturally significant properties as well as important archeological sites, will be identified pending SHPO review of the project.

Some VAMCs built in the early 20th Century have historically significant buildings or structures that are currently listed, or are eligible for listing, on the NRHP, or they may be recognized by the SHPO. However, VAMCs generally have areas developed for facility infrastructure, such as boiler plants and storage areas that are usually set apart from hospital and other patient care buildings. Because of their reliance on emergency transportation and other transportation needs of hospital staff, many VAMCs already maintain their own fueling stations, which have existing ASTs and USTs. The Lexington LD VAMC currently provides fueling services to its personnel and makes use of several USTs to maintain conventional fuels. The site proposed for installation of the E85 AST is located near the other campus support facilities including the Transportation Building and Boiler Plant Building

4.6.2 Environmental Consequences

4.6.2.1 Proposed Action

The installation and operation of an E85 AST at the Lexington LD VAMC would not significantly impact cultural and historical resources. The proposed location for the E85 AST is in an area of the VAMC that already maintains fueling facilities as well as other campus support facilities. Properties listed by the NRHP are not proximate to the site, therefore there would be no effects on these important historical resources. At present, there are no known archeological resources in the vicinity of the project. The installation of an AST would result in minimal ground disturbance, lessening potential effects on archeological resources. Coordination with the SHPO will identify other buildings and structures at the Lexington LD VAMC that may be considered eligible for listing on the NRHP as well as any areas that may have concerns with respect to archeological resources.

4.6.2.2 No-action Alternative

The installation and operation of an E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts on cultural and historic resources under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.7 GEOLOGY AND SOILS

4.7.1 Affected Environment

The program-wide analysis provides a definition of geological resources including soils, and discussed how these resources are usually characterized. Geological resources typically consist of surface and subsurface materials and their inherent properties. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the suitability of the ground to support buildings and structures. With respect to construction, soils are typically 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. Areas with predominantly wet or unstable

soils (e.g., organic soils and certain clays and sands) were not considered for E85 tank installation because these areas could be in regulated wetlands or may not meet certain structural engineering requirements for installing an AST. The area of the Lexington LD VAMC proposed for E85 AST installation is presently used to support facility engineering and grounds maintenance.

4.7.2 Environmental Consequences

4.7.2.1 Proposed Action

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC likely would not significantly impact geological resources and soils. The installation of a 5,000 gallon AST would require minimal ground disturbance, which would follow state and local regulations and in accordance with best management practices (BMPs) for controlling sediment and erosion. All county, state, and local permits for earthwork and development would need to be obtained prior to construction at the facility. In addition, subsurface sampling and testing of soil materials may be required if the site of the tank installation has a history of contaminants or hazardous material use. Additional precautions for removal and disposal of soil may be necessary. Soil suspected of contamination must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations.

4.7.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts on geology and soils under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.8 GROUNDWATER AND WATER QUALITY

4.8.1 Affected Environment

The program-wide analysis provides a definition of groundwater resources and water quality, and in general terms, described the state and federal regulatory authorities responsible for administrating these resources. In Kentucky, the Department for Environmental Protection, Division of Water regulates and manages groundwater resources (http://water.ky.gov/Pages/default.aspx). The Lexington LD VAMC is located in the northwestern part of Lexington, Kentucky, in a relatively suburban area. Groundwater flow in vicinity of the VAMC facility is likely toward the Town Branch of South Elkhorn Creek, southwest of the VAMC.

4.8.2 Environmental Consequences

4.8.2.1 Proposed Action

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not have significant effects on groundwater resources and water quality. As described in the program-wide analysis, potential effects on groundwater resources and water quality from E85 AST are not likely as the site already has existing fueling facilities in an area that is used for similar purposes. Provided the E85 tank is sited properly and a state-certified Spill Prevention, Control and Countermeasure Plan (SPCC Plan) is followed, there would be no effects on groundwater resources and water quality.

4.8.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts on groundwater and water quality under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.9 WETLANDS, FLOODPLAINS, AND SURFACE WATERS

4.9.1 Affected Environment

The program-wide analysis provides definitions of wetlands, floodplains and surface waters, and in general terms, described the state and federal regulatory authorities responsible for administrating these resources. Wetlands in Kentucky are regulated by the Department for Environmental Protection through existing water quality standards, and a Section 401 Water Quality Certification is required for all wetland impacts that require a Section 404 permit from the U.S. Army Corps of Engineers (http://dep.ky.gov/Pages/default.aspx). The Huntington District, U.S. Army Corps of Engineers is responsible for federal regulation of wetlands in this region, under Section 404 of the federal Clean Water Act. According to National Wetland Inventory (NWI) mapping, there are no vegetated wetlands on the project site at the Lexington LD VAMC. One man-made pond (designated as PUBHh), however, is mapped to the west of the facility, and Town Branch is mapped as a perennial stream to the southwest of the facility (Figure 4-1). According to floodplain maps issued by the Federal Emergency Management Agency (FEMA), the Lexington LD VAMC is outside of any area that would be inundated by a 100-year flood. One wide flood area, however, is mapped well to the south of the VAMC along Town Branch (Figure 4-2).

4.9.2 Environmental Consequences

4.9.2.1 Proposed Action

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not likely have significant effects on wetlands, floodplains, and surface water resources. None of these resources are on or proximate to the facility and the proposed location of the AST. Provided the 5,000 gallon AST for E85 fuel is sited properly and a state-certified SPCC Plan is followed, there would be no adverse effects on these resources.

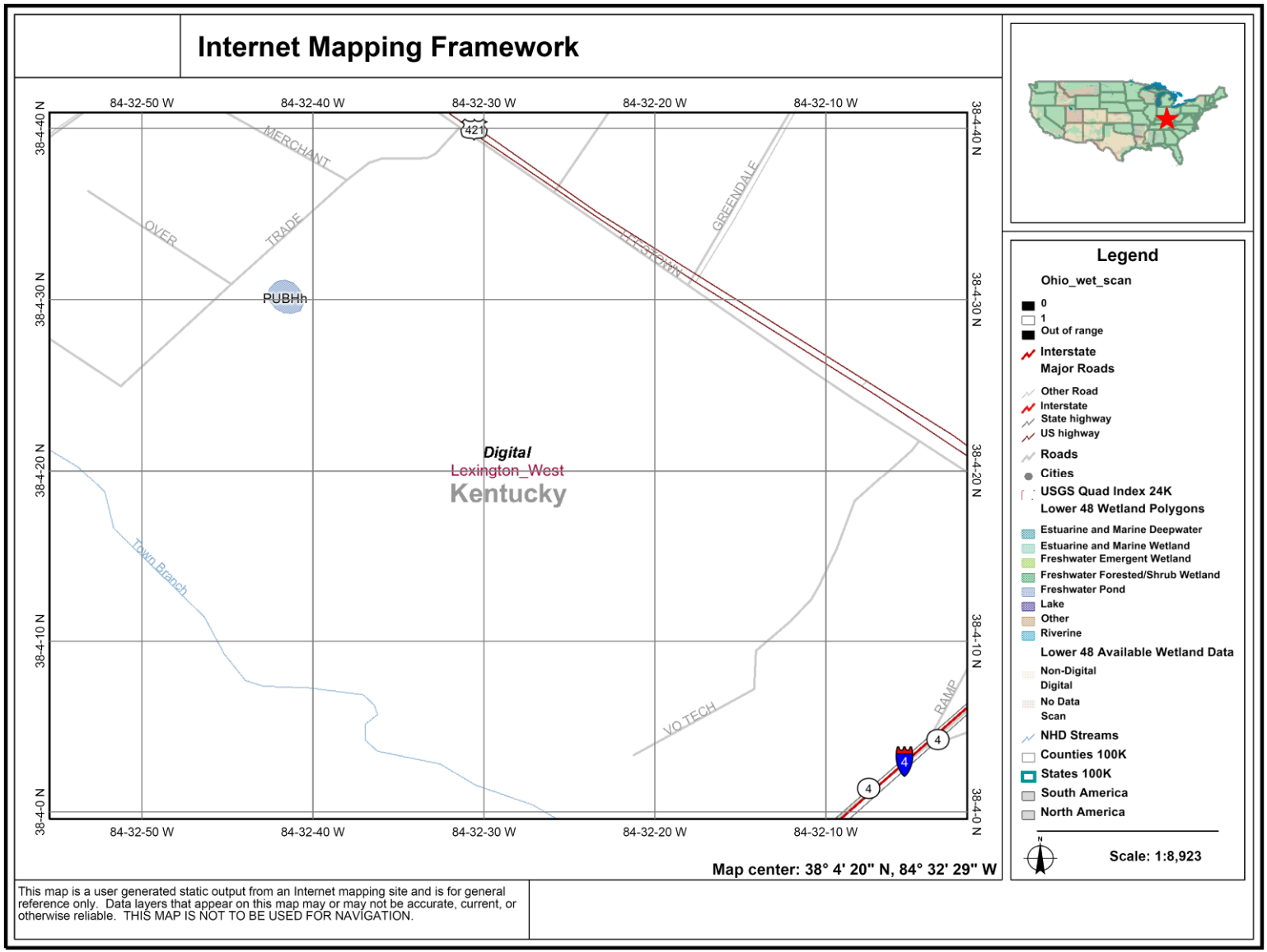

Figure 4-1. Mapped wetlands in the immediate vicinity of the Lexington LD VAMC facility, according to the U.S. Fish and Wildlife Service National Wetland Inventory mapping.

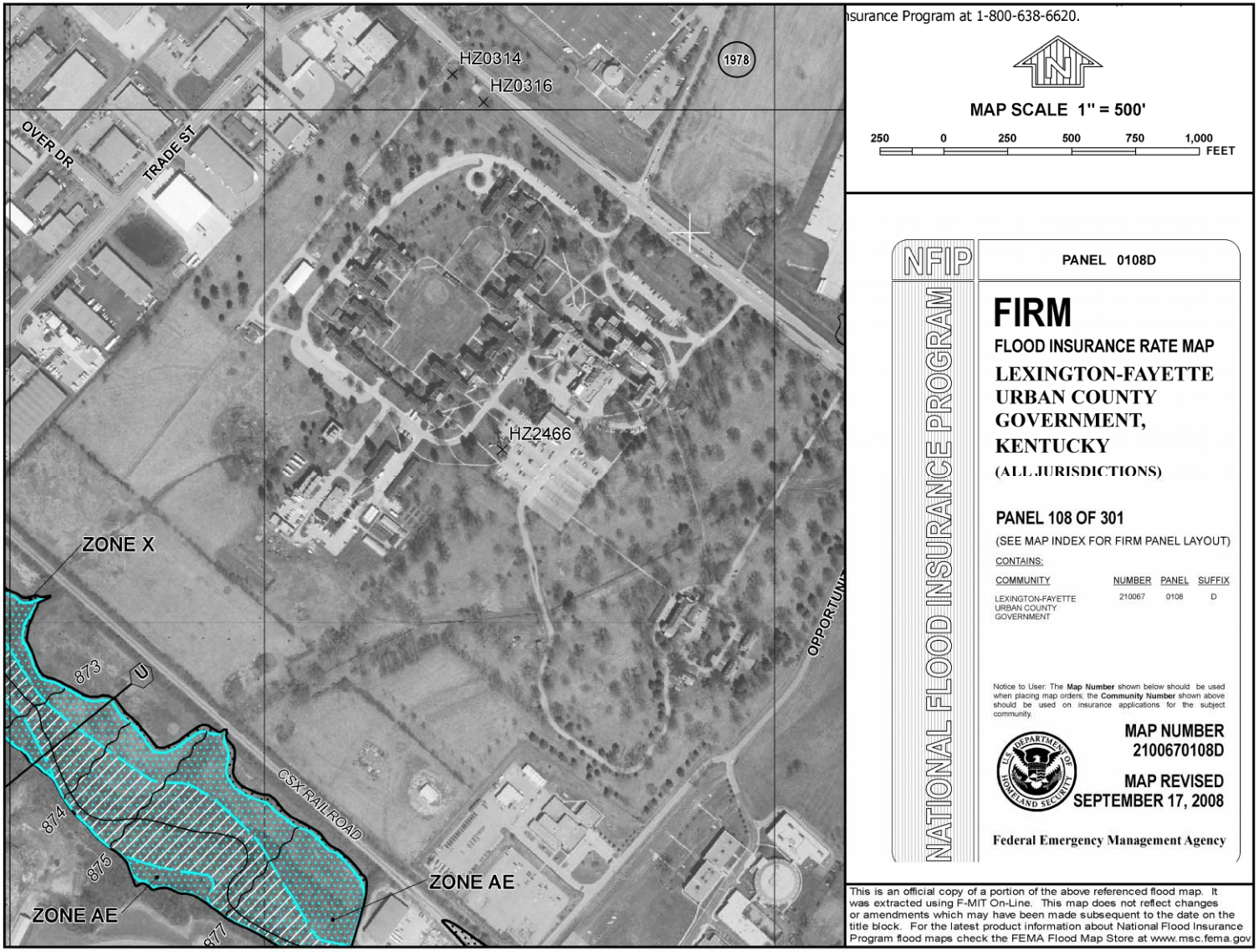

Figure 4-2. Mapped floodplains in the immediate vicinity of the Lexington LD VAMC facility, according to the Federal Emergency Management Agency.

4.9.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no effects on wetlands, floodplains, or surface waters under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.10 VEGETATION AND LAND USE

4.10.1 Affected Environment

The affected environment for vegetation consists of those areas potentially subject to ground disturbance as a result of the Proposed Action. The program-wide analysis provides a description of the general land use categories. Management plans and zoning regulations determine the type and extent of land use allowable in these specific areas and are often intended to protect specially designated or environmentally sensitive areas and sensitive noise receptors.

The Lexington LD VAMC is located in a relatively suburban setting, consisting largely of man-made features such as buildings, parking lots, roads, lawns, etc. The majority of vegetation cover at the facility consists of maintained lawns with scattered landscaping trees and shrubs (particularly in the vicinity of the buildings). Creek Road NW. None of the individual trees on the campus, however, appear to be of particularly notable size.

4.10.2 Environmental Consequences

4.10.2.1 Proposed Action

Under the Proposed Action, a 5,000 gallon AST E85 fueling station would be constructed and operated in the existing paved fueling station area south of Building 48. As described in the program-wide analysis, potential effects on vegetation and land use resources from E85 tank installation and operation are largely minimal because of the previously developed nature of these locations. Further, given the minimal footprint required for the 5,000 gallon AST fueling station (approximately 222 SF), no significant permanent impact to the surrounding area vegetation

and land cover is expected. No significant vegetation or land use impacts are anticipated at the Lexington LD VAMC, given that the area is currently developed and used for similar facility operations.

4.10.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no effects on land use or vegetation under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.11 WILDLIFE

4.11.1 Affected Environment

The program-wide analysis provides a definition of wildlife resources, and in general terms, described the roles and regulations administered by federal and state agencies responsible for the management of wildlife species. As part of this site-specific EA, the USFWS and the Kentucky Department of Fish and Wildlife Resources will be consulted to identify wildlife species that potentially could be affected by the installation and operation of an E85 fueling station at the Lexington LD VAMC. Nonetheless, wildlife resources at the Lexington LD VAMC are likely to be minimal because of its relatively urban setting. Wildlife at the site would most likely consist of species that are very adaptable to human-influenced environments (e.g., European starling; house sparrow; gray squirrel; woodchuck; house mouse, etc.).

4.11.2 Environmental Consequences

4.11.2.1 Proposed Action

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not have significant effects on wildlife resources. Although responses from the USFWS and the Kentucky Department of Fish and Wildlife Resources are pending, it is unlikely

that wildlife resources or their habitats would be affected by the Proposed Action given the urban setting and very small size of the project footprint within a previously developed area.

4.11.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no effects on wildlife under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.12 THREATENED AND ENDANGERED SPECIES

4.12.1 Affected Environment

The program-wide analysis provides a definition of threatened and endangered species, and in general terms, described the roles and regulations administered by federal and state agencies responsible for the management of these species. As part of this site-specific EA, the USFWS and Kentucky Department of Fish and Wildlife Resources will be consulted to identify federal and state-listed threatened and endangered species that potentially could be affected by the installation and operation of an E85 fueling station at the Lexington LD VAMC.

4.12.2 Environmental Consequences

4.12.2.1 Proposed Action

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not likely have significant impacts on threatened and endangered species. Although responses from the USFWS and the Kentucky Department of Fish and Wildlife Resources are pending, it is unlikely that any threatened or endangered species or their habitats would be affected by the Proposed Action given the urban setting and the very small size of the project.

4.12.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no effects on threatened and endangered species under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.13 SOLID AND HAZARDOUS MATERIALS AND WASTES

4.13.1 Affected Environment

The program-wide analysis provides a general description of solid and hazardous materials and wastes that may be encountered on a VAMC campus. Potential sources of hazardous materials and wastes that may be encountered at the facility include, but are not limited to, ASTs and USTs; use, storage, and disposal of medical waste; materials suspected to contain asbestos or lead; and known spills and releases. Most VAMC facilities already have petroleum ASTs and USTs as part of their existing fueling capabilities, or that contain diesel fuel for emergency generators or fuel oil for boilers to provide heat. Kentucky regulations pertaining to ASTs and USTs are summarized in the Appendix of the program-wide analysis.

4.13.2 Environmental Consequences

4.13.2.1 Proposed Action

Federal and state regulations for petroleum ASTs are summarized in the program-wide analysis. Impacts from hazardous materials and wastes at the Lexington LD VAMC are likely to be minimal providing that all appropriate state and federal regulations are followed. If there is no potential for contamination due to prior use (e.g., fuel storage, USTs, etc.), subsurface investigation may not be needed for minor excavation. Given the proposed location of the E85 fueling station only minimal excavation on the site is expected, mainly to provide electricity to the area. If contamination is suspected or discovered, then suspect soil would be field screened, segregated, sampled for disposal characterization, and disposed of appropriately following Kentucky regulations. Provided the E85 tank is properly sited, state and federal regulations are followed,

and a state-certified SPCC Plan is in place, then no significant impacts due to solid and hazardous materials or wastes are anticipated.

4.13.2.2 No-action Alternative

The installation and operation of an E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no impacts due to solid and hazardous materials or wastes under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

4.14 SAFETY

4.14.1 Affected Environment

Safety considerations associated with the installation of an E85 fueling station are addressed in the program-wide analysis. The safety standards for handling and storing E85 are the same as those for gasoline. The Lexington LD VAMC already maintains and operates fueling facilities, and therefore has procedures in place affecting safety at these facilities. The facility has an existing SPCC Plan, but the addition of a 5,000 gallon AST would require that it be amended.

The National Fire Protection Agency (NFPA) has two standards that apply to fuel ethanol blends: NFPA 30, "Flammable and Combustible Liquids Code," and NFPA 30A, "Automotive and Marine Service Station Code." These codes contain information on refueling facilities, storage, and handling requirements for all flammable and combustible liquids (DOE 2006). NFPA assigns ethanol fuels, including E100 and E85, to the same class as gasoline. Minimum NFPA safety setbacks for ASTs are highlighted in Table 3.3 of the program-wide analysis (Appendix A).

4.14.2 Environmental Consequences

4.14.2.1 Proposed Action

Under the Proposed Action, the Lexington LD VAMC would have to amend its current SPCC Plan. The amendment would have to be done within six months, and certified by a professional engineer. Recent regulations will allow a facility to self certify a SPCC Plan providing: 1) it does not exceed 10,000 gallons of aboveground storage capacity; 2) no tank is bigger than 20,000 gallons; 3) no spill is greater than 1,000 gallons; or 4) no two spills exceeding 42 gallons have occurred within 12 months (Tier 1 certification). The facility can complete the Tier 1 checklist and self certify both the plan and amendments if it meets the Tier 1 criteria. Providing all state and federal AST regulations are followed, and the facility SPCC Plan is amended no significant effects on safety are expected.

