

Draft

**Site-Specific Environmental Assessment:
Proposed Replacement VA Medical Center
Campus, Louisville, Kentucky**

U.S. Department of Veterans Affairs

Robley Rex VA Medical Center

800 Zorn Avenue

Louisville, KY 40206

December 15, 2014

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Executive Summary

In this site-specific environmental assessment (EA), the United States Department of Veterans Affairs (VA) identifies, analyzes, and documents the potential physical, environmental, cultural, and socioeconomic effects associated with constructing and operating the proposed new Robley Rex VA Medical Center (VAMC) campus, which would include a regional Veterans Benefits Administration (VBA) office. The new campus would be located at 4906 Brownsboro Road in Louisville, Jefferson County, Kentucky, southeast of the intersection of the Watterson Expressway (I-264) and Brownsboro Road. A Programmatic EA completed in June 2012 concluded there would be no significant impacts from selecting the Brownsboro Road site for the location of this Proposed Action.

The purpose of this Proposed Action is to replace the existing Louisville VAMC, community-based outpatient clinics, and VBA facilities that have reached the end of their serviceable lives with new facilities at 4906 Brownsboro Road of sufficient capacity to meet the current and projected future healthcare needs of Veterans in the Louisville service area.

The Proposed Action is needed because the existing Louisville VAMC facilities have reached the end of their serviceable lives. The conditions and configuration at the existing VAMC are inadequate to effectively and efficiently meet the expanding needs of VA's healthcare mission and VBA services in the region.

Two alternatives are analyzed in this site-specific EA:

- VA's **Proposed Action** is to construct and operate a replacement campus at 4906 Brownsboro Road, with a 104-bed full service VA hospital, diagnostic and treatment facilities, VBA regional office, laundry facility, central utility plant, parking garages for 3,000 vehicles, above-ground potable water storage (water tower), subsurface utility distribution systems, roads, sidewalks, access (entrance/exit) points, stormwater management, landscaping, site lighting, and other required site amenities and improvements.
- The **No Action Alternative** is not constructing and operating a replacement VAMC at the Brownsboro Road site, but continuing operations at the existing Louisville VAMC on Zorn Avenue, the existing community-based outpatient clinics, and the existing VBA regional office.

The following table summarizes the potential environmental impacts of the Proposed Action and No Action.

Table: Summary of Impact Analysis

Resource / Issue	Proposed Action	No Action
Meets Purpose of and Need for Action	Yes	No
Aesthetics	Appearance of the project site would change from undeveloped to developed, permanently affecting the view and visual character of the area. Landscaping, building setbacks, exterior lighting, and aesthetic quality of the building materials would be generally consistent with development codes and thereby considered acceptable changes to the view and visual character of the area. Presence of heavy equipment and unfinished stages of site preparation and building construction would temporarily impact the visual quality of the area.	No impacts
Air Quality	Construction and operation emissions would comply with all permit requirements and regulations. Particulate emissions during construction are below the de minimis threshold level. No significant impact.	No impacts at project site; continued operational emissions at existing VAMC at Zorn Avenue in compliance with minor source permit.
Cultural Resources	No adverse effects to archaeological features or historic properties.	No impacts
Geology and Soils	Adherence to vibration standards and requirements of the Kentucky Revised Statute 350.430 for blasting operations would avoid damage to nearby buildings and houses. Loss of prime farmland soil would not be significant. Risk of development is not any greater than other similar areas of Jefferson County so the presence of karst features would not adversely affect the project nor would features be adversely affected by project construction.	No impacts
Hydrology and Water Quality	Stormwater runoff during construction would be localized and negligible with implementation of erosion control plans. Predevelopment discharge rates would be maintained through stormwater management detention structures to control impacts on site hydrology, adjacent properties, surface water quality, and groundwater recharge. Adherence to state standards and VA specifications would ensure negligible impacts to groundwater from drilling and operating groundwater wells and geothermal system.	No impacts
Wildlife and Habitat	Negligible impact to common wildlife species (displacement of individuals). No listed species or critical habitat onsite. Nesting bird survey would identify migratory birds to be protected if construction begins between April and July.	No impacts

Resource / Issue	Proposed Action	No Action
Noise	Impacts from construction noise would be adverse but temporary and within acceptable levels. Sources of operational noise would be inside buildings or shielded from receptors to avoid impacts.	No impacts – no change from current noise levels due to operation of existing VAMC at Zorn Avenue.
Land Use	The VAMC campus, as a conditional land use, is generally consistent with existing zoning. Landscaping plans, building setbacks, and building heights are generally consistent with the Louisville and Jefferson County Comprehensive Plan and existing zoning, and therefore would not adversely impact land use.	No impacts
Floodplains, Wetlands, and Coastal Management	No impacts	No impacts
Socioeconomics	Short-term and long-term beneficial effects to local economy; possible short-term adverse effects to property values from visual and noise disturbances during construction, but possible increased value from a hospital as a desirable land use.	No impacts
Community Services	No impacts	No impacts
Solid and Hazardous Materials	Short-term negligible impact due to increased presence and use of petroleum and hazardous substances during construction, minimized through best management practices and regulatory compliance. No significant adverse long-term impacts during operation as solid waste and hazardous materials would be managed in accordance with VA policies and federal, state, and local regulations.	Negligible impacts. Solid waste generation and use of hazardous materials at existing VAMC at Zorn Avenue would increase over time commensurate with projected future increases in number of patients.
Transportation and Parking	Construction contractors would provide offsite parking and shuttle service to and from the project site to minimize adverse effects from temporary increases in construction traffic. The Proposed Action would not significantly contribute to the degradation of levels of service at the intersection of US 42 at KY 22 (Brownsboro Road at Northfield Drive). With interchange improvements at Watterson Expressway (I-264) and US 42, the levels of service would be acceptable at the entrance to and exit from the VAMC campus (Old Brownsboro Road at Northfield Drive intersection).	Negligible impacts. Traffic at existing VAMC at Zorn Avenue location would increase over time commensurate with projected future increases in number of patients.
Utilities	Sufficient capacity exists and connections can be developed without significant environmental impacts for utility services to be provided to the site.	No impacts
Environmental Justice	No impacts.	No impacts

Resource / Issue	Proposed Action	No Action
Cumulative Impacts	Given the nature of the Proposed Action and the mostly developed area surrounding the site, no significant cumulative impacts are expected. Nearby undeveloped areas would likely be developed, as zoned and allowed for this area. Along with current congestion and the projected growth and development rate in the area, the Proposed Action would not be a significant contributor to cumulative traffic volumes or to degradation of levels of service at any intersection.	No impacts
Potential for Generating Substantial Controversy	Some residents in the immediate vicinity of the project site remain opposed to the location of the replacement VAMC at Brownsboro Road. However, the siting decision was made during the Programmatic EA process, and is not a decision within the scope of this site-specific NEPA analysis for construction and operation of the campus.	No impacts

Public comments on this Draft Site-Specific EA will be considered in preparing the Final EA.

1.0 INTRODUCTION

In this site-specific environmental assessment (EA), the United States (U.S.) Department of Veterans Affairs (VA) identifies, analyzes, and documents the potential physical, environmental, cultural, and socioeconomic effects associated with constructing and operating the proposed new Robley Rex VA Medical Center (VAMC) campus, which would include a regional Veterans Benefits Administration (VBA) office. The new campus would be located at 4906 Brownsboro Road in Louisville, Jefferson County, Kentucky, southeast of the intersection of the Watterson Expressway (I-264) and Brownsboro Road. It would replace the following facilities:

- the existing Robley Rex VAMC at 800 Zorn Avenue, also in Louisville, Jefferson County, Kentucky
- three community-based outpatient clinics (CBOCs) in Louisville, for which the VA currently leases space at 4010 Dupont Circle, 3430 Newburg Road, and 3934 North Dixie Highway
- the Louisville Regional Benefit Office currently located in leased space at 321 West Main Street in Louisville

Both the existing and proposed new medical center facilities are referred to as the Louisville VAMC in this site-specific EA. The proposed new VAMC would be named after Robley Rex, as is the existing facility.