4.14.2.2 No-action Alternative

The installation and operation of a 5,000 gallon AST E85 fueling station at the Lexington LD VAMC would not occur; therefore, there would be no effects on safety under the No-action Alternative. All VA personnel that currently operate FFVs at the facility would continue to use E85 fuel resources from offsite fueling stations.

5.0 CUMMULATIVE EFFECTS

5.1 CUMMULATIVE EFFECTS SUMMARY

The program-wide analysis provides a definition of cumulative effects; a general description of past, present, and reasonably foreseeable actions relevant to cumulative effects; and a broad analysis of cumulative impacts between those actions and the Proposed Action. Potential mitigation measures to offset and cumulative impacts at the Lexington LD VAMC are described below.

5.2 MITIGATION SUMMARY

Effects on historic and cultural resources from the Proposed Action require review by the SHPO. Therefore, the assessment of potential effects on archeological and architectural resources is pending. Given the proposed location of the fueling station, the small footprint required for an AST, and minimal ground disturbance resulting from its installation, it is unlikely that cultural or historical resources would be affected.

The facility has an existing SPCC Plan, but the addition of a 5,000 gallon AST would require that it be amended. The amendment would have to be done within six months, and certified by a professional engineer or be self certified if the facility meets the specified criteria for self certification.

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Versar, Inc. 2009. Determination of Optimal Location for Alternative Fueling Stations. Prepared for Department of Veterans Affairs Veterans Health Administration, under contract no. VA-776-09-RQ-0066, by Versar, Inc. Germantown, MD.

Versar, Inc. 2010. Program-wide analysis for the Proposed E85 Alternative Fueling Stations at VAMCs Throughout the U.S. Prepared for Department of Veterans Affairs Veterans Health Administration, under contract no. VA-776-09-RQ-0066, by Versar, Inc., Columbia, MD.

U.S. EPA Memorandum, "Removal of Stage II Vapor Recovery in Situations Where Widespread Use of Onboard Refueling Vapor Recovery is Demonstrated," U.S. EPA Office of Air Quality Planning and Standards, December 12, 2006.

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APPENDIX A

PROGRAM-WIDE ANALYSIS OF ENVIRONMENTAL IMPACTS FROM E85 ALTERNATIVE FUELING FACILITIES AT VETERAN AFFAIRS MEDICAL CENTERS THROUGHOUT THE U.S.

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PROGRAM-WIDE ANALYSIS OF ENVIRONMENTAL IMPACTS FROM E85 ALTERNATIVE FUELING FACILITIES AT VETERAN AFFAIRS MEDICAL CENTERS THROUGHOUT THE U.S.

Prepared for

Department of Veterans Affairs
National Energy Business Center

Under Contract No. VA-776-09-RQ-0066

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TABLE OF CONTENTS

Page

LIST OF ACRONYMS ix

1 INTRODUCTION 1-1
1.1 PURPOSE AND NEED 1-3
1.2 SUMMARY OF ENVIRONMENTAL STUDY REQUIREMENTS 1-5
1.2.1 National Environmental Policy Act 1-5
1.2.2 AST and UST Regulations 1-7
1.2.3 Air Conformity Requirements 1-8

2 ALTERNATIVES CONSIDERED 2-1
2.1 PROPOSED ACTION 2-1
2.2 NO-ACTION ALTERNATIVE 2-3
2.3 FOCUS OF THE ENVIRONMENTAL ASSESSMENT 2-3

3 AFFECTED ENVIRONMENT 3-5
3.1 NOISE 3-5
3.2 AESTHETICS AND VISUAL RESOURCES 3-5
3.3 AIR QUALITY 3-6
3.4 SOCIOECONOMICS 3-7
3.5 TRANSPORTATION 3-8
3.6 CULTURAL AND HISTORICAL RESOURCES 3-9
3.7 GEOLOGY AND SOILS 3-10
3.8 GROUNDWATER AND WATER QUALITY 3-11
3.9 WETLANDS, FLOODPLAINS, AND SURFACE WATERS 3-12
3.10 VEGETATION AND LAND USE 3-15
3.11 WILDLIFE 3-16
3.12 THREATENED AND ENDANGERED SPECIES 3-17
3.13 SOLID AND HAZARDOUS MATERIALS AND WASTES 3-18
3.13.1 Underground and Aboveground Storage Tanks 3-19
3.13.2 Medical Waste Use, Storage, and Disposal 3-22
3.13.3 Suspect Asbestos-containing and Lead-containing Materials 3-22
3.13.4 Known Spills or Releases, and Other Areas of Concern 3-23
3.14 SAFETY 3-23

4 ENVIRONMENTAL CONSEQUENCES 3-25
4.1 NOISE 4-1
4.1.1 Proposed Action 4-1
4.1.2 No-action Alternative 4-4
4.2 AESTHETICS AND VISUAL RESOURCES 4-4
4.2.1 Proposed Action 4-5
4.2.2 No-action Alternative 4-6

4.3 AIR QUALITY 4-6
4.3.1 Proposed Action 4-7
4.3.2 No-Action Alternative 4-9
4.4 SOCIOECONOMICS 4-9
4.4.1 Proposed Action 4-10
4.4.2 No-action Alternative 4-11
4.5 TRANSPORTATION 4-12
4.5.1 Proposed Action 4-12
4.5.2 No-Action Alternative 4-13
4.6 CULTURAL AND HISTORICAL RESOURCES 4-13
4.6.1 Proposed Action 4-13
4.6.2 No-action Alternative 4-14
4.7 GEOLOGY AND SOILS 4-14
4.7.1 Proposed Action 4-14
4.7.2 No-action Alternative 4-15
4.8 GROUNDWATER AND WATER QUALITY 4-15
4.8.1 Proposed Action 4-15
4.8.2 No-action Alternative 4-17
4.9 WETLANDS, FLOODPLAINS, AND SURFACE WATERS 4-17
4.9.1 Proposed Action 4-17
4.9.2 No-action Alternative 4-18
4.10 VEGETATION AND LAND USE 4-18
4.10.1 Proposed Action 4-18
4.10.2 No-action Alternative 4-19
4.11 WILDLIFE 4-19
4.11.1 Proposed Action 4-19
4.11.2 No-action Alternative 4-19
4.12 THREATENED AND ENDANGERED SPECIES 4-19
4.12.1 Proposed Action 4-19
4.12.2 No-Action Alternative 4-20
4.13 SOLID AND HAZARDOUS MATERIALS AND WASTES 4-20
4.13.1 Proposed Action 4-20
4.13.2 No-action Alternative 4-22
4.14 SAFETY 4-22
4.14.1 Proposed Action 4-22
4.14.2 No-action Alternative 4-23

5 CUMULATIVE EFFECTS 5-1
5.1 DEFINITION OF CUMULATIVE EFFECTS 5-1
5.2 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS 5-2
5.3 CUMULATIVE EFFECTS ANALYSIS 5-2
5.4 POTENTIAL MITIGATION MEASURES 5-3
5.4.1 Cultural and Historical 5-3
5.4.2 Solid and Hazardous Materials and Wastes 5-3

6 REFERENCES 6-1

7 LIST OF PREPARERS 7-1

APPENDIX

SUMMARY OF AST AND UST REGULATIONS BY STATE Appenidx-1

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LIST OF TABLES

Table No. **Page**

3-1. Summary of federal regulations for petroleum ASTs 3-20
3-2. Summary of federal regulations for new USTs (40 CFR 280) 3-21
3-3. National Fire Protection Agency minimum safety setbacks for ASTs 3-24
4-1. Truck noise specifications for fuel delivery to VAMCs 4-3
4-2. Change in tailpipe emissions for E85 vs. gasoline. 4-8

LIST OF FIGURES

Figure No. **Page**

1-1. Number of existing E85 fueling stations by state 1-2
2-1. Locations of VAMC campuses initially considered for E85 fueling stations 2-2
2-2. Examples of ASTs with E85 currently in use at VAMC campuses 2-3
4-1. Automobile sound levels as a function of distance 4-3
4-2. Truck Sound Levels as a Function of Distance 4-4

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LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Materials
ARPA	Archeological Resources Protection Act
AST	Above Ground Storage Tank
AT/FP	Antiterrorism/Force Protection
BMPs	Best Management Practices
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CAMR	Clean Air Mercury Rule
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
dB	Decibels
dBA	Decibels A-weighted Scale
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
E85	Ethanol 85 Fuel
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act

FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FFV	Flex Fuel Vehicle
FHWA	Federal Highway Administration
FRP	Facility Response Plans
GSA	U.S. General Services Administration
Hz	Hertz
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCS	Hazard Communication Standard
NAAQS	National Primary and Secondary Ambient Air Quality Standards
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NSR	New Source Review
NWI	National Wetlands Inventory
OBVR	On Board Vapor Recovery
OSHA	Occupational Safety and Health Act
PPA	Pollution Prevention Act
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SARA	Superfund Amendments and Reauthorization Act

SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SPCC	Spill Prevention, Control and Countermeasure
SWDA	Solid Waste Disposal Act
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VA	U.S. Department of Veterans Affairs
VAMC	VA Medical Center
VHA	Veterans Health Administration

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1 INTRODUCTION

In response to recent federal initiatives, the Department of Veterans Affairs (VA) is considering alternatives for reducing the intensity of fossil fuel use at its facilities. Executive Order (EO) 13423, requiring federal agencies to "lead by example," has goals or implications relating to alternative fuels, hybrid/electric vehicles, petroleum conservation, energy efficiency, greenhouse gases, renewable power, building performance, water conservation, environmentally sound goods and services, pollution prevention, electronics management, and environmental management systems. More recently, EO 13514 sets sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. This EO requires federal agencies to reduce the use of fossil fuels by (a) using vehicles that emit less greenhouse gas, such as alternative fuel vehicles; (b) optimizing the number of vehicles in their fleets; and (c) for agencies that operate fleets of at least 20 motor vehicles, reducing their fleets' total consumption of petroleum products by a minimum of 2% annually through the end of fiscal year 2020, relative to the baseline of fiscal year 2005.

Ethanol, for use as an alternative fuel, can be produced from the starch found in grains, such as corn and barley, and sugarcane through a process of fermentation and distillation. A mixture of 85% ethanol and 15% gasoline is blended to produce an alternative fuel, ethanol-85 or E85, which can be used by flex-fuel vehicles (FFVs) that are designed to run on any blend of gasoline and ethanol that contains up to 85% ethanol. In the United States, ethanol is produced primarily from corn. Most ethanol production plants are situated in the upper Midwest, in states of the "corn belt" (Illinois, Iowa, Nebraska, Minnesota, and Indiana), because of their close proximity to the feedstock. The availability of E85 fuel nationwide reflects its pattern of production with most E85 stations presently located in the upper Midwest region. Figure 1-1 shows the number of existing E85 fueling stations by state as of September 2010.

The economic viability and net environmental effects of alternative fuels such as E85 are complex. By some estimates, the production of ethanol can release as much or more greenhouse gas than is saved by burning ethanol instead of gasoline in cars, depending on the feedstock that is used to produce the ethanol, methods used to grow and harvest the stock, and methods used to

process it into ethanol (Farrell et al. 2006, Charles 2010). However, at least three things are clear: (1) the use of alternative fuels can help reduce the United States' dependence on foreign oil; (2) a significant number of government-owned vehicles in use today can be operated on alternative fuels, either exclusively or optionally (i.e., flex-fuel vehicles or FFVs); and (3) the current political and regulatory climate favors increased use of alternative fuels.

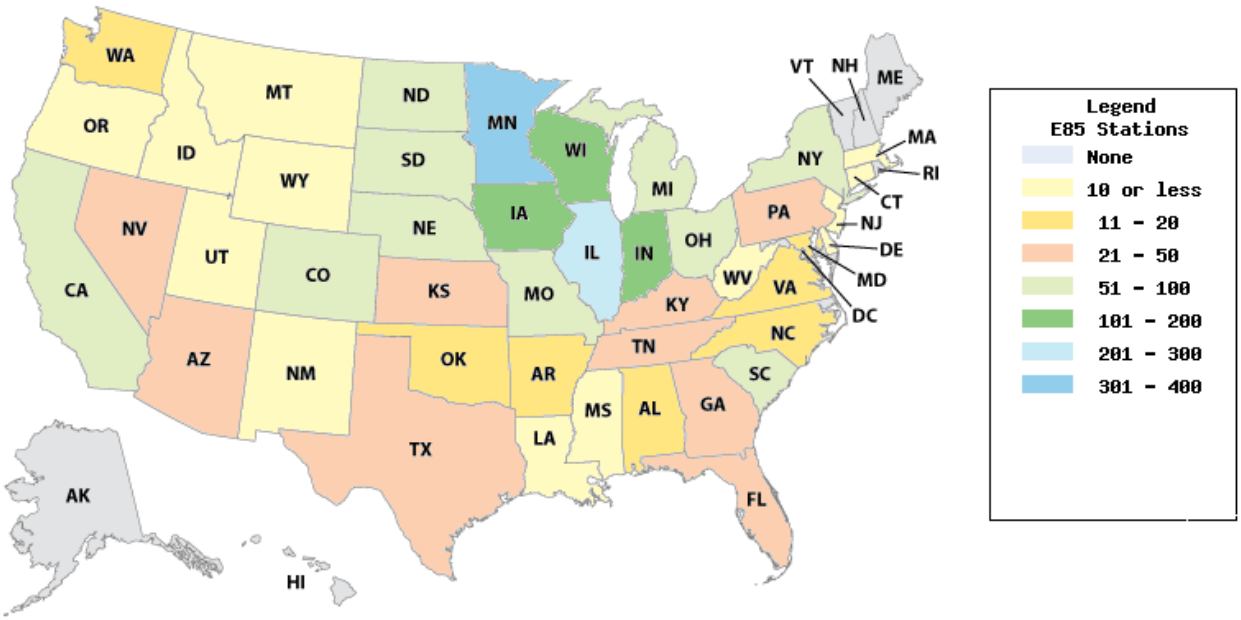

Figure 1-1. Number of existing E85 fueling stations by state
(Source: http://www.afdc.energy.gov/afdc/ethanol/ethanol_locations.html)

To follow initiatives endorsed by the recent EOs, the VA proposes the installation and operation of E85 fueling stations at many of its facilities that are located nationwide. Where VA facilities already have conventional fueling stations, E85 fueling would be added or existing infrastructure would be converted to accommodate E85 fueling. By adding E85 as a fuel option at its facilities, the VA would reduce its overall use of petroleum based fuels, and under some circumstances, may reduce greenhouse gas emissions. In selecting optimal locations for E85 stations at its facilities, the VA would focus on its medical centers (VAMCs). Located nationwide and in all states, VAMCs have most of the FFVs used by VA personnel, and they are often near or collocated with other regional VA facilities, whose personnel would also have access to an E85 station once installed.

As the VAMCs are located nationwide, the potential environmental impacts associated with installing E85 at individual facilities will vary. Each VAMC will be concerned with its present surroundings and existing environmental resources. However, considering the scope of what is proposed at each VAMC, the potential impacts to most environmental resources will likely be the same at many facilities. For example, among VAMCs with existing conventional fueling stations, the addition of E85 fueling may not impose any new impacts to aesthetics and visual resources, as it might at a facility without fueling services. Therefore, this program-wide analysis considers the potential impacts from the construction and operation of an E85 fueling station at any VAMC. The intent of this program-wide analysis is to identify and address, in broad terms, the potential effects of installing E85 on a range of environmental resources that would be applicable to any VAMC in the U.S. To address potential impacts beyond what is considered in the program-wide analysis, a site-specific EA is being prepared for each VAMC location that identifies the specific environmental resources that are affected, evaluates alternatives and defines mitigation that would be required to enable the installation of E85 at that VAMC location.

1.1 PURPOSE AND NEED

Section 701 [42 U.S.C. 6374(a)(3)(E)] titled, "Use of Alternative Fuels by Dual-Fueled Vehicles," of the Energy Policy Act (EPACT) of 2005 (Public Law 109-58), required federal fleets to replace petroleum use with alternative fuels. Under this provision, each federal fleet covered by the alternative fuel vehicle acquisition requirements under Title III of EPACT 1992 is required to use alternative fuel in its FFVs except where the fleet has received a waiver from the U.S. Department of Energy (DOE). Federal agencies may request a waiver if alternative fuel cannot be obtained within a 15-minute drive or within five miles (one way), whichever is greater, or if the alternative fuel costs 15 percent more than gasoline on a gasoline gallon equivalent (GGE) basis. The purpose of the proposed installation of alternative E85 fuel tanks at VAMC campuses is to support the existing FFV fleets that are underutilized, and to reduce the number of DOE waivers that are currently needed. The installation of E85 fuel tanks would also help the VA to meet the sustainability goals of EO 13514 for federal agencies, which include using vehicles that reduce the agency's total consumption of petroleum products for fleets of motor

vehicles by a minimum of 2% annually through the end of fiscal year 2020, compared to the baseline of fiscal year 2005. If FFVs are eventually phased out and replaced with hybrid vehicles, then any E85 tank could be used for gasoline (E10) and almost all hybrid vehicles run on gasoline. There is some interest in fueling hybrids with E85 (Flex Fuel hybrids), but they are not widely available at this time.

The Veterans Health Administration (VHA) currently leases or owns roughly 12,000 vehicles, including approximately 5,000 that can operate on E85 or flex-fuel. These alternative-fuel vehicles are spread across approximately 137 VAMCs and include several kinds of vehicles, such as ambulances, cars, trucks, and buses. The VHA FY2009 Minor Construction budget includes $7 million for constructing alternative fuel stations. That amount is insufficient to adequately fund fuel stations on all VAMC campuses; therefore, the VA commissioned a study to identify the optimal locations for constructing stations within the available funding (Versar 2009). The study considered the following factors to determine which facilities ranked highest:

- kind and size of fleet
- fuel consumption by kind of fuel
- availability of required fuels within five miles of each location
- ability of infrastructure to support a new service station and cost for construction
- availability of fuel to support/sustain station operation cost effectively
- regulatory and environmental acceptability of constructing a new station
- proximity of other fleets of federal vehicles

The study identified 91 tentative locations for constructing fueling stations distributed among 46 states (Versar 2009).[1]

Constructing each fueling station would require installing either an above ground storage tank (AST) or an underground storage tank (UST), or converting an existing UST to hold E85. Improvements of infrastructure also might be required to accommodate access for vehicles and

[1] The VHA has acquired additional funding for the project since the 2009 study resulting in more sites being considered for E85 fueling stations than were initially identified. However, the total number of sites evaluated has remained essentially the same because some of the original candidate sites have been dropped after further evaluation.

fuel delivery trucks. The VA is complying with the requirements of the National Environmental Policy Act (NEPA) by preparing a consolidated NEPA document consisting of a program-wide analysis of its proposal to install E85 fueling stations at up to 91 VAMCs across the country and site-specific EAs tiered from the program-wide analysis. This approach meets the intent of NEPA by fully considering potential environmental effects without unnecessary documentation.

1.2 SUMMARY OF ENVIRONMENTAL STUDY REQUIREMENTS

1.2.1 National Environmental Policy Act

Under the NEPA, federal agencies are required to consider the environmental effects of their actions. The intent of the NEPA is to ensure that environmental effects are considered on equal terms with considerations related to engineering and cost in the federal decision-making process. The Council on Environmental Quality (CEQ) develops implementation regulations and oversees the efforts of federal agencies as they implement their NEPA programs. CEQ issued NEPA implementation regulations in 1978, which are included in Title 40, Code of Federal Regulations (CFR), Parts 1500-1508.

This program-wide analysis provides sufficient detail to address the potential environmental effects of the construction, installation, and operation of E85 fueling stations at VAMCs throughout the United States (exclusive of Alaska and Hawaii). For each VAMC location, a site-specific EA will reference applicable analyses in the program-wide analysis and will include additional details on the resources of concern and local environmental conditions at each site. The consolidated NEPA documentation that has been prepared consists of the program-wide analysis and up to 91 site-specific EAs; it serves as the decision document for the VA. Each VAMC will receive the program-wide analysis and its site-specific EA for their review and consideration. The program-wide analysis identifies, describes, and evaluates the potential environmental effects of implementing the Proposed Action and the No-action Alternative. The current activities included in the No-action Alternative constitute the baseline for the analysis of effects, including the cumulative effects of other actions. Activities during fiscal year 2008-2009 (FY08-09) were used to establish the baseline conditions. When FY08-09 data were not available, the baseline was

defined according to the most current information available as of May 2010. Implementing the No-action Alternative would result in no change to the baseline conditions.