Two alternatives are analyzed in this site-specific EA:

- VA's **Proposed Action** is to construct and operate, at 4906 Brownsboro Road, a replacement campus with a 104-bed full service VA hospital, diagnostic and treatment facilities, VBA regional office, laundry facility, central utility plant, parking garages for 3,000 vehicles, above-ground potable water storage (water tower), subsurface utility distribution systems, roads, sidewalks, access (entrance/exit) points, stormwater management, landscaping, site lighting, and other required site amenities and improvements.
- The **No Action Alternative** is not constructing and operating a replacement VAMC at the Brownsboro Road site, but continuing operations at the existing Louisville VAMC on Zorn Avenue, the existing CBOCs, and the existing VBA regional office.

This site-specific analysis is conducted in accordance with the *National Environmental Policy Act of 1969* (NEPA) (42 United States Code [U.S.C.] 4321 et seq.), the White House Council on Environmental Quality (CEQ) "Regulations Implementing the Procedural Provisions of NEPA" (40 Code of Federal Regulations [CFR] 1500-1508), VA's NEPA regulations titled "Environmental Effects of the Department of Veterans Affairs Actions" (38 CFR Part 26), and VA's *NEPA Interim Guidance for Projects* (VA 2010). These requirements specify that VA must evaluate the potential environmental impacts of VA facilities, operations, and related funding decisions prior to taking action. VA must apply the NEPA review process and use the information to make an informed decision prior to undertaking a proposed action. An EA provides sufficient evidence and analysis for determining whether an action would cause significant environmental impacts (requiring an environmental impact statement) or the agency can issue a finding of no significant impact (FONSI) (40 CFR 1508.9). A FONSI is a decision document that briefly presents the reasons why an action would not have a significant effect on the human environment (40 CFR 1508.13). As required by NEPA and the implementing regulations from CEQ and the VA, the alternative of taking no action is evaluated, providing a baseline for comparison of potential impacts from the action alternative(s).

This EA presents the project background and the purpose of and need for the Proposed Action (Chapter 1), provides details of the alternatives (Chapter 2), and describes the affected environment and evaluates the potential environmental consequences (Chapter 3). The remainder of the EA provides a summary of agency coordination and public involvement (Chapter 4), mitigation and monitoring (Chapter 5), a list of preparers (Chapter 6), references (Chapter 7), acronyms and abbreviations (Chapter 8), and a glossary (Chapter 9).

This site-specific EA tiers to the *Programmatic Environmental Assessment of the Proposed Site Selection, Construction, and Operation of a Replacement Louisville VA Medical Center* (PEA) (VA 2012), completed in June 2012. In the NEPA process, tiering is done from an analysis on a specific action at an early stage (such as need and site selection) to a subsequent analysis at a later stage (such as environmental mitigation). Tiering in such cases helps the agency to focus on the issues that are ripe for decision and exclude from consideration issues already decided or not yet adequately developed. With the provision that mitigation measures and best management practices (BMPs) be implemented during construction and operation, the PEA concluded with a FONSI for selecting and acquiring the Brownsboro Road site for the replacement Louisville VAMC. VA has acquired the site and prepared a master plan and conceptual design. This site-specific EA now evaluates the potential effects of constructing and operating the new VAMC as it would be designed for the selected site. This site-specific EA incorporates the mitigation, avoidance, and management measures identified in the PEA to minimize potential environmental effects, and identifies additional measures that were deferred until design details were available. As a tiered EA, the scope of this site-specific EA consists of and is limited to the assessment of potential effects of constructing and operating a replacement VAMC campus at the previously evaluated and selected site.

1.1 Project Background

The Robley Rex VAMC and its eight CBOCs serve approximately 168,000 U.S. Veterans within the Louisville service area, which includes western Kentucky and southern Indiana.

Currently, 59,000 of the Veterans in the Louisville service area are enrolled to receive care annually. Enrollment is expected to increase to more than 65,000 in the next 10 years, with annual visits increasing from 610,000 to 753,000 during the same time period. The configuration and condition of the existing Louisville VAMC facility is insufficient to meet either the current or the increasing future needs of VA's healthcare mission in the region. Therefore, the VA conducted studies that recommended new facilities be constructed on a new site that would be better suited to meet future needs and then began the site selection process for a replacement campus.