The following environmental resources were identified for evaluation in the program-wide analysis: noise; aesthetics and visual resources; air quality; socioeconomics; transportation and parking; cultural and historical resources; geology and soils; groundwater and water quality; wetlands, floodplains, and surface waters; vegetation and land use; wildlife; threatened and endangered species; solid and hazardous materials and wastes; and safety. However, with respect to safety as a resource, it has been assumed that contractors will be responsible for complying with the applicable Occupational Safety and Health Act (OSHA) regulations that concern occupational hazards and protective measures for all employees. Maintenance activities subject to OSHA regulations are not aspects of the Proposed Action and will receive no further discussion.

Following this introduction as Chapter 1, the Proposed Action and No-action Alternative are discussed in Chapter 2 – Alternatives Considered. A general description of the environmental resources that may be affected by the Proposed Action and alternatives provided in Chapter 3 – Affected Environment. A team of environmental scientists, ecologists, and engineers analyzed the potential effects associated with each alternative, and the results are presented in Chapter 4 – Environmental Consequences. And finally, the environmental consequences of the Proposed Action and alternatives are described in a broad context along with potential cumulative effects of other actions in Chapter 5 – Cumulative Effects. Under circumstances where mitigation is not required, this analysis also identifies operating procedures that could be implemented to lessen potential environmental effects.

This program-wide analysis complies with the NEPA, CEQ regulations, and VA regulations for implementing the NEPA (38 CFR Part 26) and addresses all applicable laws and regulations, including but not limited to the following:

- National Historic Preservation Act (NHPA)
- Archeological Resources Protection Act (ARPA)
- Clean Air Act (CAA)

- Clean Water Act (CWA)
- Endangered Species Act (ESA)
- Pollution Prevention Act (PPA)
- Resource Conservation and Recovery Act (RCRA)

1.2.2 AST and UST Regulations

Current federal and state regulations pertaining to ASTs and USTs were obtained by consulting an Environmental Protection Agency (EPA) website (http://www.epa.gov/ OUST/index.htm) and environmental compliance guides prepared by the Thompson Publishing Group, (www .thompson.com). Aspects of the regulations generally fall into three categories: (1) certifications, permits, registrations, and notifications; (2) inspections and monitoring, recordkeeping, and operations and maintenance; and (3) physical requirements. Fire codes (e.g., National Fire Protection Agency (NFPA) Standards 30 and 30A) and industry standards also may apply. Federal AST regulations and related safety standards include the following:

- Clean Water Act/Oil Pollution Act of 1990
- Clean Water Act/National Pollutant Discharge Elimination System (NPDES)
- Clean Air Acts of 1970, 1977 and 1990
- SARA Title III and CERCLA Section 103
- Resource Conservation and Recovery Act (RCRA) Subtitle C
- Occupational Safety and Health Act (OSHA)

Many individual states follow the federal regulations; however, where they do not, state regulations tend to be more stringent. In the case of ASTs, regulations relating to aspects such as tank installation and registration may not apply if the tank is below a certain size threshold. The Appendix summarizes state regulations pertaining to ASTs and USTs for all states meeting the cutoff criteria in the study to identify optimal locations (Versar 2009). In December 2006, the EPA issued guidance to states recommending a waiver of Stage II vapor recovery requirements for E85 fleets due to widespread use of on board vapor recovery (OBVR) in flex-fuel vehicles;

however each state within a nonattainment area is responsible for developing and administering a State Implementation Plan (SIP) as required by the CAA.

1.2.3 Air Conformity Requirements

The CAA of 1970 mandated the EPA establish a list of pollutants that "may reasonably be anticipated to endanger public health and welfare" for the purpose of establishing the National Primary and Secondary Ambient Air Quality Standards (NAAQS). The criteria pollutants are the six pollutants for which NAAQS have been established: carbon monoxide (CO), lead (Pb), ozone (O_3), particulate matter as either fine particles less than 2.5 microns in size ($PM_{2.5}$) or coarse particles up to 10 microns in size (PM_{10}), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). The primary standards are intended to protect human health, whereas the secondary standards are meant to protect public welfare and the environment. EPA tracks compliance with NAAQS by designating areas as being in attainment, nonattainment, maintenance, or unclassifiable. Areas are given the status of nonattainment as a result of violations of one or more of the established NAAQS; those areas must then comply with more stringent standards until NAAQS are satisfied. Maintenance areas are those previously in nonattainment but have since improved to meet the NAAQS; however, these areas remain on probation for 10 years. Along with other restrictions, Federal installations operating in nonattainment or maintenance areas must satisfy the requirements of the EPA ruling, *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*, until state regulations implementing this rule are put forth. The intent of the conformity ruling is to ensure that federal actions do not adversely affect the timely attainment and maintenance of air quality standards. Although this regulation affects federal actions only in nonattainment and maintenance areas, in the future EPA may propose other regulations that will extend conformity requirements to attainment and unclassifiable areas. An unclassifiable area is one for which EPA cannot determine air quality status because data are incomplete or unavailable. No EPA regulations affecting air quality currently address areas that are in attainment or unclassified; nevertheless, federal agencies must follow the statutory requirements for conformity in Section 176(c) of the CAA, and document that they are doing so in the related NEPA analysis.

2 ALTERNATIVES CONSIDERED

2.1 PROPOSED ACTION

The VA proposes the construction and operation of E85 fueling stations at up to 91 VAMC campuses distributed throughout the country. Figure 2-1 shows all the VAMC campuses currently being considered for E85 fueling stations. The VA would ensure the availability of a suitable site on each campus for installing an AST or UST and related infrastructure for a fueling station (e.g., electricity, fencing, access roads), or consider converting an existing tank to dispense E85 fuel. The size and kind of storage tank required would be site dependent, and the VA would consider the needs of other, nearby federal fleets that may choose to use the fueling station. The proximity to existing electrical power, required setbacks from buildings and property lines, and the VA Antiterrorism/Force Protection (AT/FP) requirements would also need to be considered during site selection. Although ASTs would be adequate at many locations, some sites might require or prefer USTs owing to space limitations or constraints related to the viewshed. In general, the size of tanks needed at most campuses would range from 2,500 to 12,000 gallons. The estimated footprint of an AST, including sufficient access to the tank, is between 150 square feet and 460 square feet, assuming that a light-weight, double-walled tank is installed. Two examples of an AST fueling tank with E85 currently in use at VAMCs are shown in Figure 2-2. The footprint for a UST would be similar to that of an AST of equal capacity; although much more excavation would be required for its installation.

The VA must consider the facility's site plan, or Master Plan, when selecting an appropriate site on a VAMC campus, which should be consistent with future development plans and avoid areas with environmental constraints. Preference should be given to locating the E85 fueling area near existing fueling facilities, provided space is available. Considerations related to AT/FP, safety, and aesthetics may dictate installation of fencing or enclosures to reduce visibility of the fueling area. Site-specific EAs include additional details on the resources of concern and more localized issues at each VAMC location.

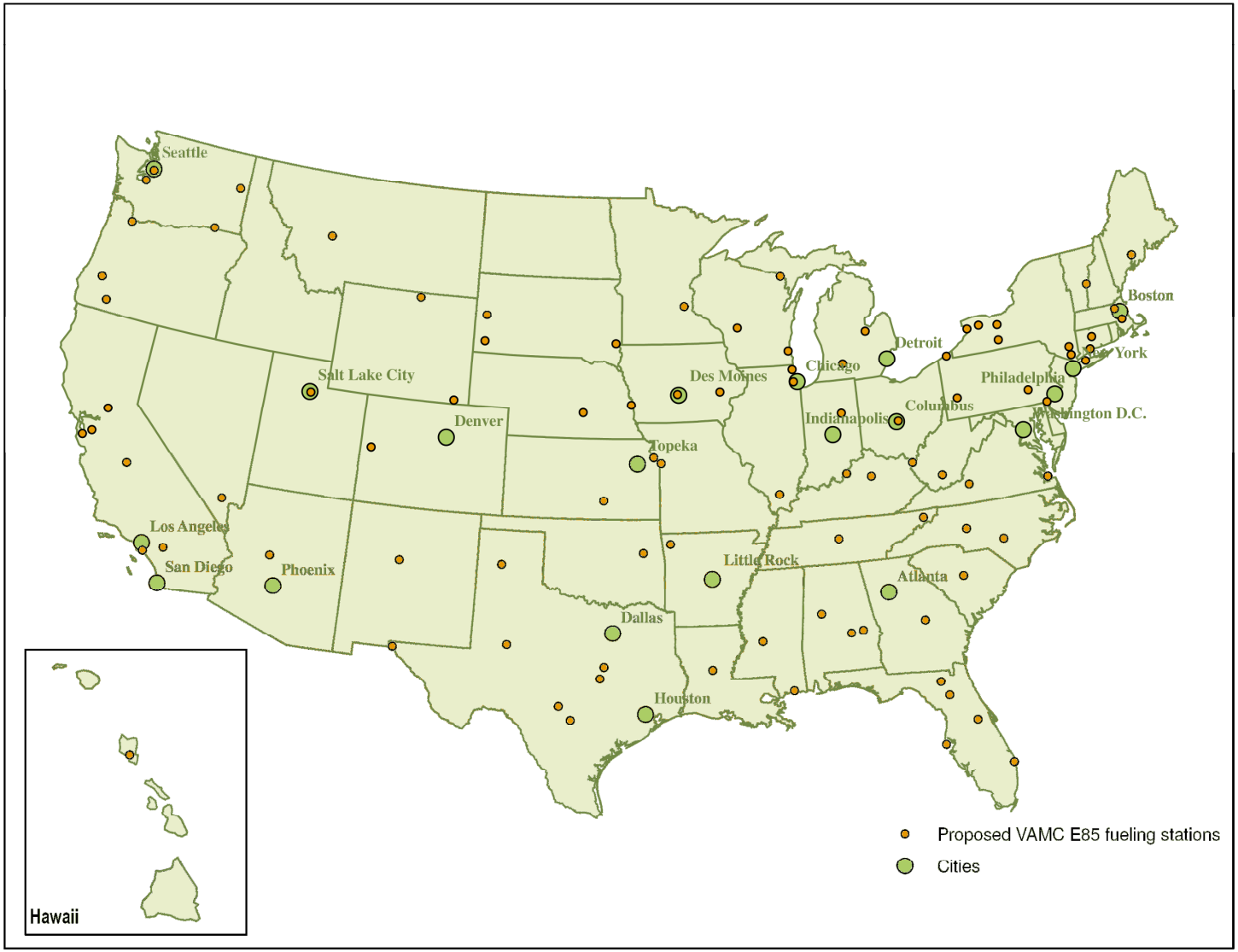

Figure 2-1. Locations of VAMC campuses being considered for E85 fueling stations (major cities (green circles) are provided for context). [Note: The list of candidate sites has been revised since the feasibility study was completed, but the total number of sites evaluated is essentially the same.]

Figure 2-2. Examples of ASTs with E85 currently in use at VAMC campuses

2.2 NO-ACTION ALTERNATIVE

CEQ regulations prescribe analysis of the No-action Alternative, which serves as the benchmark against which the environmental, social, and economic effects of the Proposed Action and other reasonable alternatives can be evaluated. In this program-wide analysis, the benchmark would be not to install alternative fueling stations at the selected VAMC campuses. The No-action Alternative would not support the existing VHA FFV fleets that are currently underutilized owing to lack of E85 availability, nor would it reduce the number of VA waiver requests to DOE under Section 701 of EPACT 2005. It would also not help the VA to meet the sustainability goals of EO 13514 for federal agencies, which include using vehicles that reduce the agency's total consumption of petroleum products for fleets of motor vehicles by a minimum of 2% annually through the end of fiscal year 2020, compared to the baseline of fiscal year 2005.

2.3 FOCUS OF THE ENVIRONMENTAL ASSESSMENT

The focus of this program-wide analysis is the potential effects of the Proposed Action on existing conditions related to noise, air quality, cultural resources, aquatic resources, and solid and hazardous materials and wastes, as well as terrestrial natural resources. Resources may be

affected differently depending on the kind of E85 fueling tank installed at a given site (AST vs. UST). The potential environmental effects of each alternative have been considered and are addressed in the appropriate sections in Chapter 4.

3 AFFECTED ENVIRONMENT

3.1 NOISE

VAMCs across the country provide geriatric and rehabilitation services, consulting and treatment for post traumatic stress disorder, and other outpatient services. Maintaining a serene environment for patients is of utmost importance. Noise is the presence of unwanted sound, which in most cases refers to sounds that are excessively loud. The physical characteristics of sound include its level, frequency, and duration. Sound is commonly measured in decibels (dB), which are based on a logarithmic scale (e.g., a 10 dB increase corresponds to a 100% increase in perceived sound). Human hearing is more sensitive to some frequencies than others and generally spans frequencies ranging from 20 Hertz (Hz) to 20,000 Hz; therefore, sound measures are often related on a weighted scale (dBA or A-weighted scale). According to this scale, 20 dBA is near the threshold of human hearing, and 120 dBA is near the threshold of pain. Noise levels of common sources include a soft whisper at 30 dBA, conversational speech at 66 dBA, and busy road traffic at 75 dBA. Noise considerations for the proposed E85 fueling station are limited to automobile traffic related to the E85 fueling station and truck traffic associated with fuel deliveries.

In many communities, noise is regulated by a local ordinance that is established by a village, town, or city, or other local jurisdiction. Noise ordinances often relate to land use zoning with different maximum levels prescribed for residential, commercial, and industrial areas. Some noise ordinances impose restrictions by time with reduced noise levels during nighttime hours. The noise resulting from the construction, installation, and operation of E85 fueling stations should be evaluated in the context of noise regulations that are in place at each VAMC.

3.2 AESTHETICS AND VISUAL RESOURCES

NEPA and CEQ regulations to implement the NEPA mention effects on visual resources under the heading of aesthetics. These regulations identify aesthetics as one of the elements or factors in the human environment that must be considered in determining the effects of a project. Visual resources are the natural and manufactured features that constitute the aesthetic qualities of an

area. These features form the overall impression that an observer receives of an area or its landscape character. Landforms, water surfaces, vegetation, and manufactured features are considered characteristic of an area if they are inherent to the structure and function of a landscape.

VAMC campuses generally have park-like settings with hospitals and other patient care facilities located on maintained, landscaped grounds. Some VAMCs built in the early 20th Century may have historically significant buildings or structures that are currently listed, or are eligible for listing, on the National Register of Historic Places, or they may be recognized by state historical preservation agencies. Campus areas developed to provide facility infrastructure, such as boiler plants and storage areas, are usually set apart from hospital and other patient care buildings. However, because of their reliance on emergency transportation and other transportation needs of hospital staff, many VAMCs maintain their own fueling stations, which already have existing ASTs and USTs. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to aesthetics and visual resources at each VAMC.

3.3 AIR QUALITY

Federal law designates six air pollutants as criteria contaminants and requires special measures to limit their presence in the nation's air: sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide, particulate matter (fine particles less than 2.5 microns in size as $PM_{2.5}$ and courser particles up to 10 microns in size as PM_{10}), and lead. The EPA sets the National Ambient Air Quality Standards (NAAQS) for air pollutants as required under the Clean Air Act (CAA), last amended in 1990 (40 CFR part 50). Parts of the country where the air quality standards are exceeded for one or more of the criteria pollutants are designated as nonattainment areas. The EPA requires each state government to adopt a State Implementation Plan (SIP) that prescribes control strategies to reduce air pollution in nonattainment areas, and periodically, to evaluate the effectiveness of the strategies prescribed in its SIP. Additional requirements that may require consideration include the Clean Air Interstate Rule (CAIR), the Clean Air Mercury Rule (CAMR), New Source Review (NSR), and regional haze.

3.4 SOCIOECONOMICS

Socioeconomics comprises the basic attributes and resources associated with the human environment, particularly population and economic activity. Economic activity typically encompasses employment, personal income, and economic growth. Factors that affect these fundamental socioeconomic components also influence other issues such as housing availability and the provision of public services. To illustrate local baseline conditions within the region of influence (ROI), socioeconomic data often are provided at the city and county level for the areas surrounding the location where the Proposed Action would occur. The analysis of effects on socioeconomic resources addresses how baseline conditions would change in the ROI as a result of implementing the Proposed Action, which can result in either adverse or beneficial effects. VAMCs are generally located in regions of the country where there are a substantial number of veterans living in local and regional communities. The majority of VAMCs are located on campuses, which provide a haven for veterans requiring medical treatment.

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (Environmental Justice), was issued to focus the attention of federal agencies on human health and environmental conditions in minority and low-income communities. EO 12898 aims to ensure that disproportionately high and adverse human health or environmental effects in these communities are identified and addressed. The environmental justice analysis focuses on the distribution of race and poverty status in areas potentially affected by implementation of the Proposed Action. For the purpose of this analysis, minority and low-income populations are defined as follows:

- *Minority Populations*: All categories of non-white population groups as defined in the U.S Census, including African American, Hispanic, American Indian and Alaska Native, Asian, or Pacific Islander, and other groups.

- *Low-Income Population*: Persons living below the poverty level, as defined by the 2000 Census.

In 1997, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, emphasized that children may suffer disproportionately from environmental health risks and safety risks. EO 13045 was introduced to prioritize the identification and assessment of environmental health and safety risks that may affect children and to ensure that the policies, programs, activities, and standards of federal agencies address environmental risks and safety risks to children. In order to comply with EO 13045, areas containing relatively large numbers of children (e.g., in the vicinity of schools) are given special consideration regarding potential effects of the Proposed Action to address the potential for disproportionately high or adverse effects on children's health or environment.

3.5 TRANSPORTATION

Transportation refers to the movement of vehicles on roadways that serve several functions. Primary roads, such as major interstates, are designed to move large volumes of traffic but do not necessarily provide access to all adjacent areas. Secondary roads, which are commonly known as surface streets, provide access to residential and commercial areas, hospitals, and schools. In most regions of the country, and within towns and cities, some level of public transportation is provided to the community. The Department of Transportation in most states will be authorized to implement regulations affecting transportation in most areas. Local regulations may be instituted at the county, city, or town level.

Most VAMCs are located on campuses that are convenient to surrounding communities. VAMC campuses generally have a network of roadways accessible through several campus entry points and parking areas distributed around the hospital and other medical facilities. Campus facilities providing infrastructure support are generally set apart from other facilities. Many VAMCs currently maintain boiler plants, emergency generators and fueling stations and already receive regularly scheduled fuel deliveries. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to transportation at each VAMC.

3.6 CULTURAL AND HISTORICAL RESOURCES

Historic preservation requirements are promulgated under federal, state, and local legislation. The National Historic Preservation Act of 1966 (NHPA) is the principal federal law that address historic preservation. Additional statutes relate to various aspects of the federal historic preservation program ranging from the protection of archeological sites on federal lands to the recognition of properties of traditional cultural or religious significance to Native Americans. Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP. Revised regulations, *Protection of Historic Properties* (36 CFR Part 800), became effective on January 11, 2001.

Federal agencies seek the opinion of the appropriate State Historic Preservation Office (SHPO) when identifying historic properties and assessing effects of an undertaking on historic properties. Agencies also consult with SHPOs when developing Memoranda of Agreement. The SHPO administers the national historic preservation program at the state level, reviews nominations for inclusion on the National Register of Historic Places (NRHP), maintains data on historic properties that have been identified but not yet nominated, and consults with federal agencies during Section 106 review. SHPOs are designated by the governor of their respective states or territories. Under NHPA, the SHPO serves to identify, evaluate, and preserve historic, archeological and cultural resources and has the following responsibilities:

- In cooperation with federal and state agencies, local governments, and private organizations and individuals, direct and conduct a comprehensive statewide survey of historic properties and maintain inventories of such properties.

- Identify and nominate eligible properties to the National Register and otherwise administer applications for listing historic properties on the National register.

- Prepare and implement a comprehensive statewide historic preservation plan.

- Administer the state program of federal assistance for historic preservation within the state.

- Advise and assist, as appropriate, federal and state agencies and local governments in carrying out their historic preservation responsibilities.

- Cooperate with the Secretary of the Interior, the Advisory Council on Historic Preservation, and other federal and state agencies, local governments, and organizations and individuals to ensure that historic properties are considered at all levels of planning and development.

- Provide public information, education and training, and technical assistance relating to the federal and state Historic Preservation Programs.

- Cooperate with local governments to develop local historic preservation programs and assist local governments to become certified pursuant to subsection (3).

Some VAMCs built in the early 20th Century may have historically significant buildings or structures that are currently listed, or are eligible for listing, on the National Register of Historic Places, or they may be recognized by SHPOs. Campus areas developed for facility infrastructure, such as boiler plants and warehouses, are usually set apart from hospital and other patient care buildings. However, because of their reliance on emergency transportation and other transportation needs of hospital staff, many VAMCs maintain their own fueling stations, which already have existing ASTs and USTs. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to cultural and historical resources at each VAMC. Another important consideration will be the kind of tank, AST vs. UST, to be installed for E85. USTs require more excavation, and therefore could potentially have greater effects on archeological resources.

3.7 GEOLOGY AND SOILS

Geological resources typically consist of surface and subsurface materials and their inherent properties. Soil refers to the unconsolidated earthen organic or mineral materials overlying bedrock

or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the suitability of the ground to support buildings and structures. With respect to construction, soils are typically 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.

Each of the VAMCs proposed for E85 installation will have specific environmental circumstances related to geology and soils. If necessary, site-specific information on soil and geologic properties and limitations can be obtained from local USDA Natural Resources Conservation Service offices and other local sources, as available. As noted, many VAMCs already maintain and operate fueling facilities. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to geology and soil resources at each VAMC. Another important consideration will be the kind of tank, AST versus UST, to be installed for E85. USTs require more excavation, and therefore could potentially have greater effects on geology and soils. Sites with predominantly wet or unstable soils (e.g., organic soils and certain clays and sands) should be avoided for E85 tank installation because these areas could be in regulated wetlands or may not meet certain structural engineering requirements for installing either an AST or UST. Certain geological formations may make installing new ASTs or USTs and ancillary facilities for holding and dispensing E85 difficult or impractical, including shallow bedrock, karst formations, coal seams, excessive slopes and other potentially problematic strata. Site-specific EAs will include details on the resources of concern and local situations at each VAMC location.

3.8 GROUNDWATER AND WATER QUALITY

Groundwater is the subsurface hydrologic resources of the physical environment. Groundwater resources can be a safe and reliable source of fresh water for the general population, especially in areas of limited precipitation, and is commonly used for potable water consumption, agricultural use, and industrial applications. Groundwater is water derived from precipitation that has become saturated within permeable subsurface materials after seeping down through the soil until reaching an impermeable layer such as rock. Groundwater is stored in the interstitial spaces

between particles of subsurface materials, and as part of the overall hydrologic cycle, engages in a dynamic pattern of flow, uptake from plants, and recharge. The properties of groundwater are described in terms of depth to aquifer or potentiometric surface, water quality, and surrounding geologic composition. An aquifer is an underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, silt, or clay) that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs. Groundwater resources are typically regulated at the state level by an environmental agency.

The groundwater resources and water quality of those resources will vary markedly among the locations of the candidate sites proposed for E85 installation. If determined to be necessary, site-specific information on groundwater and water quality can be obtained from the state environmental resource agency with regulatory authority in the affected region. As noted, many VAMCs already maintain and operate fueling facilities. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to groundwater resources and water quality at each VAMC. Another important consideration will be the kind of tank, AST versus UST, to be installed for E85. USTs require more excavation, and therefore could potentially have greater effects on groundwater resources. Siting of E85 fuel tanks should also consider the proximity of areas important for groundwater recharge, such as wetlands and riparian floodplains.

3.9 WETLANDS, FLOODPLAINS, AND SURFACE WATERS

EPA and the U.S. Army Corps of Engineers (USACE) define wetlands as “those areas that are inundated or saturated by surface 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. Wetlands generally include swamps, marshes, bogs, and similar areas” [33 CFR 328.3(b); 1984]. Wetlands provide a variety of functions including groundwater recharge and discharge, flood-flow alteration, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, aquatic and terrestrial diversity and abundance, and uniqueness. Three criteria are necessary to define wetlands: hydrophytic vegetation, hydric soils, and evidence of hydrology, or an indication of period flooding or soil

saturation. *Hydrophytic vegetation* is classified by the estimated probability of occurrence in wetland versus upland (non-wetland) areas throughout its distribution. *Hydric soils* are those that are saturated, flooded, or ponded for sufficient periods during the growing season and that develop anaerobic conditions in their upper horizons (i.e., layers). *Wetland hydrology* is determined by the frequency and duration of inundation and soil saturation; permanent or periodic water inundation and soil saturation are considered to be significant forces in wetland establishment and proliferation. Jurisdictional wetlands are those subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and Executive Order 11990, *Protection of Wetlands*. The regulation of wetlands can be administered at federal, state, and local levels.

Floodplains are defined by EO 11988, Floodplain Management, as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at minimum, they are subject to a one percent or greater chance of flooding in any given year" (i.e., an area inundated by a 100-year flood). Floodplains and riparian habitats are biologically unique and highly diverse ecosystems providing a rich diversity of aquatic and terrestrial species, as well as promoting stream bank stability and moderating water temperatures. EO 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development whenever there is a practicable alternative. The Federal Emergency Management Agency (FEMA) provides information on floodplain designations throughout much of the country, which are depicted on Flood Insurance Rate Maps (FIRM).

Surface waters include lakes, ponds, rivers, and streams. These resources are important for a variety of reasons including agricultural irrigation, power generation, recreation, flood control, and human health. The nation's water are protected under the statutes of the CWA; the goal of which is to restore and maintain the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." Under the CWA Section 402, it is illegal to discharge any point and/or nonpoint pollution sources into any surface water without a National Pollutant Discharge Elimination System (NPDES) permit. The EPA is charged with administrating the

NPDES permit program; however, most states have the legal authority to implement and enforce the provisions of the CWA, while the EPA retains oversight responsibilities. All projects that have a federal component and may affect state water quality must comply with the CWA.

The proximity to wetlands, floodplains, and surface waters will vary markedly among the locations of the candidate sites proposed for E85 installation. For each location, site-specific information on these resources will be obtained from federal agencies (FWS for National Wetlands Inventory (NWI) maps and FEMA for floodplain maps) and the corresponding state environmental resource agency. As noted, many VAMCs already maintain and operate fueling facilities. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to wetlands, floodplains, and surface waters at each VAMC; optimally, these resources would have been considered during the original installation of fueling facilities.

In order to provide emergency response in the event of a release and to prevent discharges of petroleum products from reaching navigable waters of the United States, a Spill Prevention, Control and Countermeasure Plan (SPCC Plan) must be prepared by all facilities subject to regulation, which include VAMC's that would have a combined aboveground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons where there is a reasonable expectation of a discharge into or upon navigable waters. This determination is based upon a consideration of the location and geographical aspects of the facility. The location of the facility must be considered in relation to streams, ponds and ditches (perennial or intermittent), storm or sanitary sewers, wetlands, mudflats, sandflats or farm tile drains. The distance to navigable waters, volume of material stored, worst case weather conditions, drainage patters, land contours, soil conditions must also be taken into account. Preparation and implementation of the SPCC Plan is the responsibility of the facility owner or operator. SPCC plans must be certified by a registered Professional Engineer (PE), however facilities that store less than 10,000 gallons of oil in containers no larger than 5,000 gallons and meet the spill history criteria may qualify to self-certify their SPCC Plan as a Tier I facility.

Components of a SPCC include: 1) operating procedures the facility implements to prevent oil spills; 2) control measures to prevent oil from entering navigable waters or adjoining shorelines; and 3) countermeasures to contain, clean up, and mitigate the effects of an oil spill. Other important elements of a SPCC Plan include, but are not limited to, the following:

- Professional Engineer certification (site dependent);
- Plan must follow the sequence of Title 40, Code of Federal Regulations, Part 112 (40 CFR 112) or provide cross-references to the requirements in it;
- Facility diagram;
- Facility drainage;
- Facility inspections;
- Training
- Site security;
- Bulk storage container compliance; and
- Transfer procedures and equipment (including piping).

3.10 VEGETATION AND LAND USE

Vegetation consists of all of the plants present in an area that can be native or nonnative, but naturalized species. Plant associations or communities, considered in general, occupy habitats, which are influenced by the resources (biotic and abiotic) and environmental conditions present in an area. Although the existence and preservation of these resources is intrinsically valuable, they also provide aesthetic, recreational, and socioeconomic values to society. Vegetation types

include all existing terrestrial plant communities as well as individual species that are present. For the most part, the affected environment for vegetation consists of only those areas potentially subject to ground disturbance.

Land use comprises the natural conditions and/or human-modified activities occurring at a particular location. Human-modified land use categories generally include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, and other developed use areas. Management plans and zoning regulations determine the type and extent of land use allowable in specific areas and are often intended to protect specially designated or environmentally sensitive areas and sensitive noise receptors.

Vegetation resources will vary considerably among the locations of the candidate sites proposed for E85 installation, whereas land use is likely to be relatively consistent, either as institutional or in some cases residential. As necessary, site-specific information on these resources will be obtained from state and local (county, city, or town zoning ordinances) regulatory authorities. As noted, many VAMCs already maintain and operate fueling facilities. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to vegetation and land use at each VAMC. These areas are likely to be already affected by development and lack high quality habitats and vegetation. Areas without existing fueling stations and no other recourse then to site E85 in areas with naturally vegetated habitats will likely have greater impacts to environmental resources.

3.11 WILDLIFE

Wildlife consists of all fish, amphibian, reptile, bird, and mammal species with the exception of those identified as special status species. Wildlife also includes those birds species protected under the federal Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and other species-specific conservation legal authorities. Assessment of a project's effect on migratory birds places an emphasis on "species of concern" as defined by EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. Although the existence and preservation of

wildlife resources is intrinsically valuable, they also provide aesthetic, recreational, and socio-economic values to society.

Wildlife resources will vary among the candidate sites proposed for E85 installation. As necessary, site-specific information on these resources will be obtained from state and local regulatory authorities. Many VAMCs already maintain and operate fueling facilities. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to wildlife resources at each VAMC. These areas will likely already be affected by development and lack habitats supportive of much wildlife. Areas without existing fueling stations and no other recourse then to site E85 in areas with natural habitats will likely have greater impacts to environmental resources. Additional assessment of potential impacts on migratory birds that are regionally rare occurs under the special status species category.

3.12 THREATENED AND ENDANGERED SPECIES

Special status species are defined as those plant and animal species listed as endangered or threatened, or species proposed for listing by the USFWS or the relevant state natural resources agency. The Endangered Species Act (ESA) protects federally listed endangered and threatened plant and animal species. federally identified candidate species (species proposed for listing) are not protected under law; however, these species could become listed and, therefore, protected at any time. Their consideration early in the planning process may avoid future conflicts that could otherwise occur. state natural resource agencies generally have natural heritage programs that regulate and monitor potential impacts to state listed rare, threatened, and endangered species, and customarily provide environmental review of proposed projects within the state.

Federally and state listed species that may potentially occur in the vicinity of each site will vary markedly among the candidate sites proposed for E85 installation. As part of the NEPA process to evaluate potential impacts to species protected under the ESA, consultations will be made with the appropriate USFWS field office to identify plant and animal that may be at risk in the vicinity of each project area. In addition, consultations will be made with appropriate state

natural resource agencies, either directly or through information generally provided by internet, to identify state listed species that may be at risk in the vicinity of each project area. Many VAMCs already maintain and operate fueling facilities. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities will be an important decision factor when considering potential impacts to threatened and endangered species at each VAMC. These areas will likely already be affected by development and lack habitats supportive of sensitive species. Areas without existing fueling stations and no other recourse then to site E85 in areas with natural habitats will likely have greater impacts to environmental resources.

3.13 SOLID AND HAZARDOUS MATERIALS AND WASTES

The terms "hazardous materials" and "hazardous waste" refer to substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act (SWDA), as amended by the Resource Conservation and Recovery Act (RCRA). In general, hazardous materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment. Hazardous wastes that are regulated under RCRA are defined as any solid, liquid, contained gas, or semi-solid waste, or any combination of wastes that either exhibit one or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR Part 261, *Identification and Listing of Hazardous Waste*.

Issues associated with hazardous materials and wastes typically center around waste streams, underground storage tanks (USTs), aboveground storage tanks (ASTs), and the storage, transport, use, and disposal of fuels, lubricants, and other industrial substances. When such materials are improperly used in any way, they can threaten the health and well-being of wildlife species, vegetation and habitats, and soil and water systems, as well as humans. Construction activities associated with the installation of an AST or UST have the potential to expose contaminants depending on the current or past use of the site. Any activities that may generate hazardous wastes must be conducted in accordance with federal and state guidance, including containment of wastes and transport by an approved contractor to an approved hazardous waste facility. In

addition, activities with potential to spill such material must also have emergency spill response plans that address containment and mitigation in accordance with regulations.

Circumstances involving hazardous materials and hazardous wastes likely would be variable in context but similar in nature among the candidate sites proposed for E85 installation. Many VAMCs already maintain and operate fueling facilities. The presence of existing fueling facilities and the opportunity to emplace an E85 tank within these facilities would be an important decision factor when considering potential impacts from hazardous materials and hazardous wastes. Areas without existing fueling stations might have less of a concern with potential soil contamination from ASTs and USTs, however other sources of hazardous materials and hazardous wastes would still need to be considered.

3.13.1 Underground and Aboveground Storage Tanks

Most VAMC facilities will have already have USTs and ASTs as part of existing fueling facilities or that contain diesel fuel for emergency generators or fuel oil for boilers to provide heat. Aspects of UST/AST regulations generally fall into three categories: (1) certifications, permits, registrations and notifications; (2) inspections/monitoring, recordkeeping and operations/ maintenance; and (3) physical requirements. Fire codes and industry standards also may apply. Tables 3-1 and 3-2 summarize federal AST and UST regulations. Many of the individual states follow the federal regulations; in cases where they do not, the state regulations tend to be more stringent. In the case of ASTs, regulations relating to aspects such as tank installation and registration may not apply if the tank is below a certain size threshold. state regulations pertaining to ASTs and USTs are summarized in the Appendix for all 50 states and the District of Columbia.

Table 3-1. Summary of federal regulations for petroleum ASTs	
Applicable Regulation	**Requirements**
Clean Water Act/Oil Pollution Act of 1990	Subject Facilities are required to write and implement a spill prevention, control and countermeasure (SPCC) plan. SPCC plan certified by a registered PE and updated every 5 years or after facility modifications. Minimum standards for secondary containment, inspections, integrity testing, recordkeeping, training and personnel, security, loading/unloading racks, prevention of brittle fractures, drainage, tank construction and transfer operations. Certain facilities (capable of causing "substantial harm") are required to develop facility response plans (FRP) establishing procedures to prevent and contain discharges of oil into navigable waters or shorelines.
Clean Water Act/National Pollutant Discharge Elimination System (NPDES)	Stormwater discharges associated with industrial activity require a NPDES permit. NPDES permits set allowable discharge levels and require "best management practices." A general permit related to industrial activities may be available.
Clean Air Acts of 1970, 1977, and 1990	New Source Performance Standards for stationary sources to control emissions of volatile organic compounds from vessels storing petroleum liquids. Reasonably Available Control Technology controls emissions from existing sources in ozone nonattainment areas. Facilities that use, store or handle regulated substances in quantities above thresholds are required to develop and implement a risk management program.
SARA Title III and CERCLA Section 103	Disclosure of the nature, amount and location of hazardous chemicals in facilities. Annual reporting of toxic chemicals released to the environment or transferred offsite.
Resource Conservation and Recovery Act Subtitle C	Establishes standards for generators who treat, store or dispose of hazardous wastes on site.
Occupational Safety and Health Act	Standards include specific requirements for design, materials, installation, supports, foundations, testing corrosion protection, repairs loading and unloading, drainage, waste disposal and fire control related to the storage and handling of flammable and combustible liquids. Benzene standard protects workers from health hazards associated with exposure. Hazardous waste operations and emergency response (HAZWOPER) regulations apply to workers engaged in hazardous waste cleanup. Hazard Communication Standard (HCS) ensures chemical hazards are evaluated and hazard information and appropriate protective measures are communicated to employers and employees. Requires hazard communication programs, container labeling, MSDS sheets and employee training.
DOT Pipeline Tank Regulations	Unlikely to apply to E85 fuel storage tanks at VA facilities. Addresses facility siting and design, design, construction, operation and maintenance of pipeline breakout tanks.

Table 3-2. Summary of federal regulations for new USTs (40 CFR 280)	
Requirement	**Description**
Corrosion Protection, Tank Design and Installation	Tanks must be properly designed, constructed and protected from corrosion. Tank components must be compatible with contents. Constructed of fiberglass-reinforced plastic (FRP), coated and cathodically protected steel or steel and FRP composite. Tanks installed in accordance with nationally accepted codes and practices and manufacturers' instructions. Owners and operators must certify installation requirements.
Spill and Overfill Protection	Spill prevention equipment (e.g. catchment basin) to prevent spills. Overfill prevention equipment restricting flow into tank, triggering a high level alarm, or shuts off flow to tank prior to overfilling. Proper fuel transfer procedures.
Release Detection	Detect a release from any portion of the tank and connected underground piping than routinely contains product. Installed, calibrated, operated and maintained according to manufacturers' instructions. Meets regulatory performance requirements with performance claims documented in writing. Automatic tank gauging, vapor monitoring, groundwater monitoring, interstitial monitoring or other approved method. Pressurized piping requires flow restrictor, shut-off device or continuous monitoring and annual line testing or monthly monitoring.
Repairs	Must adhere to nationally recognized code of practice. Tightness test repaired tanks and piping within 30 days unless internally inspected, monthly monitoring is performed on repaired portion or another equivalent method. Test cathodic protection system within 6 months of repairs to UST system.
Inspections	No federal requirement under 40 CFR 280, but Energy Policy Act of 2005 requires EPA and states to perform inspections every 3 years. Cathodic protection systems require routine inspections. Impressed current systems inspected every 60 days and sacrificial anode systems within 6 months of installation and every three years thereafter.
Notification and Reporting	Notify appropriate agency (EPA or state) within 30 days of installation by submitting tank notification form including certification of UST installation. Reports of all releases including suspected releases, spills and overfills, and confirmed releases. Corrective actions planned or taken. Notification before permanent closure or change in service.

Table 3-2 (Continued)	
Requirement	**Description**
Recordkeeping	Corrosion expert's analysis of site if corrosion protection equipment is not used. Documentation of the operation of corrosion protection equipment. Documentation of UST system repairs. Recent compliance (1 year minimum) with release detection requirements including written performance claims of equipment. Results of a site investigation conducted at permanent closure.

3.13.2 Medical Waste Use, Storage, and Disposal

VAMCs, by virtue of the medical services they provide, are directly involved with medical waste use, storage, and disposal. At each facility, those areas having involvement with medical waste, use, storage, and disposal in the immediate vicinity of the proposed E85 installation should be identified and assessed for potential environmental impacts.

3.13.3 Suspect Asbestos-containing and Lead-containing Materials

On the basis of the age, many VAMC campuses may possess asbestos-containing materials (ACM) and lead-containing materials in existing buildings and structures. Several kinds of construction materials are often associated with ACM and include:

- breeching insulation
- pipe insulation
- gaskets
- fireproofing
- insulation on underground steam lines
- floor tile and associated mastic
- wall joint compound
- lay-in ceiling tiles
- blow-down tank insulation.