On June 15, 2012, VA issued a FONSI for the PEA that evaluated the environmental effects of selecting and acquiring a site for the construction and operation of a replacement VAMC. The PEA included an analysis of the effects of the transfer of operations from the existing VAMC to a replacement VAMC. The PEA discussed three alternatives for site selection and acquisition: (1) Preferred Action – the Brownsboro Road site; (2) Alternate Action – St. Joseph Site, located east of the Gene Snyder Freeway (I-265) and south of Factory Lane; and (3) No Action – continue with operations at the existing Louisville VAMC on Zorn Avenue. The FONSI documented the VA's decision to select the Brownsboro Road site for the proposed replacement campus. This location is approximately three miles from the existing Louisville VAMC on Zorn Avenue and approximately six miles from the existing University of Louisville Healthcare Center. This latter distance is well within the 15-mile radius that VA determined was acceptable in terms of accessibility for Veterans to be served by the facility. The PEA concluded there would be no significant impact, either individually or cumulatively, to the local environment or quality of life, provided that the mitigation measures and BMPs identified in the PEA are implemented; these

measures have been updated, further developed, and refined as part of this site-specific EA. The PEA stated that site-specific impacts would be further evaluated in a subsequent tiered site-specific EA.

VA purchased the Brownsboro Road property on July 10, 2012. The master plan and concept phase began immediately thereafter to develop the project features and details that would be evaluated in this site-specific EA for construction and operation of the proposed replacement VAMC. The master plan and initial conceptual design for the proposed replacement VAMC were completed in April 2013, with a revised conceptual design prepared in June 2013. VA subsequently reevaluated and revised the conceptual design and selected the Atrium concept, completed in March 2014, for development into schematics.

VAMC operations would continue at the existing Zorn Avenue location until the new VAMC is operational in approximately 2023, with the actual schedule depending on Congressional appropriations and funding. As described in the PEA, VA's plans for disposition of the existing VAMC have not been determined and would be the subject of a future reutilization feasibility study and NEPA analysis, as appropriate.

1.2 Purpose and Need

VA provides inpatient and outpatient medical services to Veterans at the existing VAMC on Zorn Avenue in Louisville and eight CBOCs in the Louisville area. Under present conditions, VA does not have sufficient capacity to provide adequate regional healthcare services to meet the current and future needs of Veterans. The existing hospital and clinics are operating at maximum capacity with limited options to expand to meet these needs. In addition, parking at the Zorn Avenue VAMC is insufficient. Because VBA functions exceed the physical capacities of its existing regional office location in leased space at 321 West Main Street, Suite 390, Louisville, the existing VBA regional office also requires relocation. These insufficient facilities challenge VA's ability to safely, economically, and consistently provide high-quality, integrated health care and services to the region's Veterans.

VA estimated the future healthcare requirement within the region would exceed 65,000 Veteran patients per year (for all healthcare services required).

The **purpose** of the Proposed Action is to replace the existing Louisville VAMC, three of eight CBOCs, and VBA facilities that have reached the end of their serviceable lives with new facilities at 4906 Brownsboro Road of sufficient capacity to meet the current and projected future healthcare needs of Veterans in the Louisville service area.

The Proposed Action is **needed** because the existing Louisville VAMC facilities have reached the end of their serviceable lives. The conditions and configuration at the existing VAMC are inadequate to effectively and efficiently meet the expanding needs of VA's healthcare mission and VBA services in the region.

2.0 ALTERNATIVES

This chapter provides information on the Proposed Action and the No Action Alternative, as well as design alternatives that were considered but eliminated. The screening criteria and process developed and applied by VA to developing the design for the Proposed Action are described.

NEPA, and the CEQ's and VA's regulations for implementing NEPA, require all reasonable alternatives to be rigorously explored and objectively evaluated. Alternatives that are eliminated from detailed study must be identified, along with a brief discussion of the reasons for eliminating them. For purposes of the EA analysis, an alternative was considered "reasonable" only if it would enable VA to accomplish the objective to construct and operate a suitable replacement facility that meets the purpose of and need for the Proposed Action. Because this site-specific EA is a tiered analysis, the range of alternatives is limited to constructing and operating a replacement VAMC campus at the previously evaluated and selected site on Brownsboro Road.

2.1 Development of Alternatives

The master planning process for the design of the campus and facilities was used to develop the details of the Proposed Action in this EA.

As site acquisition details were being finalized in 2012, VA determined that it would be advantageous to co-locate functions of the VBA regional office on the proposed new campus. In addition to improving VBA efficiency through new facilities, co-locating VBA services with the VAMC would centralize Veterans services in a single location. VA has incorporated a new VBA regional office building into the final design concept evaluated as the Proposed Action in this EA.