Materials that have the potential to be lead-containing include painted boiler and incinerator equipment and building components and roof flashing. Suspect ACM and lead-containing materials should be properly identified and evaluated to determine if removal is warranted or required before demolition or renovation of any structures that would be affected by any E85 fueling area construction.

3.13.4 Known Spills or Releases, and Other Areas of Concern

In the past, spills or releases of materials may have occurred in the vicinity of the proposed location for E85 installation. As necessary, the area surrounding each E85 site should be thoroughly screened for past spills and releases through documentation reviews, records searches, and interviews of on-site personnel with environmental management responsibilities. Subsurface investigations for contaminated materials would be recommended as necessary.

3.14 SAFETY

As a resource, safety refers to maintaining a work environment that is protective of human health by following standard operating procedures established to minimize risk to personnel. The direct and indirect effects of construction, installation, and operation of E85 at a VAMC could potentially affect the safety and health of VA employees, as well as others working or visiting the facility. Although health and safety compliance procedures do not need to be specified, effects that require a change in work practices to achieve an adequate level of health and safety should be discussed.

The National Fire Protection Agency (NFPA) has two standards that apply to fuel ethanol blends: NFPA 30, "Flammable and Combustible Liquids Code," and NFPA 30A, "Automotive and Marine Service Station Code." These codes contain information on refueling facilities, storage, and handling requirements for all flammable and combustible liquids (DOE 2006). NFPA assigns ethanol fuels, including E100 and E85, to the same class as gasoline. Minimum NFPA safety setbacks for protected ASTs are highlighted in Table 3.3.

Table 3-3. National Fire Protection Agency minimum safety setbacks for ASTs

Tank Type	Individual Tank Capacity (gal)[a]	Minimum Distance (ft)				
		From the Nearest Important Building on the Same Property	From Nearest Fuel Dispensing Device[b]	From Lot Line That Is or Can Be Built Upon[c]	From the Nearest Side of Any Public Way	Between Tanks
Tanks in vaults[d]	0–15,000	0	0	0	0	Separate compartments required for each tank
Protected aboveground tanks	Less than or equal to 6,000	5	0	15	5	3
	6,001–12,000	15	0	25	15	3
Fire-resistant tanks	0–12,000	25	25	50	25	3
Other tanks meeting the requirements of NFPA 30	0–12,000	50	50	100	50	3

For SI units, 1 ft = 0.30 m; 1 gal = 3.8 L.
[a]See 4.3.2.3 and 4.3.2.5.
[b]See 4.3.2.6.
[c]Including the opposite side of a public way.
[d]The separation distances given for vaults are measured from the outer perimeter of the vault.

Circumstances related to safety likely are categorically very similar among the 91 VAMCs located in 46 states. Many VAMCs already maintain and operate fueling facilities, and would therefore have procedures in place affecting safety at these facilities. VAMCs without existing fueling stations would be required to develop safety plans and protocols in compliance with federal and state regulations affecting safety around fueling stations.

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4 ENVIRONMENTAL CONSEQUENCES

4.1 NOISE

4.1.1 Proposed Action

The construction and operation of fueling stations at candidate sites proposed for E85 installation likely would not have significant impacts with respect to noise; however, the potential effects due to noise would depend on where the E85 fueling station is sited at the facility, whether there is an increase in vehicle traffic, and the frequency of fuel deliveries at each VAMC. Any site-specific effects due to noise would be addressed by a VAMC's site-specific EA. The following discussion of the technological alternatives considered for E85 installation and operation at each VAMC provides a general description of the anticipated effects due to noise for each, and the possible mitigation strategies that could be implemented to offset them.

<u>AST, UST, Conversion of UST for E85 Use</u>

The various equipment options and related activities associated with the Proposed Action are expected to result in only minor increases in noise levels for the operation of an E85 fueling station. Short-term but measurable increases in noise levels are expected during construction. The following measures are recommended to further ensure that any long-term increases and resultant effects are acceptable:

1. Develop a plan for acceptable, post-construction noise levels. The plan should identify post-construction noise goals that minimize the increase at the closest residences. The plan should also include compliance with OSHA requirements such that, if possible, no personal protective equipment would be required.

2. Design the fueling station to minimize any increase in noise. The increased noise could be mitigated through a combination of measures such as restricting activities to daytime hours and selecting equipment to minimize noise.

The automobile traffic associated with the Proposed Action falls into two categories: (1) VA vehicles and (2) other federal E85 vehicles. VA vehicles will be traveling from the VA campus and will stop at the E85 fueling station to refuel, as needed. This traffic would have no additional impact, since it is current VA campus traffic. Other federal vehicles may also utilize the proposed E85 fueling station. The added impact would be due to external vehicles entering the VA campus for the express purpose of refueling at the VA E85 fueling station. The maximum fuel use for external vehicles is estimated to be 25% of the total E85 fuel use. Based on the largest fuel usage at any VA site, the largest anticipated E85 tank size is 20,000 gallons, which corresponds to an additional 24 vehicles per day or an average of 3 vehicles per hour during normal business hours assuming an average 10-gallon fill. Under a worst case analysis, 3 vehicles traveling at 30 mph simultaneously visiting the E85 fuel station is used to evaluate the noise level due to vehicle traffic. The calculation is based on a relationship established by the Federal Highway Administration (FHWA) between vehicle speed and noise level in dBA at 50 ft (Barry and Reagan, 1978) as follows:

$$dBA = 38.1*\log(s) + 5.5 \qquad \text{for automobiles}$$

The relationship between noise level and distance from the vehicle is shown in Figure 4-1. From this figure, it is clear that automobile traffic would not have a significant noise impact at any sensitive receptor.

The E85 tanks are sized to require refilling approximately once per month. With external vehicles potentially utilizing the fueling station and possible increases in the VA fleet size, refilling could be as frequent as once per week. The refilling would likely involve a medium-sized fuel truck driving onto the VA campus to the E85 tank, filling and driving off the campus.

A recent noise study (NCHRP, 2009) quantified truck noise under several conditions. The results for the smallest tractor trailer vehicle are summarized in Table 4-1.

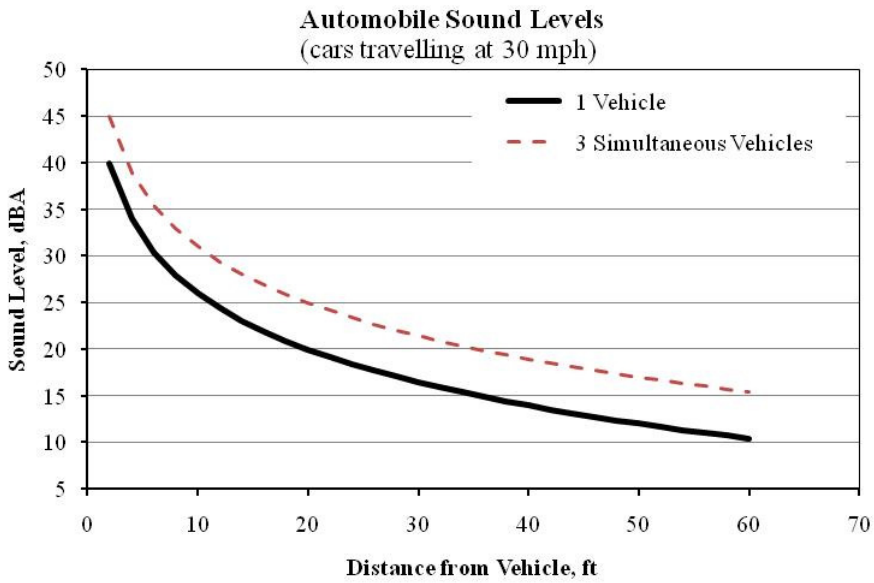

Figure 4-1. Automobile sound levels as a function of distance

Table 4-1. Truck noise specifications for fuel delivery to VAMCs		
Condition	**Distance to measurement**	**Noise level (dBA)**
Truck traveling at 35 mph	25	80.3
Truck idling at 2100 rpm	25	79.3
Truck accelerating from 10 to 15 mph	25	81.9

The estimated sound contribution made by the delivery trucks as a function of distance from the truck are shown in Figure 4-2. The figure indicates that noise will be within typical daytime guidelines for receptors at distances greater than approximately 30 feet.

For individual VA sites, the distance between the nearest sensitive receptor and the travel path will be evaluated using the relationships given in Figure 4-2. Truck deliveries of fuel would be restricted to weekdays between the hours of 9 am and 4 pm to further mitigate the noise disturbance due to refueling. Additional controls would be implemented as necessary.

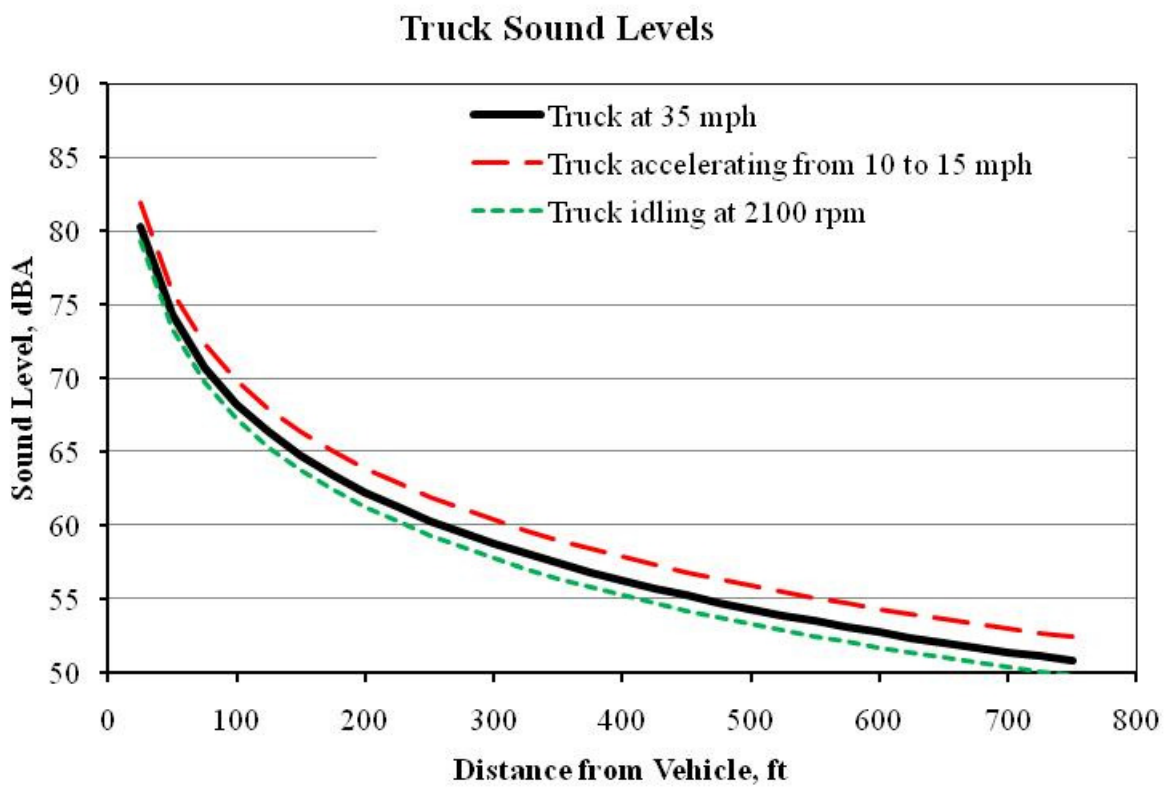

Figure 4-2. Truck Sound Levels as a Function of Distance

4.1.2 No-action Alternative

The installation and operation of E85 fueling stations would not occur at any of the VAMCs located in 46 states, therefore there would be no impacts due to noise under the No-action Alternative. All VA personnel that currently operate FFVs at the facilities would continue to use E85 fuel resources from offsite fueling stations.

4.2 AESTHETICS AND VISUAL RESOURCES

The significance of potential impacts to aesthetics and visual resources is based on the level of sensitivity in the areas affected by the Proposed Action. Visual sensitivity is defined as the degree of public interest in a visual resource and the concern over potential adverse changes in the quality of that resource. In general, impacts to visual resources would be considered significant if implementation of an action resulted in a substantial alteration to an existing sensitive visual setting.

4.2.1 Proposed Action

The installation and operation of fueling stations at candidate sites proposed for E85 installation likely would not have significant impacts on aesthetics and visual resources; however, at each VAMC there potentially may be localized effects that would depend primarily on where the E85 fueling station is sited at the facility. These site-specific effects would be addressed by a VAMC's site-specific EA tiered from this program-wide analysis. The following discussion of the technological alternatives considered for E85 installation and operation at each VAMC provides a general description of the anticipated effects on aesthetics and visual resources for each, and the possible mitigation strategies that could be implemented to offset them.

AST

As indicated in Chapter 3, the footprint for an E85 AST would be relatively small, ranging from 200 to 500 square feet, depending on the volumetric size of the tank. Impacts to aesthetics and visual resources likely would not occur at a VAMC that currently has existing fueling facilities provided the E85 AST is collocated with them. VAMCs without existing fueling facilities would need to allocate space for an E85 AST and provide roadway access. Depending on the VAMC and site-specific conditions, there could be potential impacts to aesthetics and visual resources. In these cases, proper siting of the E85 AST that considers the surrounding viewshed, and other actions such as constructing an enclosure or the planting of trees and shrubs around the periphery of the tank could be implemented to offset any impacts to aesthetics and visual resources.

UST

Using an UST for E85 fuel inherently would have less of an impact on aesthetics and visual resources than an AST as the largest component, the tank, would be buried; however the pump dispenser would be aboveground and space still would be required to site the unit. Impacts to aesthetics and visual resources likely would not occur at a VAMC that currently has existing fueling facilities provided the UST is collocated with them. VAMCs without existing fueling facilities would need to allocate space for an E85 UST and provide roadway access. Depending on the VAMC and site-specific conditions, there may be small impacts to aesthetics and visual resources. In these cases, proper siting of the E85 UST that considers the surrounding viewshed, and other actions such as constructing an enclosure or the planting of trees and shrubs around the

periphery of the pump dispenser could be implemented to offset any impacts to aesthetics and visual resources.

Conversion of UST for E85 Use

In itself, converting an existing UST for use with E85 fuel would have no impacts on aesthetics and visual resources as there would be no changes to the surrounding viewshed and vehicle fueling would continue at the same location. However, if the UST conversion necessitates adding an additional AST or UST to accommodate the type of fuel that is replaced by E85, the potential impacts to aesthetics and visual resources would be the same as described above for AST and UST alternatives.

4.2.2 No-action Alternative

The installation and operation of E85 fueling stations would not occur at any of the VAMCs located in 46 states, therefore there would be no impacts to aesthetics and visual resources under the No-action Alternative. All VA personnel at the facilities that currently operate FFVs would continue to use E85 fuel resources from offsite fueling stations.

4.3 AIR QUALITY

By definition, the construction and operation of alternative E85 fueling stations at VAMC campuses involves considering air emissions from E85 and existing fueling alternatives. This section compares the emissions of these alternatives; the environmental consequences of each are summarized below.

Potential emissions due to operation of E85 fueling stations need to be assessed from a holistic or airshed perspective, considering not only emission factors but also effects on vehicle miles traveled, both on and off VAMC campuses, and the mix of vehicles that are traveling. For example, the addition of a fueling station may cause a net decrease in vehicle miles traveled, due to the net increase in the number of available fueling stations in the affected geographic area.

Fuel use may shift in the direction of E85 fuel as it becomes more accessible for flexible fuel vehicles (FFVs).

4.3.1 Proposed Action

AST, UST, Conversion of UST for E85 Use

As noted above, increased E85 availability in a local geographic area may cause a net shift toward a greater number of vehicles running on E85 fuel. The impacts of this shift will vary by pollutant, but in most cases a net decrease in air emissions may result. The U.S. Department of Energy (DOE) Alternative Fuels & Advanced Vehicles Data Center website provides a summary (http://www.afdc.energy.gov/afdc/vehicles/emissions_e85.html) of E85 emissions in comparison with those from gasoline. As shown in Table 4-2, tailpipe emissions from E85 sources are generally reduced compared to those from gasoline. The information Table 4-2 is from a recent study (see footnote in table) whereby engineers at the National Renewable Energy Laboratory combined data from all applicable emissions studies into one robust data set and compared the emissions from E85 in a FFV with those from gasoline in a FFV or a similar non-FFV vehicle.

In the case of greenhouse gases, CO_2 emissions from E85 were found to be a third or more less than from conventional gasoline on a kg CO_2/gallon basis.[2] On the other hand, fuel efficiency decreases by about 25% in switching from conventional to E85 fuel. Still, there would be a net modest reduction in local CO_2 emissions as a result. Emissions of greenhouse gases such as nitrous oxide and methane from E85 tend to be somewhat higher, on a gram/mile basis, than for conventional gasoline; thus, there would be a net increase for those greenhouse gas species. Additional studies have shown that current corn ethanol technologies have greenhouse gases similar to those of gasoline, but are much less petroleum intensive (Farrell et al. 2006).

Net impacts within the VAMC campus proper would depend on whether a conventional fueling station already exists on the campus. If so, then the net impact would be similar to that described above. If not, then the net impact would depend on whether the VA would choose to allow other government vehicles to fuel at their E85 stations. If no off-campus vehicles were allowed to use

[2] The Climate Registry, *General Reporting Protocol*, Version 1.1: Accurate, transparent, and consistent measurement of greenhouse gases across North America, May 2008.

the fueling station, there would be little or no net impact, as only VA vehicles (which would be traveling anyway) would be on the campus for fueling purposes. If off-campus federal vehicles were allowed to fuel on the campus, then there would be a modest net increase in on-campus air emissions associated with the slight increase in on-campus traffic. The typical net increase is not anticipated to be greater 10 vehicles per day traveling a few miles to access the campus for fueling.

Table 4-2. Change in tailpipe emissions for E85 vs. gasoline.

Type of Emission	Comparison	Average Change (%)
Total Hydrocarbons	E85 vs. gasoline in same FFV	-8
	E85 vs. gasoline in similar non FFV	-18
Nonmethane Organic Gas	E85 vs. gasoline in same FFV	12
	E85 vs. gasoline in similar non FFV	-43
Nonmethane Hydrocarbon	E85 vs. gasoline in same FFV	-10
	E85 vs. gasoline in similar non FFV	-27
Benzene	E85 vs. gasoline in same FFV	-70
	E85 vs. gasoline in similar non FFV	-86
1,3-Butadiene	E85 vs. gasoline in same FFV	-62
	E85 vs. gasoline in similar non FFV	-91
NO_x	E85 vs. gasoline in same FFV	-18
	E85 vs. gasoline in similar non FFV	-54
Particulate Matter	E85 vs. gasoline in same FFV	-34
	E85 vs. gasoline in similar non FFV	
CO	E85 vs. gasoline in same FFV	-20
	E85 vs. gasoline in similar FFV	-18
Formaldehyde	E85 vs. gasoline in same FFV	63
	E85 vs. gasoline in similar non FFV	56
Acetaldehyde	E85 vs. gasoline in same FFV	1786
	E85 vs. gasoline in similar non FFV	2437
Methane	E85 vs. gasoline in same FFV	92
	E85 vs. gasoline in similar non FFV	91

Source: Yanowitz, J., and R. McCormick. Effect of E85 on Tailpipe Emissions from Light-Duty Vehicles. *Journal of the Air & Waste Management Association* 59:172-182, February 2009

The other potential impact of a shift toward more fueling with E85 concerns fugitive emissions when fueling, as opposed to the tailpipe emissions discussed above. Emissions of evaporated E85 or gasoline can enter the air through permeation, fuel tank venting, and fuel or vapor leaks. According to the DOE website cited above, this type of emission is more of an issue for regular gasoline and gasoline with low levels of ethanol than for E85. Since model year 2000, fuel tank venting has been controlled by onboard refueling vapor recovery devices installed in all cars

running on E85 or gasoline. Evaporative emissions from fuel or vapor leaks are less prevalent in cars running on either type of fuel because of ongoing improvements in leak-resistant materials and fittings.

The CAA requires some gasoline dispensing facilities, located in areas classified as extreme, severe, serious or moderate nonattainment of the 1-hour ozone standard, to have Stage II vapor recovery systems in place and operational depending on tank size and throughput requirements which vary by state. Since the majority of E85 fuel capable vehicles have onboard refueling vapor recovery systems installed, the U.S. EPA will allow states flexibility to exempt E85 refueling equipment from Stage II vapor recovery requirements, consistent with its December 12, 2006, memorandum (U.S. EPA 2006). However, the states make the final decision in their SIPs.

4.3.2 No-Action Alternative

The installation and operation of E85 fueling stations would not occur at any of the VAMCs located in 46 states, therefore there would be no impacts to air quality under the No-action Alternative. All VA personnel at the facilities that currently operate FFVs would continue to use E85 fuel resources from offsite fueling stations

4.4 SOCIOECONOMICS

Socioeconomic impacts are assessed in terms of direct effects on the local economy and population and related indirect effects on other socioeconomic resources within the Region of Influence (ROI). Socioeconomic impacts would be considered significant if the Proposed Action resulted in a substantial shift in population trends or notably affected regional employment, earnings, or community resources such as schools.

In order to comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, areas containing relatively high disadvantaged or

youth populations are given special consideration regarding potential impacts in order to address the potential for disproportionately high or adverse human health or environmental effects to these communities. Ethnicity and poverty status in the vicinity of the Proposed Action have been examined and compared to city, county, state, and national data to determine if any minority or low-income communities could potentially be disproportionately affected by implementation of the Proposed Action or alternatives. Three criteria must be met for impacts to minority and low-income communities to be considered significant: (1) there must be one or more such populations within the ROI, (2) there must be adverse (or significant) impacts from the Proposed Action; and (3) the environmental justice populations within the ROI must bear a disproportionate burden of those adverse impacts. If any of these criteria are not met, then impacts with respect to environmental justice would not be significant.

4.4.1 Proposed Action

The installation and operation of fueling stations at candidate sites proposed for E85 installation likely would not have significant impacts on socioeconomic resources including circumstances related to environmental justice. Impacts, if any, on socioeconomic resources most likely would result at a more regional or local scale around a VAMC, which would be addressed by a site-specific EA tiered from this program-wide analysis. The following discussion of the technological alternatives considered for E85 installation and operation at each VAMC provides a general description of the anticipated effects on socioeconomic resources for each, and possible mitigation strategies that could be implemented to offset them.

<u>AST, UST, or Conversion of UST for E85 Use</u>

The installation and operation of an E85 fueling station at any VAMC likely would not adversely affect socioeconomic conditions within its ROI. More than half of the VAMCs proposed for an E85 station already have a fueling station or previously had one, therefore federal personnel are already acquainted with fueling at these locations. Under a worst-case scenario, it would need to be demonstrated that a disproportionate number of users of E85 fuel in a ROI are federal personnel that are required to use the VAMC for E85 fueling. Under these circumstances,

commercial E85 fueling stations in the ROI could potentially experience a significant reduction in business.

For any VAMC, employment and economic conditions within the ROI would be expected to realize short-term, beneficial effects from the additional labor that would be required to construct and install an E85 stations. In most cases, local contractors and suppliers with regional building certifications would be needed to complete the new construction. The benefits would be short-term as existing facilities management personnel would be responsible for maintaining the E85 fueling station when it is operational; the addition of full-time personnel at a VAMC is not anticipated.

The installation and operation of an E85 fueling station likely would not adversely affect minority or low-income populations, nor pose any additional environmental risk to the health and safety of children. Most VAMCs are situated in a campus environment that is set apart from surrounding communities. Nearby primary roads are typically convenient to interstates; therefore, delivering fuel should not impose a significant burden locally. In general, children do not frequent the VAMC campuses, and those present would most likely be accompanied by an adult. During construction and installation, a project site would be restricted from unauthorized entry. Normal precautions (e.g., fencing, proper storage of hazardous materials, and locking equipment) would be taken to prevent unauthorized individuals, including children, from gaining access to the site.

4.4.2 No-action Alternative

The installation and operation of E85 fueling stations would not occur at any of the VAMCs located in 46 states, therefore there would be no impacts on socioeconomic resources under the No-action Alternative. All VAMC personnel that currently operate FFVs would continue to use E85 fuel resources from offsite fueling stations. In addition, there would be no potentially short-term, beneficial effects on employment and economic conditions from the installation of E85 fueling stations.

4.5 TRANSPORTATION

Influences on transportation and parking would be considered significant if they affected the safety, the capacity of roads, or both within the vicinity of the VAMC or regionally. In addition, effects would be considered significant if they increased the potential for traffic disruption or congestion along regional and local transportation corridors.

4.5.1 Proposed Action

The installation and operation of fueling stations at candidate sites proposed for E85 installation likely would not have significant impacts on transportation. Impacts, if any, on transportation most likely would result at a more regional or local scale around a VAMC, which would be addressed by a site-specific EA tiered from this program-wide analysis. The following discussion of the technological alternatives considered for E85 installation and operation at each VAMC provides a general description of the anticipated effects on transportation for each, and possible mitigation strategies that could be implemented to offset them.

<u>AST</u>

The installation and operation of an E85 fueling station using an AST would require adequate area for infrastructure and setbacks from buildings and other properties. Transportation is less likely to be affected at a VAMC with existing fueling facilities, provided the AST is collocated with them. A VAMC without existing fueling facilities would need space for the AST as well as access to the fueling facility by FFVs and fuel delivery trucks. Under these circumstances, there may be effects on transportation as a result of new roadways and traffic patterns to access the E85 fuel facilities as well as a potential influx of FFVs from other federal fleets that might use the facilities. In these cases, the proper siting of E85 fueling facilities at a VAMC could alleviate potential impacts to transportation.

<u>UST</u>

The installation and operation of an E85 fueling station using an UST would have the same potential effects on transportation as an AST, however the area required by a UST would be less

because of the usability of ground level for some purposes (e.g., parking) and smaller setbacks, overall.

Conversion of UST to E85 Use

Converting an existing UST for use with E85 fuel would be less likely to affect transportation as there would be no infrastructural changes to the fueling station that could potentially affect traffic patterns. However, as with an AST or UST, the addition of E85 fueling at a VAMC could potentially draw users from other federal fleets which could affect traffic at the facility. In addition, if UST conversion necessitates adding an additional AST or UST to accommodate the type of fuel that is replaced by E85, the potential impacts to aesthetics and visual resources would be the same as that described above for AST and UST alternatives.

4.5.2 No-Action Alternative

The installation and operation of E85 fueling stations would not occur at any of the VAMCs located in 46 states, therefore there would be no impacts on transportation under the No-action Alternative. All VA personnel at the facilities that currently operate FFVs would continue to use E85 fuel resources from offsite fueling stations.

4.6 CULTURAL AND HISTORICAL RESOURCES

4.6.1 Proposed Action

AST and UST

Cultural resources are subject to review under both federal and state laws and regulations. Section 106 of the NHPA of 1996 empowers the ACHP to comment on federally initiated, licensed, or permitted projects affecting cultural sites that are listed or eligible for inclusion on the NRHP. Once cultural resources have been identified, resources are assessed according to significance criteria for scientific or historic research, for the general public, and for traditional cultural groups. Only cultural resources determined to be significant (i.e., eligible for the NRHP) are protected under NHPA.

Given the relatively small size of each site (approximately 500 square feet for the largest tank), and the fact that many, if not most, of these sites have been disturbed previously (as existing tank locations, etc.), we estimate that very few would be deemed to possess culturally significant elements, or to adversely affect adjacent culturally significant elements. In the event that a particular E85 site is found to possess culturally significant elements onsite or to affect nearby elements adversely, alternate sites would be selected. Coordination with the SHPO would determine if an area is likely to possess significant archaeological resources. The amount of excavation required at a site will depend on the type of tank being installed. The installation of an UST has a greater potential to affect archaeological resources relative to the minimal ground disturbance that would result in an AST installation; however, most sites are expected to be in previously developed areas where impacts to these resources is low.

Converting UST for E85 Use

Conversion of an existing UST to store and dispense E85 probably would not require major soil excavation. The selected sites generally would be outside the viewsheds of historically significant elements of the campus or would be masked appropriately to mitigate any adverse effect. Viewshed issues will be thoroughly evaluated in the site-specific EAs.

4.6.2 No-action Alternative

The existing cultural and historical resources at a VAMC campus would remain unchanged; therefore, no significant effects would occur under the No-action Alternative.

4.7 GEOLOGY AND SOILS

4.7.1 Proposed Action

AST and UST

Sites with predominantly wet or unstable soils (e.g., organic soils and certain clays and sands) should be avoided because these areas could be in regulated wetlands or may not meet certain structural engineering requirements for installing a either ASTs or USTs. Certain geological formations may make installing new ASTs or USTs and ancillary facilities for dispensing E85

difficult or impractical, including shallow bedrock, karst formations, coal seams, excessive slopes and other potentially problematic strata. Provided that these formations can be avoided, the construction and operation of an E85 fueling station would not be likely to adversely affect geological resources and soils. Although construction of a fueling station may necessitate excavating subsurface material, the work would proceed following state and local regulations and in accordance with best management practices (BMPs) for controlling sediment and erosion. All necessary county, state, and local permits for earthwork and development would need to be obtained prior to construction at the facility. In addition, subsurface sampling and testing of soil materials may be required if the site of the tank installation has a history of contaminants or hazardous material use. Additional precautions for removal and disposal of soil may be necessary.

Converting UST for E85 Use

Converting an existing UST to store and dispense E85 would not require major soil excavation, making adverse effects on geological features and soils unlikely. Subsurface sampling and testing of soil materials may be required, however, if the site of the tank installation has a history of contaminants or hazardous material use. Additional precautions for removal and disposal of soil may be necessary.

4.7.2 No-action Alternative

The existing geological resources and soils at a VAMC would remain unchanged; therefore, no significant effects would occur under the No-action Alternative.

4.8 GROUNDWATER AND WATER QUALITY

4.8.1 Proposed Action

AST

Properly sited, the construction and operation of an AST for E85 at a VAMC facility would not be likely to adversely affect groundwater resources and water quality. All of the E85 tanks to be

installed under the Proposed Action would be of double-walled construction, lessening the potential for leakage and eliminating the need for large external containment berms. Provided that construction of new facilities follows all pertinent state and local regulations and implements any applicable BMPs, the Proposed Action would have no significant effects on groundwater resources or water quality. The potential for spills and the response in the event of a spill would be addressed in a SPCC Plan for facilities with a combined aboveground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons where there is a reasonable expectation of a discharge into or upon navigable waters. SPCC plans are site specific, but the general requirements are outlined in Section 3.9. Several states have established set back requirements for storage tanks located near public or private drinking water supplies. Set back requirements vary by state and may even vary within states depending on local hydrogeologic conditions.

UST

Properly sited, the construction and operation of a UST for E85 at a VAMC facility would not be likely to adversely affect groundwater resources and water quality. All of the UST E85 tanks to be installed under the Proposed Action would be of double-walled construction, lessening the potential for leakage. Provided that construction of new facilities follows all pertinent state and local regulations and implements any applicable BMPs, the Proposed Action would have no significant effects on groundwater resources or water quality.

Converting UST for E85 use

Converting an existing UST to store and dispense E85 probably would not require major soil excavation, making adverse effects on ground water and water quality unlikely. Subsurface sampling and testing of soil materials may be required, however, if the site of the tank installation has a history of contaminants or hazardous material use. Additional precautions for removal and disposal of soil may be necessary.

4.8.2 No-action Alternative

The existing groundwater resources would remain unchanged at a VAMC; therefore, the No-action Alternative would have no significant effects on groundwater or water quality.

4.9 WETLANDS, FLOODPLAINS, AND SURFACE WATERS

Resources under consideration for a particular area include all regional and site-specific surface waters (streams, creeks, reservoirs, ponds, and ditches), vegetated wetlands, and floodplains. These resources are protected by Section 404 of the Clean Water Act, and other federal, state, and local regulations.

4.9.1 Proposed Action

<u>AST and UST</u>

New AST or UST facilities for storing and dispensing E85 would not be constructed in or adjacent to wetlands, floodplains, or surface waters. The construction and operation of an AST or UST E85 fueling station, therefore, would not significantly affect wetlands, floodplains, and surface waters. The potential for spills and the response in the event of a spill would be addressed in a SPCC Plan for any facility with a combined aboveground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons where there is a reasonable expectation of a discharge into or upon navigable waters. SPCC plans are site specific, but the general requirements are outlined in Section 3.9.

<u>Converting UST for E85 Use</u>

Existing USTs for that are located in or near wetlands, floodplains, or surface waters at VAMC facilities would not be considered for conversion to store and dispense E85. The conversion of an existing UST to an E85 fueling station, therefore, would not significantly affect wetlands, flood-plains, and surface waters.

4.9.2 No-action Alternative

The existing wetlands, floodplains, and surface water resources would remain unchanged under the No-action Alternative.

4.10 VEGETATION AND LAND USE

4.10.1 Proposed Action

AST and UST

The construction and operation of an E85 fueling station would have only small effects on vegetation and land use resources in the vicinity of the projects. As noted previously in Chapter 3, the footprints of the proposed facilities are very small, roughly 500 square feet at maximum size. Further, most of the ASTs or USTs would be installed in previously disturbed areas where there is little or no existing natural vegetation. Any re-vegetation must be implemented where necessitated by BMPs required by earthwork and development permits. Such requirements probably would be limited to final landscaping measures such as establishing cover by re-planting lawn areas. Installing either AST or UST E85 fueling stations at VAMC facilities is anticipated to have little or no effect on existing vegetation and land use. However, new access to the site of the station could affect natural vegetation and will be evaluated in the site-specific EAs.

Converting UST for E85 Use

Existing vegetation is likely to be sparse or nonexistent at the sites of existing USTs on VAMC campuses because such sites typically are maintained regularly. Any re-vegetation must be implemented where necessitated by BMPs required by earthwork and development permits. Such requirements probably would be limited to final landscaping measures such as establishing cover by re-planting lawn areas. Converting an existing UST to store and dispense E85 use, therefore, would have little or no effect on existing vegetation and land use at VAMC campuses.

4.10.2 No-action Alternative

The existing vegetation and land use resources would remain unchanged at the VAMC; therefore, the No-action Alternative would have no significant effects on those resources.

4.11 WILDLIFE

4.11.1 Proposed Action

AST, UST, or Conversion of UST for E85 Use

As indicated in Chapter 3, the Proposed Action encompasses many geographic regions and kinds of vegetation and land use, but most of the sites under consideration consist of previously developed areas (i.e., not pristine, and containing many buildings, roads, and other man-made features) lacking natural vegetation. Wildlife existing at VAMC facilities is most likely to consist of species broadly distributed in the region and adapted to human-altered environments because of the general lack of natural habitats on the campuses. The footprints of the proposed installations are very small (a maximum of 500 square feet). Given these two factors, we conclude that any of the three basic options for implementing E85 use at a VAMC facility under the Proposed Action would have little effect on wildlife.

4.11.2 No-action Alternative

The existing wildlife resources would remain unchanged at the VAMC campus; therefore, the No-action Alternative would have no significant effects.

4.12 THREATENED AND ENDANGERED SPECIES

4.12.1 Proposed Action

The proposed sites of E85 fueling stations at VAMC facilities typically are in previously developed areas that lack natural habitats and are small; therefore, construction and operation of

E85 fueling stations on VAMC campuses is unlikely to affect any listed threatened and endangered species. No construction of these facilities will take place, however, if the USFWS or the state or local natural heritage agencies identify a listed flora or fauna on site. The construction and operation of an E85 fueling station at a VAMC; therefore, would not adversely affect threatened and endangered species.

4.12.2 No-Action Alternative

No E85 fueling stations would be constructed at a VAMC; therefore, there would be no effects on threatened and endangered species under the No-action Alternative.

4.13 SOLID AND HAZARDOUS MATERIALS AND WASTES

This section addresses the potential impacts caused by solid and hazardous materials and wastes and the impacts of existing contaminated sites on reuse options. Hazardous materials and petroleum products, hazardous and petroleum wastes, asbestos, lead-containing materials, and solid wastes are discussed in this section. Potential sources of hazardous materials and wastes that may be encountered at the facility include, but are not limited to, underground and above ground storage tanks; use, storage, and disposal of medical waste; materials suspected to contain asbestos or lead; and known spills and releases.

Potential environmental liabilities will be assessed for each VAMC location to determine if solid and hazardous materials and wastes may be an issue at the proposed site of the E85 fueling station and, therefore, would pose an environmental risk during construction or operation of the fueling area.

4.13.1 Proposed Action

The potential environmental effects of constructing and operating a fueling station at a VAMC campus mainly relate to the disturbance of contaminated material during the installation of a fuel tank and the potential for spills once it is operational.

4.13.1.1 Underground and Aboveground Storage Tanks

The safety standards for handling and storing E85 are the same as those for gasoline. The National Fire Protection Agency (NFPA) has two standards that apply to fuel ethanol blends: NFPA 30, *Flammable and Combustible Liquids Code*, and NFPA 30A, *Automotive and Marine Service Station Code*. These codes contain information on refueling facilities, storage, and handling requirements for all flammable and combustible liquids. Provided that a facility meets all aspects of the appropriate UST or AST regulations no significant effects would be expected to result from installing and operating E85 fueling stations on VAMC campuses. Federal regulations for ASTs and USTs are outlined in Table 3-1 and 3-2. State regulations for the 46 states being considered for E85 fueling stations at VAMC campuses are provided in the Appendix.

4.13.1.2 Medical Waste Use, Storage, and Disposal

Although VAMCs are involved extensively with the use, storage, and disposal of medical waste, these activities generally are not associated with the specific sites being considered for E85 fueling stations; therefore, there would be no potential for environmental effects associated with medical waste.

4.13.1.3 Suspect Asbestos and Lead-containing Materials

The construction of an E85 station at a VAMC campus has the potential to expose materials that contain asbestos or lead. Asbestos-containing materials (ACM) and lead-containing materials may to be present in the proposed construction areas and could be disturbed during demolition or excavation depending on the history of the site. Materials suspected to contain asbestos or lead should be properly identified and evaluated to determine if removal is warranted or required before the demolition of any structures that would be affected by the E-85 fueling station construction.

4.13.1.4 Known Spills or Releases, and Other Areas of Concern

Some ground disturbance would be required during construction of the E85 fueling areas. Conduit is required for both USTs and ASTs and would be buried approximately two feet below grade in a trench approximately one foot wide. The AST pad would require about one foot of excavation or grading. If the history of the site is well documented and there is no potential for contamination due to prior use (e.g., fuel storage, USTs, etc.), subsurface investigation may not be needed for minor excavation. If contamination is suspected or discovered, then suspect soil is usually field screened, segregated, sampled for disposal characterization, and disposed of appropriately following state regulations. Installation of a UST would require more extensive excavation and removal of soil from the area. A worst-case scenario would be that the only available location for the proposed fueling station contains or is suspected of containing hazardous wastes on site due to previous or current use. If an area has the potential to contain contaminated soil, for example, it would be necessary to conduct subsurface soil sampling at the location. Proper removal, handling, and disposal of contaminated subsurface materials would be required. Where practical, affected sites would be cleaned and mitigated per state cleanup standards. Where this is not practical, that site would not be used, and alternate E85 sites would be identified, if possible, at that VAMC facility.

4.13.2 No-action Alternative

The existing solid and hazardous materials and wastes issues at VAMC campuses would remain unchanged; therefore, the No-action Alternative would have no significant effects associated with those substances.