The master planning process for the proposed replacement VAMC campus was completed in April 2013 (Oculus 2013). The master plan's goal was to propose a layout for campus facilities and structures for optimal function and site use at 4906 Brownsboro Road. This layout was further developed through the conceptual design process, which had two primary objectives:

- To develop viable conceptual design options, one of which would be selected by the VA team to proceed through the schematic design phase
- To facilitate an objective evaluation of those designs through development and use of a tool that identifies key scoring and selection criteria, prioritized by the VA team during the concept phase

An evaluation criteria matrix was applied to evaluate possible design concepts. Specific criteria within the following categories were analyzed for each concept:

- Optimize Patient / Beneficiary Experience and Satisfaction
- Optimize Staff Experience and Satisfaction
- Departmental Adjacencies
- Neighborhood Experience
- Overall Building Footprint and Siting
- Building Form
- Engineering Economics

The Atrium Concept, described in Section 2.2.1, was selected by the VA for development into schematics and eventual design (and subsequent construction and operation) as the Proposed Action in this EA.

2.2 Alternatives

The alternatives evaluated in this EA are the Proposed Action and No Action. The No Action Alternative serves as the baseline for identifying the impacts from the Proposed Action.

2.2.1 Proposed Action: Construct and Operate Replacement Louisville VAMC, Atrium Concept

VA's Proposed Action is to construct and operate a new replacement medical center and VBA regional office following the Atrium conceptual design (Figure 1) at the recently acquired Brownsboro Road site in Louisville, Kentucky (Figure 2). The 34.9-acre site is located at 4906 Brownsboro Road in the Holiday Manor area, approximately seven miles east of downtown Louisville. The property is located on the south side of Brownsboro Road near its intersection with U.S. Highway 42 (US 42). The property is currently vacant, undeveloped, and predominantly grass-covered.

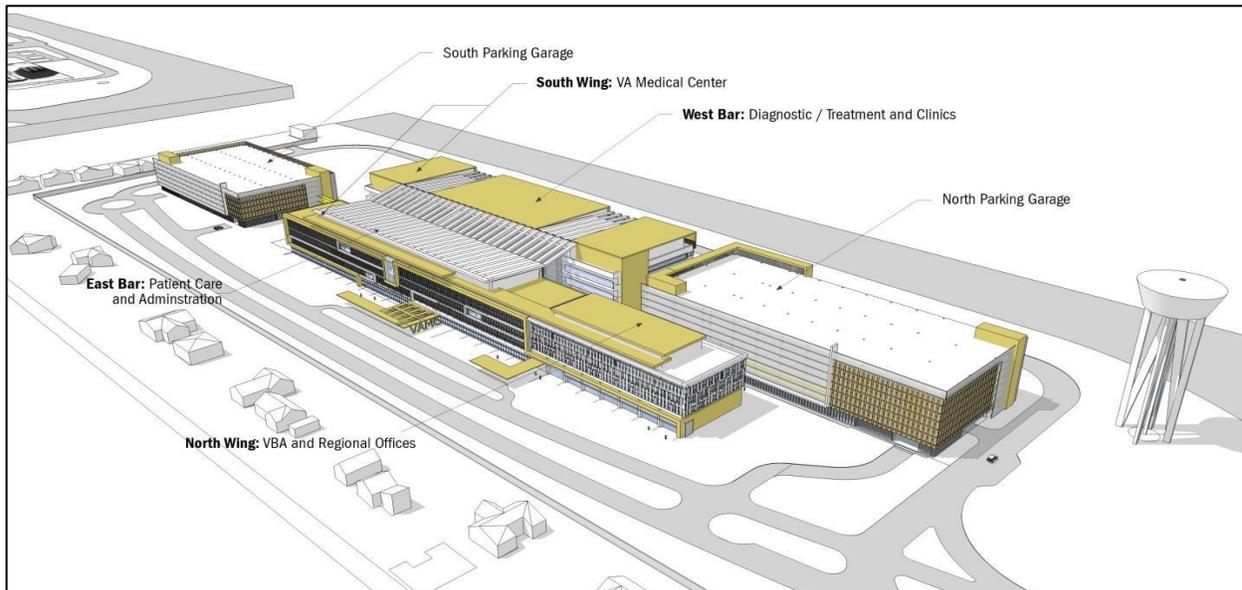


Figure 1. Major Components of Atrium Concept for Replacement Louisville VAMC.

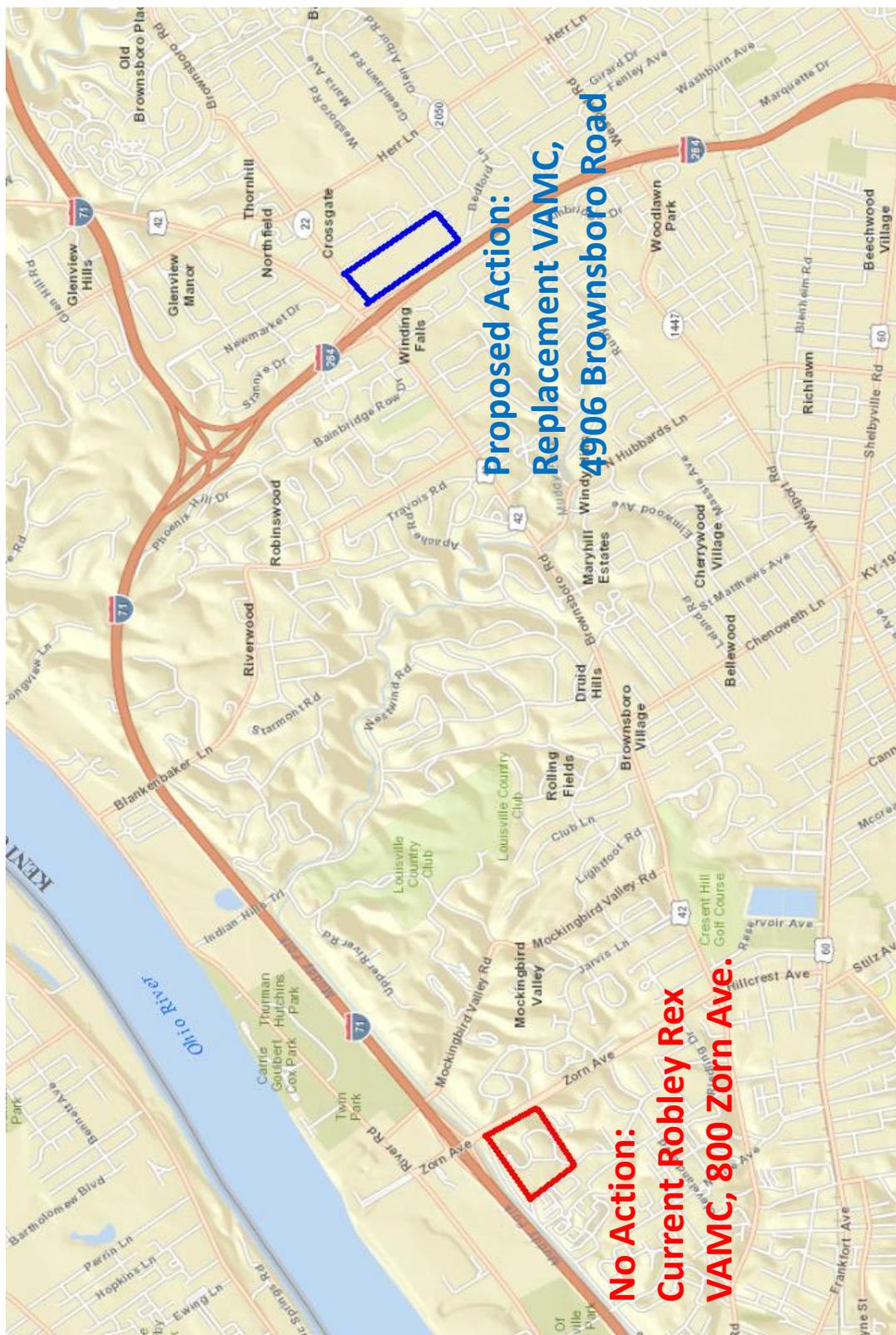


Figure 2. Locations of Proposed Action and No Action.