4.14 SAFETY

4.14.1 Proposed Action

<u>AST, UST, Conversion of UST for E85 Use</u>

If a facility already has existing fueling facilities, then safety procedures related to fuel storage and dispensing, and containment would already be in place. Any change at a VAMC that has a

SPCC Plan regarding fuel storage will require the facility to amend its plan. If an AST is installed on site, the VAMC would have to amend its SPCC Plan within six months. The amendments would have to be certified by a professional engineer. Recent regulations allow a facility to self certify a SPCC Plan if it does not exceed 10,000 gallons of aboveground storage capacity, no tanks are bigger than 5,000 gallons, and no spill greater than 1,000 gallons or no two spills exceeding 42 gallons have occurred within 12 months (Tier 1 certification). The facility can complete the Tier 1 checklist and self certify both the plan and amendments if it meets the Tier 1 criteria. This would be considered for facilities with no SPCC Plan or limited oil storage. If a facility increases its petroleum storage capacity to 1,320 gallons aboveground or 42,000 gallons underground, a SPCC Plan would be required. A facility could have existing underground storage of up to 42,000 gallons and not need a SPCC plan, but once more than 1,320 gallons of aboveground storage is exceeded, a SPCC Plan is required. Additionally, if an AST is installed on site, the VAMC would have to comply with the minimum NFPA safety setbacks for fueling stations (see Table 3.3). The VAMC would also comply with NFPA requirements for protecting water and air quality. In addition, the VAMC would avoid installations in close proximity to catch basins, other sensitive water quality features and outdoor air intakes.

4.14.2 No-action Alternative

The existing safety conditions at VAMC campuses would remain unchanged; therefore, the No-action Alternative would have no significant effects associated with safety issues.

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5 CUMULATIVE EFFECTS

This section provides (1) a definition of cumulative effects; (2) a description of past, present, and reasonably foreseeable actions relevant to cumulative effects; (3) an analysis of cumulative impacts between those actions and the Proposed Action; and (4) potential mitigation measures to offset cumulative impacts.

5.1 DEFINITION OF CUMULATIVE EFFECTS

The Council on Environmental Quality's regulations and related guidance stipulate that an EA should consider the potential cumulative environmental effects of multiple actions. CEQ defined cumulative effects as "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). CEQ's guidance in *Considering Cumulative Effects* (CEQ 1997) confirms this requirement, indicating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their relationship to the proposed action. The scope of the EA must consider geographic and temporal overlaps among the proposed action and other actions. The EA must also evaluate the nature of interactions among these actions. In accordance with NEPA, a discussion of cumulative effects expected to result from projects that are proposed, currently under construction, recently completed, or anticipated to be implemented in the near future is necessary. The analysis in an EA needs to address three fundamental questions to adequately identify cumulative effects:

1. Does a relationship exist such that resource areas likely to be affected by the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?

2. If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by the effects of the other action?

3. If such a relationship exists, then does an assessment reveal any potentially significant effects that are not apparent when the proposed action is considered alone?

5.2 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

Any upcoming major construction projects in the vicinity of a proposed E85 fueling station would have to be taken into account prior to its installation. Each VAMC campus site plan, or Master plan, will have to be evaluated given the wide range of areas under consideration. The footprint of the fueling station is relatively small, but proper setbacks and site access would have to be maintained. Land use compatibility should also be evaluated.

5.3 CUMULATIVE EFFECTS ANALYSIS

The construction and operation of an E85 fueling station at a given VAMC campus would most likely have either temporary or short-term effects on most environmental resources in the vicinity of the facility. Any equipment-related emissions or noise is likely to be minimal and could be mitigated. The resident population would not change. Natural resources would be largely unaffected. Although vehicular and truck traffic would potentially increase due to the operation of the station and the regularly scheduled deliveries of E85 fuel, the level would not be significant. Planting trees and other natural screens and scheduling fuel deliveries appropriately would minimize the increased noise expected to be experienced by the relevant noise receptors and are expected to be effective mitigation measures.

Impacts to historic and cultural resources from the Proposed Action will be reviewed at each VAMC location and will require review by the SHPO. Therefore, the assessment of potential impacts to archeological and architectural resources is pending.

5.4 POTENTIAL MITIGATION MEASURES

5.4.1 Cultural and Historical

The installation of an E85 fueling facility would require coordination with the State Historic Preservation Officer (SHPO). Some VAMC campuses may be considered cultural resources eligible for inclusion in state and National Registers of Historic Places. Cultural and historic preservation requirements are expected to vary widely between facilities and would require a case-by-case evaluation. Cultural resources are subject to review under both federal and state laws and regulations. Section 106 of the National Historic Preservation Act (NHPA) of 1996 empowers the Advisory Council on Historic Preservation (ACHP) to comment on federally initiated, licensed, or permitted projects affecting cultural sites listed or eligible for inclusion on the NRHP. Only cultural resources determined to be significant (i.e., eligible for the NRHP) are protected under NHPA. If an NRHP listed property, or property eligible for listing, is identified in the vicinity of the project site, mitigation may be required to avoid impacts to that property. If there are archeological resources at the project site, excavation during construction of the E85 fueling area could potentially disturb them.

5.4.2 Solid and Hazardous Materials and Wastes

The construction of an E85 fueling station would require grading and excavating a substantial volume of soil, in the case of a UST installation and some selected fueling areas may also require infrastructure improvements for access by vehicles and fueling trucks. Previous or current use of the proposed site may warrant disposal requirements beyond unrestricted if there is a potential for contaminated soils in the area. It may be necessary to conduct subsurface soil sampling at the location. If contaminants are found, proper removal, handling, and disposal of contaminated subsurface materials would be required. Where practical, affected sites will be cleaned and mitigated for per state cleanup standards. Where this is not practical, that site would not be used, and alternate E85 sites would be identified, if possible, at that VAMC facility.

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APPENDIX

SUMMARY OF AST AND UST REGULATIONS BY STATE

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AST State Regulations

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Alabama	None	SPRP must be included in a facility's storm water discharge permit application.	AL Hazardous Waste Management & Minimization Act	AL Water Poll Control Act. Permit required for rainwater discharge. Release reporting required.	40 CFR 60 K, Ka, Kb and XX. Permit required prior to construction.	Jefferson & Shelby counties are marginal ozone nonattainment.	Federal NESHAPs adopted.	NFPA 30 & 30A (2003 ed & 1994 Edition of Southern Bldg. Code Congress Intl.)
Alaska	Regulated facilities include those with an aggregate storage capacity of 5K barrels of crude oil & facilities with a total of 10K barrels of noncrude oil.	Required for oil terminal facilities with an aggregate storage capacity of 5K barrels of crude oil & facilities with a total of 10K barrels of noncrude oil.	None	Oil & Hazardous Substance Poll Control Law. Release reporting required.	40 CFR K, Ka, Kb and XX	No RACT or ozone nonattainment areas.	Federal NESHAPs adopted.	IFC (2004 ed) with amendments. Permit required before construction.
Arizona	ASTs prohibited at service stations unless a variance is obtained.	None	Federal RCRA program adopted with state amendments.	AZ Water Control Law; Spill Response Law has reporting requirements.	40 CFR 60 K, Ka, Kb & XX. AZ has standards for existing petroleum liquid tanks and for new tanks <40K gal.	Parts of Maricopa County are nonattainment; RACT requirements include seals, submerged filling devices & floating roofs.	Federal NESHAPs adopted.	UFC (1988 ed) with amendments. Vaulted tanks – UFC (1997 ed) appendix 2J.
Arkansas	1,320 gal – 40K gal ASTs used to dispense petroleum products require registration ($50 annual fee)	None	Federal RCRA program adopted with state amendments.	AR Water & Air Poll Control Act	40 CFR 60 K, Ka, Kb & XX. State permit covers federal & state air programs.	No ozone nonattainment areas.	Federal NESHAPs adopted.	Installation permit required. IFC (2002 ed) adopted as AR Fire Prevention code. NFPA 30 & 30A (1996 ed) & API standards 650 & 653 adopted.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
California	Facilities with an aggregate storage capacity of ≥ 1,320 gal must register (fee range: $100-$30K)	Federal SPCC equivalent (some facilities must meet inspection & secondary containment requirements in lieu of spill plan).	Federal RCRA program adopted with extensive state amendments (22 CCR § 66265.190)	CA Aboveground Petroleum Storage Act. Release reporting required.	Follow local Air Pollution Control District requirements.			ASTs subject to local fire codes or UFC if located on state-owned property.
Colorado	Regulations apply to petroleum ASTs bt. 600 and 40K gal. Registration & fee required.	Regulations require SPCC plans for ASTs.	Federal RCRA program adopted with state amendments.	CO Water Quality Control Act.	40 CFR 60 K, Ka, Kb and XX	State has one 8-hr ozone maintenance area, condensate tanks in this area are subject to control requirements.	Federal NESHAPs adopted.	Permit required before beginning operations. State follows most recent editions of national codes & standards.
Connecticut	None	Federal SPCC plan must be certified by a PE registered in CT.	Federal RCRA program adopted with minor state amendments.	CT Water Poll Control Act requires marine terminals to have DEP operating license. Release reporting required	40 CFR 60 K, Ka, Kb and XX; state operating & construction permits required.	State is moderate ozone nonattainment; RACT requirements include vapor recovery & external floating roofs with primary & secondary seals.	Federal NESHAPs adopted. Construction & operating permits may be required	CT flammable & Combustible Liquids Code; CT Oil Burning Equipment Code. ASTs at service stations must be fire-resistant.
D.C.	None	Facilities storing a pollutant or hazardous substance need an approved spill prevention & cleanup plan.	Fed RCRA program adopted and effective 1985 with amendments.	Release reporting required. D.C. Water Poll Control Act.	40 CFR 60 K, Ka, Kb and XX incorporated in petroleum storage regs.	Mod nonattainment area, RACT requirements: continuous secondary seal/closure device and vapor recovery system.	No NESHAPs related to tanks have been adopted.	2000 IFC. Installation/removal permit required. ASTs require registration.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Delaware	Tanks ≥ 12,500 gal must be registered; tanks ≥ 12,500 and ≤ 40K gal for hazardous substances, kerosene or heating/diesel fuel are subject to fees & state requirements.	Required, copy must be kept at the facility	Federal RCRA adopted	Release reporting required	40 CFR 60 K, Ka, Kb and XX	State is nonattainment	6 of federal NESHAPs adopted	NFPA 30 & 30A (2000 ed). Fire Marshal inspects newly installed tanks and collects fee.
Florida	ASTs ≥ 550 gal subject to extensive requirements (including mineral acid requirements) Some facilities must obtain annual spill prevention & response certificate, & terminal facilities must obtain annual registration certificate (annual fee)	State has spill contingency planning requirements for coastal & offshore facilities.	Federal RCRA Program adopted with amendments.	Petroleum & other pollutants, mineral acids & hazardous waste are regulated by the State Pollution Spill Prevention and Control Act. Release reporting required.	40 CFR 60 K, Ka, Kb and XX	RACT requirements apply to the several non-attainment areas (1-hr std). Permits are required prior to construction and operation	FL has adopted most of the federal NESHAPs.	NFPA 30 and 30A (1996 ed)
Georgia	No specific AST regulations.	None required.	Federal RCRA Program adopted.	GA Water Quality Control Act. Release reporting required.	40 CFR 60 K, Ka, Kb	Atlanta (ozone nonattainment area) & 6 adjacent counties subject to RACT requirements: internal floating roofs, primary & secondary seals, submerged fill pipes & vapor recovery systems.	Federal NESHAPs adopted.	NFPA 30 and 30A (1996 ed) with extensive amendments. Site plans must be submitted & reviewed before construction.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Hawaii	None	None required.	Federal RCRA Program adopted.	HI Water Poll Control Law & HI Env. Response Law both have require release reporting.	40 CFR 60 K, Ka, Kb and XX	State is attainment area. Construction and operating permits required. Internal & external floating roofs with liquid seals, vapor recovery/disposal systems, and submerged fill pipes.	Federal NESHAPs adopted.	1997 UFC, as amended by 1998 and 1999 supplements. Tanks require registration.
Idaho	None however for fund coverage regular line pressure testing of piping and secondary containment may be required.	For fund coverage a SPCC plan may be required.	Federal RCRA Program adopted.	ID Env. Protection & Health Act.	40 CFR 60 K, Ka, Kb	Construction permits required.	Federal NESHAPs adopted.	IFC (2003 ed). Some local programs require permits.
Illinois	No specific AST regulations.	None required.	Federal RCRA Program adopted.	Title III of Illinois EPA includes corrective action provisions & release reporting requirements.	40 CFR 60 K, Ka, Kb	RACT standards (35 Ill, Admin Code subtitle B, §§215, 218 & 219). State has several nonattainment areas.	Federal NESHAPs adopted.	State Fire Code. New/modified facilities are subject to review (site plan & field inspection). Secondary containment required.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Indiana	Secondary containment and spill response requirements for ASTs for hazardous materials.	Required for ASTs with hazardous materials.	Federal RCRA Program adopted with amendments.	Indiana Petroleum Releases Law; Environmental Hazards Disclosure & Responsible Party Transfer Law. Release reporting, containment and cleanup required.	40 CFR 60 K, Ka, Kb, with amendments.	State RACT requirements apply to all sources of VOCs with a monthly throughput of ≥10K gal & all external floating roof tanks, regardless of the area's attainment status. Permit may be required.	Federal NESHAPs adopted.	IFC (2003 Ed) with amendments, adopted as Indiana Fire Code. Approval required for new tanks.
Iowa	None	None Required.	Federal standards apply.	Iowa Groundwater Protection Act contains release reporting & cleanup requirements.	40 CFR 60 K, Ka, Kb and XX	No nonattainment areas.	Federal NESHAPs adopted.	NFPA 30 & 30A (2000 Ed) and 31 (2001 Ed) with amendments. Approval required prior to installation. Secondary containment and overfill protection required.
Kansas	None	Strict spill reporting requirements only.	Federal RCRA Program adopted. State has authority to administer program except in cases of corrective action & remediation.	None	40 CFR 60 K, Ka, Kb and XX	Kansas City metropolitan area is an ozone maintenance area, but RACT requirements (vapor control & processing systems, primary & secondary seals & automatic vents) still apply. Construction and Operating permits may be required.	Federal NESHAPs adopted.	NFPA 30 & 30A (2000 ed). New/modified facilities subject to approval.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Kentucky	None	Federal SPCC plan requirements incorporated by reference. Groundwater protection plan required.	State hazardous waste management program (more stringent than federal). Permit fee required.	KY Water Poll Control Act. KY Emergency Response Act has spill reporting requirements	40 CFR 60 K, Ka, Kb and XX	Boone, Kenton, Jefferson & Campbell counties are ozone maintenance; RACT standards: vapor balance systems, floating roofs & submerged fill pipes.	Federal NESHAPs adopted	NFPA 30 & 30A (2000 ed). Permit required.
Louisiana	ASTs ≥ 660 gal & facilities with aggregate capacity ≥ 1,320 gal must have secondary containment. Other requirements: leak detection & monitoring, overfill prevention & alarm systems	SPRP	Federal RCRA Program adopted.	LA Water Control Law	40 CFR 60 K, Ka, Kb and XX. State also has regulations for VOC tanks with a capacity of 250 to 40K gal.	5 Parishes are marginal ozone nonattainment; RACT requirements include internal & external floating roofs, vents & primary & secondary seals. Permit may be required.	Federal NESHAPs adopted, but state also has an air toxics program (more stringent) and includes release reporting.	NFPA 30 & 30A (2000 ed). Review required prior to construction and inspection required before operation.
Maine	Regulations cover marine oil facilities with capacity of 1,500 barrels or more. Regulations require SPCC plans, siting, design, construction, training & closure.	Spill response plans required for marine oil facilities. SPCC plans required at AST facilities that distribute motor fuels.	State regulations based on RCRA program (state is more stringent).	Maine Oil Discharge Prevention & Poll Control Act. Spill reporting required.	40 CFR 60 K, Ka, Kb and XX	RACT required on all sources emitting 40 tons per year or more of VOCs.	Federal NESHAPs adopted.	NFPA 30 & 30A (2003 ed). Permit and fee required for ASTs > 60 gal. Tanks containing class II or III liquids ≤ 660 gal must register.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Maryland	Water Poll regs. require facilities that store/transfer oil to have an oil operations permit if they pose a water poll hazard. Oil operations permit also required for facilities with ≥ 10K gal capacity of oil.	Water Poll Control & Abatement Act require some facilities to submit contingency plans with a containment & cleanup plan.	Fed RCRA adopted with amendments.	MD Oil Poll Control Act. Release reporting required.	40 CFR 60 K, Ka, Kb and XX. State regs are at a min. as stringent as fed standards. Tanks with a capacity ≥ 2K gal subject to permit requirements (including fee).	Baltimore, Cecil County, and D.C. metropolitan areas are severe ozone non-attainment areas. State requirements in those areas include Stage I for ASTs storing gas and Stage II for most gas dispensing facilities.	Federal NESHAPs adopted. Permit (including fee) required.	NFPA 30 & 30A (2003 ed).
Massachusetts	None	None	Federal RCRA Program adopted with amendments (making more stringent).	21G Program - State Superfund law requires reporting.	MA permitting requirements incorporate 40 CFR 60 K, Ka, Kb and XX. Permit may be required.	3 moderate nonattainment areas for 8 hr ozone standard. RACT requirements include vapor recovery, submerged fill pipes, external floating roofs & primary and secondary seals. Permit may be required.	No specific requirements for HAPs. Permit may be required.	MA Fire Prevention Code. Permit required for construction, maintenance or use of any AST ≥10K gal (unless tank stores water)

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Michigan	DEQ administers Storage & Handling of Flammable & Combustible Liquids rules. Requirements include siting, inspections, signage, double walls, etc.	The MI Water Resources Commission Act requires poll. prevention plans.	Federal RCRA Program adopted.	The MI Water Resources Commission Act contains provisions on loading & unloading oil, & requirements for booms & cleanup equip., monitoring, secondary containment, poll. prevention plans and poll. Incident reports.	In addition to 40 CFR 60 K, Ka, Kb and XX, the state has its own requirements for new and existing sources. Permit may be required.	Several areas are marginal & basic nonattainment for the 8-hr standard. RACT requirements include submerged fill pipes, vapor balance or equivalent control systems, and pressure relief valves.	Federal NESHAPs. Permit may be required.	NFPA 30 & 30A (2000 ed.), NFPA 31 (2001 ed) & NFPA 37 (1998 ed) with amendments. Local fire depts. regulate liquids with a flash point >200°F.
Minnesota	State regulations	MN "Spill Bill" requires release reporting.	Federal RCRA Program adopted with amendments.	MN "Spill Bill" requires some facilities to submit spill response plans	40 CFR 60 K, Ka, Kb and XX	No ozone nonattainment areas. Permit required for most ASTs.	Some Federal NESHAPs adopted.	IFC (200 Ed) with amendments.
Mississippi	None	None required.	Federal RCRA Program adopted.	MS Air & Water Poll Control Act	40 CFR 60 K, Ka, Kb and XX. Construction permit required.	No ozone nonattainment areas. Operating permit required.	Federal NESHAPs adopted. In order to regulate toxic emissions permits are required.	IFC (2003 ed) code applies to ASTs in public assembly areas or state buildings.
Missouri	None	None	Federal RCRA Program adopted with amendments.	Missouri Clean Water Law requires spill reporting.	40 CFR 60 K, Ka, Kb and XX	One ozone nonattainment area.	Federal NESHAPs adopted.	NFPA 30 & 30A (1996 ed) with amendments.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Montana	ASTs with underground piping (covered by UST regulations)	None	Adopted Federal RCRA Program. Hazardous waste generators require registration & fee.	Spill reporting required by water quality regulations.	40 CFR 60 K, Ka, Kb and XX	No ozone nonattainment regions. Hydrocarbon emissions from petroleum products regulated & require vapor recovery for tanks > 65K gal.	Federal NESHAPs adopted.	UFC (2003 ed) No permits or fees required.
Nebraska	None	None	Federal RCRA Program adopted.	Spill reporting & remediation required by the rules and regulations for waste management.	The state's permitting requirements incorporate 40 CFR 60 K, Ka, Kb and XX	No ozone nonattainment areas.	Federal NESHAPs adopted. Some construction permits require BACT.	NFPA 30 & 30A (2000 ed) Permit required prior to construction ($50 fee)
Nevada	None	None	Federal RCRA Program adopted.	NV Water Poll. Control Law, release > 25 gal. must be immediately reported.	40 CFR 60 K, Ka, Kb and XX	No ozone nonattainment areas. Washoe & Clark Counties controlled by local jurisdictions.	Federal NESHAPs adopted with amendments.	IFC (2003 ed) with amendments; IBC (2003 ed) & NFPA 30 and 30A (2003 ed). Fire Marshal approves AST installations and charges fee. ASTs must be permitted & annually inspected.
New Hampshire	AST regulations apply to ASTs ≥ 660 gal, or AST systems with a combined capacity of ≥ ,320 gal	SPCC plan required.	Federal RCRA Program adopted with amendments.	NH Water Poll. Control Law; NH Oil Poll Law. Spill reporting required.	40 CFR 60 K, Ka, Kb and XX	Marginal & serious nonattainment regions. Requirements include: permit, vapor control & floating roofs.	Federal NESHAPs adopted.	NFPA Codes 1, 30, and 30A (2003 ed)