The Proposed Action includes:

- Full service (inpatient/outpatient) 104-bed VA hospital with diagnostic and treatment facilities
- VBA regional office
- Central utility plant
- Geothermal system for heating and cooling the VBA regional office building
- Laundry facility
- Site lighting
- Parking decks for 3,000 vehicles
- Roads, sidewalks, and access (entrance/exit) points
- Stormwater management
- Above-ground potable water storage (water tower)
- Two or more groundwater wells to provide non-potable cooling water for the central utility plant
- Subsurface utility distribution systems
- Landscaping
- Other required site amenities and improvements

The full-service VA hospital includes the departments listed in Table 1. The proposed concept is presented in Figure 3. The conceptual design may be revised to respond to new information and details on site function and operation requirements, mission priorities, mitigation measures to address potential environmental impacts, funding constraints, or other factors.

Table 1. Departments and Areas (Square Feet) Proposed for Replacement Louisville VAMC

Department	Net Area	Gross Area
1 - AFGE	540	702
2 - AMBULATORY CARE - MEDICAL SURGICAL SPECIALTY CLINIC(262)	38,150	62,948
3 - AMMS: ADMINISTRATION (284)	2,290	2,977
4 - AMMS: WAREHOUSE (291)	20,990	23,089
5 - AUDIOLOGY AND SPEECH PATHOLOGY SERVICE (204)	4,810	7,456
6 - BUSINESS OFFICE HEALTH ADMINISTRATION SERVICE (246)	7,860	10,218
7 - CARDIOVASCULAR LABORATORIES (210)	9,730	14,595
8 - CHAPLAIN SERVICE (208)	2,470	3,211
9 - CLINICAL SERVICES ADMINISTRATION (214)	7,400	9,620
10 - COMPENSATION AND PENSION PROGRAM	6,000	9,000
11 - CREDIT UNION (220)	505	657
12 - DENTAL SERVICE (222)	6,615	10,253
13 - DIGESTIVE DISEASES PROGRAM - ENDOSCOPY SUITE (287)	7,820	11,730
14 - EDUCATIONAL FACILITIES (402)	5,170	6,721
15 - ELECTROENCEPHALOGRAPHY (EEG) LABORATORY NEW (226) GF	1,955	2,933
16 - EMS: SUPPORT / ADMINISTRATION (406)	4,080	4,896
17 - EMS: LAUNDRY AND LINEN OPERATION (408)	13,024	14,978
18 - EMS: LOCKERS, LOUNGES, TOILETS, AND SHOWERS (410)	1,260	1,512
19 - ENGINEERING SERVICE (230)	9,071	11,792
20 - ENT	2,160	2,808
21 - EYE CLINIC NEW (233) GF	6,255	10,008
22 - FISCAL SERVICE (234)	3,160	4,108
23 - GERIATRICS AND EXTENDED CARE SERVICE (261)	5,290	7,671
24 - HUMAN RESOURCES MANAGEMENT (266)	3,310	4,303
25 - INTENSIVE CARE NURSING UNITS (102)	13,290	21,929
26 - LIBRARY SERVICE (400)	2,220	2,664
27 - LOBBY (244)	955	1,146
28 - MAGNETIC RESONANCE IMAGING (275)	2,755	4,408
29 - MEDICAL / SURGICAL INPATIENT UNITS (100)	27,050	44,633
30 - MEDICAL CENTER DIRECTOR SUITE (238)	7,920	10,296
31 - MEDICAL MEDIA SERVICE (248)	2,010	2,613
32 - MENTAL HEALTH AND BEHAVIORAL PATIENT CARE UNITS (110)	9,180	15,147
33 - MENTAL HEALTH CLINIC (260)	17,270	24,178
34 - NUCLEAR MEDICINE SERVICE (252)	6,450	9,675
35 - NURSING SERVICE ADMINISTRATION (254)	2,430	3,159
36 - NUTRITION AND FOOD SERVICE (224)	6,167	7,709
37 - OBSERVATION/INPATIENT UNITS (100)	1,500	2,475
38 - OFFICE OF INFORMATION & TECHNOLOGY (232)	9,315	12,110
39 - PACT PRIMARY CARE CLINIC (PPCC) (262)	32,990	53,114
40 - PATHOLOGY AND LABORATORY MEDICINE SERVICE (240)	16,500	23,100
41 - PHARMACY SERVICE (268)	13,320	17,316
42 - PHYSICAL MEDICINE AND REHABILITATION SERVICE (270)	9,440	12,744
43 - POLICE AND SECURITY SERVICE (279)	2,048	2,662