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
New Jersey	Extensive regulations apply to sites with aggregate capacity ≥ 200K gal of non-petroleum hazardous substances or of any hazardous substance.	DPCC and DCR plans required	Federal RCRA Program incorporated in state hazardous waste management regulations (with amendments).	NJ Spill Compensation & Control Act	40 CFR 60 K, Ka, Kb and XX	NJ is an ozone nonattainment region; RACT requirements include primary and secondary seals. Permits are required for most ASTs.	Federal NESHAPs adopted.	BOCA Fire Prevention Code & NFPA 30 & 30A (1996 ed). Annual registration & fee required.
New Mexico	Regulations apply to petroleum tanks (1,320-55K gal). Registration & fee required.	None	Federal RCRA program adopted.	NM Water Quality Act	40 CFR 60 K, Ka and Kb with amendments.	One marginal ozone nonattainment area. Permits are required in nonattainment areas.	Federal NESHAPs adopted.	NFPA 1 (1997 ed), 30 & 30A (1996 ed). Site plan approval & inspections required.
New York	Petroleum bulk storage regulations have extensive requirements for ASTs at bulk storage facilities with a total capacity of 1,100 gal +. Similar hazardous substance bulk storage regulations apply to ASTs with 185 gal capacity +	Spill plans required for tanks storing hazardous substances.	Federal RCRA Program adopted with amendments.	NY Petroleum Bulk Storage Act and regulations; Comprehensive spill prevention regulations for tanks storing hazardous substances.	State enforces 40 CFR 60 K, Ka, Kb and XX. State regulations address petroleum and gasoline storage, and are retroactive for older tanks.	Entire state is an ozone nonattainment area; RACT requirements include floating roofs with primary and secondary seals, vapor control systems and conservation vents. Permits may be required.	Federal NESHAPs adopted.	IFC (2000 ed)
North Carolina	None. Oil terminals required to register with DEHNR.	Oil terminal facilities (nonretail, storing ≥ 21K gal) must maintain a plan.	Federal RCRA program adopted.	NC Oil Poll. & Hazardous Substances Act. Spill reporting, removal & cleanup are required.	40 CFR 60 K, Ka and Kb with minor amendments.	No ozone nonattainment areas. State has own VOC regulations & may require Stage I vapor recovery.	Federal NESHAPs adopted.	IFC (2000 ed), with references to NFPA 30 and 30A (2000 ed). All new ASTs must be registered, inspected and permitted. Fees may be required.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
North Dakota	None	None	Federal RCRA program adopted.	ND Water Poll. Control Act	40 CFR 60 K, Ka and Kb with amendments. Operating permit required.	No ozone nonattainment areas. Submerged fill pipes may be required.	Federal NESHAPs adopted.	NFPA 30 and 30A (1996 ed) with amendments. New site plans must be approved by fire marshal. All ASTs must be registered with Petroleum Release Fund & inspected every 3 years.
Ohio	None	Proposed spill regulations scrapped in favor of a guidance.	Federal RCRA program adopted.	Ohio Water Poll. Control Act	40 CFR 60 K, Ka, Kb and XX incorporated into operating permits which may be more stringent.	One moderate ozone nonattainment area. RACT standards may apply in attainment areas.	Federal NESHAPs adopted.	OH Fire Code is patterned after Article 32 of BOCA fire code. NFPA 30 and 30A (1996 ed) are referenced. Spill reporting required
Oklahoma	Extensive AST regulations.	Required by AST regulations.	Federal RCRA Program adopted.	OK AST Regulation Act	40 CFR 60 K, Ka, Kb and XX. The state has its own VOC emission standards.	No ozone nonattainment areas, but RACT requirements apply in Oklahoma & Tulsa Counties. Requirements include secondary seals & routine inspections, bleeder vents, rim vents & emergency roof drains.	Federal NESHAPs adopted.	NFPA 30 and 30A (1996 ed). Registration and permit required.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Oregon	None	Certain facilities with a total storage capacity ≥ 1,000 gal	Federal RCRA Program adopted. Regional DEQ offices administer program.	OR Oil & Hazardous Materials Spill Act requires spill reporting, containment & removal. Extensive oil spill prevention & response regulations.	40 CFR 60 K, Ka, Kb and XX.	No ozone nonattainment areas, but Portland is a maintenance area. RACT requirements include external floating roofs, internal floating covers, and primary & secondary seals.	Federal NESHAPs adopted.	UFC (1998 ed) with amendments. Permit required for gasoline & diesel tanks > 1,000 gal
Pennsylvania	Regulations authorized by the Storage Tank & Spill Prevention Act and the Clean Streams Law covers tanks ≥ 250 gal. Registration & annual fees based on capacity are required.	Owners and operators of ASTs with a total capacity > 21K gal must submit a spill prevention response plan to DER.	Federal RCRA Program adopted.	PA Storage Tank & Spill Prevention Act. Release reporting required.	40 CFR 60 K, Ka, Kb and XX.	Several ozone nonattainment areas; RACT standards include primary & secondary seals, vapor recovery systems, automatic bleeder vents & emergency roof drains.	Federal NESHAPs adopted.	PA Flammable & Combustible Liquids Code (1984 ed). Permit required.
Rhode Island	RI Oil Poll Control regulations include requirements for AST sites with an aggregate capacity > 500 gal.	RI Poll Control regulations require all outdoor AST sites to have a spill prevention & emergency plan.	Federal RCRA Program adopted.	RI Poll Control Regulations require release reporting.	40 CFR 60 K, Ka, Kb and XX.	RI is a serious ozone nonattainment region; RACT requirements include primary and secondary seals & vapor recovery. Construction & Operating permits required.	RI has toxic regulations.	NFPA 1 (2003 ed). Notification required prior to construction.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
South Carolina	None. Terminal facilities must be registered.	Spill prevention, control & countermeasure plans required for all terminal and used oil facilities.	Federal RCRA Program adopted.	SC Poll. Control Act	40 CFR 60 K, Ka, Kb and XX, with amendments.	One moderate & two basic nonattainment areas.	Federal NESHAPs adopted, with amendments. Permit may be required.	NFPA 30 and 30A (2003 ed) with extensive amendments.
South Dakota	AST regulations require secondary containment, overfill protection, leak detection & corrosion protection.	Release notification plan required.	Federal RCRA Program adopted with amendments.	Water Poll. Control Law requires spill reporting & corrective action.	40 CFR 60 K, Ka, Kb and XX.	No ozone nonattainment areas.	Federal NESHAPs adopted.	UFC (1997 ed). Facility designs must be approved. Limits on tank & facility size.
Tennessee	None	None	Federal RCRA Program adopted.	TN Water Quality Control Act.	40 CFR 60 K, Ka, Kb and XX, with amendments.	One moderate and five basic nonattainment areas. RACT requirements include external & internal floating roofs, seals, submerged fill pipes and vapor balance systems.	Federal NESHAPs adopted.	NFPA 30 and 30A (2004 ed)
Texas	Registration/permitting required for ASTs > 1,100 gal (& all tanks located at retail stations). $25 annual fee. Only some motor fuels are regulated.	Oil Spill Prevention & Response Act requires some sites to have contingency plans.	Federal RCRA Program adopted.	TX Oil Spill Prevention & Response Act requires release reporting & cleanup.	40 CFR 60 K, Ka, Kb and XX incorporated into state regulations. NOTE: State VOC regulations for new tanks are more stringent than federal.	4 ozone nonattainment regions (23 counties); RACT requirements include primary & secondary seals, internal & external floating roof tanks and vapor recovery.	Most of federal NESHAPs adopted. Permit and fee required before construction or operation.	NFPA 30 & 30A (1990 ed) & TIA with amendments.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Utah	None	None	Federal RCRA Program adopted.	Utah Water Quality Act	40 CFR 60 K, Ka, Kb and XX.	No ozone nonattainment regions; RACT requirements listed in Utah Air Conservation Rules R. 307-403. Permits and fees required for new, modified or major sources.	Federal NESHAPs adopted. State requires AST owners/operators to perform risk assessment evaluations for VOC & toxic emissions.	IFC (2003 ed)
Vermont	None	None	Federal RCRA Program adopted.	VT Poll Control Law requires release reporting.	VT has not adopted NSPS, it has its own emission standards for VOCs based on fed CTGs	VT is an attainment area, but since it is within the ozone transport region the following RACT requirements apply: Vapor collection systems, seals & bleeder vents	VT has air toxics program. Construction & operating permits required.	NFPA 30 & 30A (1996 ed) with amendments. New tanks require permit (and fee).
Virginia	Extensive regulations which require registration, groundwater characterization studies, poll prevention, release reporting & financial responsibility.	Sites with aggregate oil capacity ≥ 25K gal are required to submit an oil discharge contingency plan.	Federal RCRA Program adopted.	State Water Control Law	40 CFR 60 K, Ka, Kb and XX. NSPS incorporated into operating and construction permits.	Moderate, marginal & basic nonattainment areas throughout VA. RACT requirements include submerged fill pipes, vapor-tight gauging & sampling devices, internal & external floating roofs, and primary & secondary seals.	Federal NESHAPs adopted.	IFC (2000 ed) Permit may be required to install, repair/upgrade or close ASTs.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Washington	AST regulations: facility oil-handling operations & design standards; facility oil-handling operations manual standards; facility oil-handling training & certification; facility oil spill prevention plan standards; facility contingency plan & response contractor standards; and pre-assessment screening & oil spill compensation schedule regulations.	Oil spill prevention plans & facility contingency plans required.	Federal RCRA Program adopted.	Washington Oil Spill Prevention & Response Act. Release reporting required.	40 CFR 60 K, Ka, Kb and XX. Permit may be required.	No ozone nonattainment areas. State has additional emission standards & sets its own RACT standards.	State has standards for air toxics & has adopted federal NESHAPs.	IFC (2003 ed) by reference in the state bldg. code. Permit required to install, alter, remove, abandon or temporarily place an AST out of service.
West Virginia	Groundwater Protection Rule requires groundwater protection plans and secondary containment along with other requirements.	Any site using an AST must have a groundwater protection plan.	Federal RCRA Program adopted.	WV Water Poll Control Act requires release reporting.	40 CFR 60 K, Ka, Kb and XX.	Several ozone maintenance areas where RACT standards apply.	Federal NESHAPs adopted, and the state also has its own standards for air toxics.	NFPA 30 & 30A (2000 ed).
Wisconsin	Adopted extensive AST regulations (contained in the WI Flammable & Combustible Liquids Code). Requirements include tanks registration, secondary containment & site assessments.	None	Federal RCRA Program adopted with amendments.	WI Flammable & Combustible Liquids Code. Spill reporting required.	40 CFR 60 K, Ka, Kb and XX. Construction permits may be required.	6 counties are ozone nonattainment areas; RACT requirements include floating roofs, vapor recovery systems, seals and bleeder vents.	Certain federal NESHAPs adopted.	NFPA 30 and 30A (2000 ed) are incorporated into WI Flammable & Combustible Liquids Code.

State	AST Reg.	Spill Plans	Hazardous Waste	Water Pollution Control Laws	Air Emissions: NSPS	Ozone Nonattainment: RACT	NESHAPs	Fire Codes
Wyoming	Limited statutory & regulatory requirements for tanks used to dispense gasoline or diesel.	None	Federal RCRA Program adopted.	WY Environmental Quality Act. Release reporting, containment and cleanup required.	40 CFR 60 K, Ka, Kb and XX. Permit required for construction or modification.	No ozone nonattainment areas.	Federal NESHAPs adopted.	UFC (1997 ed). Inspection & approval required for all tank installations.

UFC: Uniform Fire Code
IFC: International Fire Code
IBC: International Bldg. Code
Poll: Pollution
SRPR: Spill Prevention and Response Plan
DPCC: Discharge Prevention, Containment and Countermeasure
DCR: Discharge Cleanup and Removal

UST State Regulations

State	NPR	M&I, O&M	PR
Alabama	State notification form ($15-$30/tank per year), approval & 30 day notice required for installation.		Secondary containment required for all new & replaced USTs (as of 8/6/07). Spill & overfill equipment had to be upgraded by 8/6/08 for some USTs.
Alaska	State notification form (Initial fee of $50/tank and annual fee of $50/tank). Municipal fire dept. should be contacted before installation.	Third-party inspection required every 3 years.	Currently none, however secondary containment may be adopted in the future.
Arizona			All USTs installed on or after 1/1/09 must have secondary containment & meet the federal regulations for hazardous substance storage.
Arkansas	State notification form ($100 annual fee/tank)		Stage II required in counties that make up the Phoenix area.
California	All tanks must be permitted through the local Districts.		Stage II required. USTs installed after 7/1/04 have secondary containment requirements.
Colorado	EPA notification form ($35 annual fee).		
Connecticut	State notification form (one-time $50 fee per tank).	Leak detection rules.	Stage II required
Delaware	State notification form ($50 annual registration fee/tank). Permits required for installation, construction, modification or operation.		Stage II required
D.C.	Registration requirements only for heating oil tanks > 1,100 gal.	Leak detection requirements only apply to heating oil tanks > 1,100 gal.	Secondary containment required.
Florida	State notification form ($50 initial fee, $25 fee/yr)	Monthly inspection of monitoring system required. USTs installed after 1/1/92 require secondary containment (by 12/31/09)	Stage II required in 3 counties.
Georgia	New tanks must be registered within 30 days of installation. Annual registration required.		Stage II required in 13 counties.
Hawaii	Installation & operating permit required for new tanks (Fee range $25-$250). County fire dept. approves tank installation permits.		
Idaho	State notification form (no fees).		Stage II required.
Illinois	All petroleum/chemical tanks must be registered with State Fire Marshal. EPA notification form.		Stage II required in some counties/townships.
Indiana	Notification required for new tanks (Plot plan must be submitted and approved to State Commissioner's office prior to notification). $90 annual fee for petroleum.		Stage II required in 4 counties.

State	NPR	M&I, O&M	PR
Iowa	State notification form ($10/tank registration fee, $65/tank annual management fee for tanks ≥ 1,100 gal)		Secondary containment required at contaminated sites.
Kansas	State notification form ($10/tank registration fee). Operating, installation & repair permits required.	Daily inventory of tanks during every day of operation.	Stage I controls required in some counties.
Kentucky	Registration required. State notification form ($30 annual fee per tank). State Fire Marshal must approve installation plan. Releases must be reported within 24 hours.		Stage II required in Jefferson, Boone, Kenton and Campbell Counties
Louisiana	State notification form (annual fees: $275/new or used oil tank, $500/hazardous chemical, $120 for other tanks. $0.008/gal fee for gas and diesel)		Stage II required in 6 parishes.
Maine	State notification form ($35 annual registration fee per tank)	Continuous interstitial space monitoring required for most new & replacement tanks and piping.	Stage II required in 3 counties. Secondary containment required.
Maryland	State notification form (no fees).	Tightness testing & cathodic protection required. Leak detection & prevention requirements in some areas.	Stage II required in 11 counties and Baltimore city.
Massachusetts	Certificate of Compliance required (includes notification). $200 annual fee for tanks containing fuel for motor vehicles. Local fire departments must be notified immediately after a release.	Monitoring requirements for all tanks.	Stage II required. Secondary containment required for new and replacement tanks.
Michigan	State notification form ($100/tank annual fee). Annual registration certificates required.		Secondary containment required for USTs near water supplies.
Minnesota	State notification form (no fees).		
Mississippi	State notification form ($100/tank).		
Missouri	State notification form ($15/tank annual fee).		Stage II required in some counties/townships.
Montana	Modified EPA notification form. Permits required to receive product. (Annual registration fees: $20/tank for tanks ≤ 1,100 gal, $70/tank for tanks > 1,100 gal)		
Nebraska	Operating permit required from State Fire Marshal after inspection, tanks ≤ 1,100 must register with State Fire Marshal. Modified EPA notification form ($35/tank annual registration fee and $90 tank trust fund fee)		
Nevada	EPA notification form (no fees).		Stage II required in 2 cities.

State	NPR	M&I, O&M	PR
New Hampshire	Permit required (state application & registration form) and must be obtained prior to installation. $100/new tank application review fee. In some cases tanks must be registered with local fire departments.	Continuous monitoring required for new petroleum tanks and piping. Leak detection and inventory control required.	Stage II required in 4 counties. Secondary containment required for new petroleum tanks and piping. Cathodic protection required.
New Jersey	State notification form must be submitted 30 days prior to construction. Permit required for new installations unless the tank has secondary containment. ($100 fee per facility every three years)		Stage II required.
New Mexico	State notification form ($100/tank annual fee). Notification required 30 days prior to installation.		
New York	State registration required (5 yr fees range from $100-$500). State notification required for modifications.	Tank testing required and tank tightness test form completed.	New tanks must have secondary containment. Tanks must have leak monitoring equipment and overfill protection. Stage II required in some areas.
North Carolina	State notification form ($200-$300 fee)		Secondary containment required for USTs near drinking water sources.
North Dakota	State notification form ($50/tank/yr)		
Ohio	State notification form ($50/tank/yr)		Secondary containment for USTs located in sensitive areas. Stage II required in 16 counties.
Oklahoma	EPA notification form ($25 annual fee for petroleum USTs)		
Oregon	Permit required for regulated USTs ($400 installation fee per tank).	Leak detection and cathodic protection (more stringent than federal requirements).	Stage II required in 3 counties.
Pennsylvania	Registration required for regulated tanks ($50/tank annual fee)		Stage II required in 12 counties. Secondary containment for all new and replaced USTs.
Rhode Island	State notification form. Notice of existence of USTs must be recorded in land evidence records ($50 fee per tank). Releases must be reported immediately.		Stage II required and are more stringent than other states. Secondary containment required for new tanks.
South Carolina	Construction and operating permits required. State notification form. $100/tank annual fee.		
South Dakota	State notification form (no fees)		Some localities require secondary containment.
Tennessee	State notification form ($250 annual fee per tank compartment)		Stage II required in 6 counties.
Texas	State notification form, notification must be submitted 30 days prior to construction (Annual registration fee: $50/UST)		Stage II required in 16 counties.
Utah	EPA Notification form (Annual Fee: $50-$150/tank).		

State	NPR	M&I, O&M	PR
Vermont	Permits required for all USTs except heating oil and farm/residential tanks (Fees for all USTs: $7 local fee and $22 annual permit fee)		Secondary containment required for new tanks.
Virginia	State notification form (similar to EPA)		Stage II required in 9 counties.
Washington	Stage notification form. Permits required to install. $100/tank annual fee.		Stage II required in some cities/counties.
West Virginia	EPA notification form (Annual fee: $90 per registered UST). Notice of installation, upgrade or closure must be submitted 30 days prior to action.		
Wisconsin	State Notification form. Operating permits required.		Stage II required in some areas.
Wyoming	State form. Annual registration ($200/tank)		Tanks near drinking water must be double-walled (proposed rules will expand this requirement).

NPR: Notifications & Permitting/Registration
M&I, O&M: Monitoring & Inspections, Operation & Maintenance
PR: Physical Requirements

APPENDIX B

AGENCY COORDINATION AND SCOPING COMMENTS

[PENDING]

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