(continued on next page)

**Table 1. Departments and Areas (Square Feet) Proposed for Replacement Louisville VAMC
 (continued)**

Department	Net Area	Gross Area
44 - POLYTRAUMA REHABILITATION CENTER (111)	2,430	4,010
45 - PROSTHETIC AND SENSORY AIDS SERVICE (308)	5,435	6,794
46 - PULMONARY MEDICINE (212)	6,080	9,120
47 - QUALITY/STRATEGIC MANAGEMENT SERVICE	2,560	3,328
48 - QUARTERS, ON-CALL (274)	1,295	1,684
49 - RADIOLOGY SERVICE (276)	14,905	23,848
50 - RESEARCH AND DEVELOPMENT (278)	9,615	12,500
51 - SARRTP (312)	6,892	10,683
52 - SOCIAL WORK SERVICE (282)	4,150	5,395
53 - SUBSTANCE ABUSE CLINIC (202)	4,180	5,852
54 - SUPPLY PROCESSING AND DISTRIBUTION - SPD (285)	8,270	10,751
55 - SURGICAL SERVICE (286)	23,010	39,117
56 - VETERANS CANTEEN SERVICE (206)	17,174	20,609
57 - VOLUNTARY SERVICE/SERVICE ORGANIZATIONS (290)	2,130	2,556
Total Departmental Net Area:	460,851	
Total Departmental Gross Area:	665,505	
Total Building Gross Area	898,432	

Source: VA 2014.



Source: URS/SmithGroup 2014a.

Figure 3. Proposed Atrium Concept.

The following sections summarize the buildings and campus features of the Atrium design concept for the Proposed Action, based on descriptions prepared by URS/SmithGroup (2014a, 2014b).

2.2.1.1 Site Organization and Appearance

The Atrium concept (Figures 1 and 3) for the replacement VAMC campus consists of a four-story east bar and a five-story west bar, separated by a central atrium and courtyard.

- The VBA building, medical center administration and support, and inpatient units would comprise most of the east bar.
- The west bar, closer to the Watterson Expressway, would primarily house outpatient clinics and diagnostic and treatment spaces.
- An enclosed atrium, illustrated in Figure 4, is placed between the west bar and the medical center portion of the east bar. Where the atrium ends, this central space continues as an outdoor courtyard between the VBA building and the north parking structure.
- Service functions would be located along the Watterson Expressway on the west, including the ambulance entrance, loading docks, central utility plant, laundry, and water tower.
- A basement would extend beneath the west bar. Service and utility tunnels would connect the basement to small service and support areas below the east bar and the VBA building.
- Each bar would have a mechanical penthouse, and the west bar would have an additional electrical penthouse. The total height of the east and west bars, including penthouses, would be 102 and 162 feet, respectively.
- Two parking structures would accommodate parking for a total of 3,000 vehicles, at the north and south ends of the site. Both structures would have rooftop solar panels.
- A small (1,600-square-foot) maintenance/service outbuilding for servicing fleet vehicles may be added to the design depicted in Figure 3 (Pozolo 2014).
- The site layout allows for future hospital expansion to the south, if needed, in the area between the VAMC and the south parking structure.

In response to updated projections of the expected workload, VA downsized the proposed facility by 21 percent compared to initial design concepts shared with the public. This reduced the north-south length of the Atrium concept by about 95 feet, reduced the height of the east bar by nearly 40 feet and the west bar by nearly 20 feet, and decreased the required parking structure capacity. The VBA building was re-located to the north and the higher parking structure re-located closest to Brownsboro Road. The building downsizing had a very positive effect on how the site, building, and landscaping could be developed. Taller buildings and service components would be on the north and west edges of the site, away from the residential areas.

With a design goal of achieving the Leadership in Energy and Environmental Design (LEED) rating of Silver, the building would utilize innovative energy recovery systems, proactive stormwater management, exterior building materials and design, and heat island and light reduction strategies that respect the neighborhood and its environs.

Figure 5 shows the proposed exterior appearance of the four-story east bar, which would contain the main entrances and face the adjacent residential neighborhood to the east.

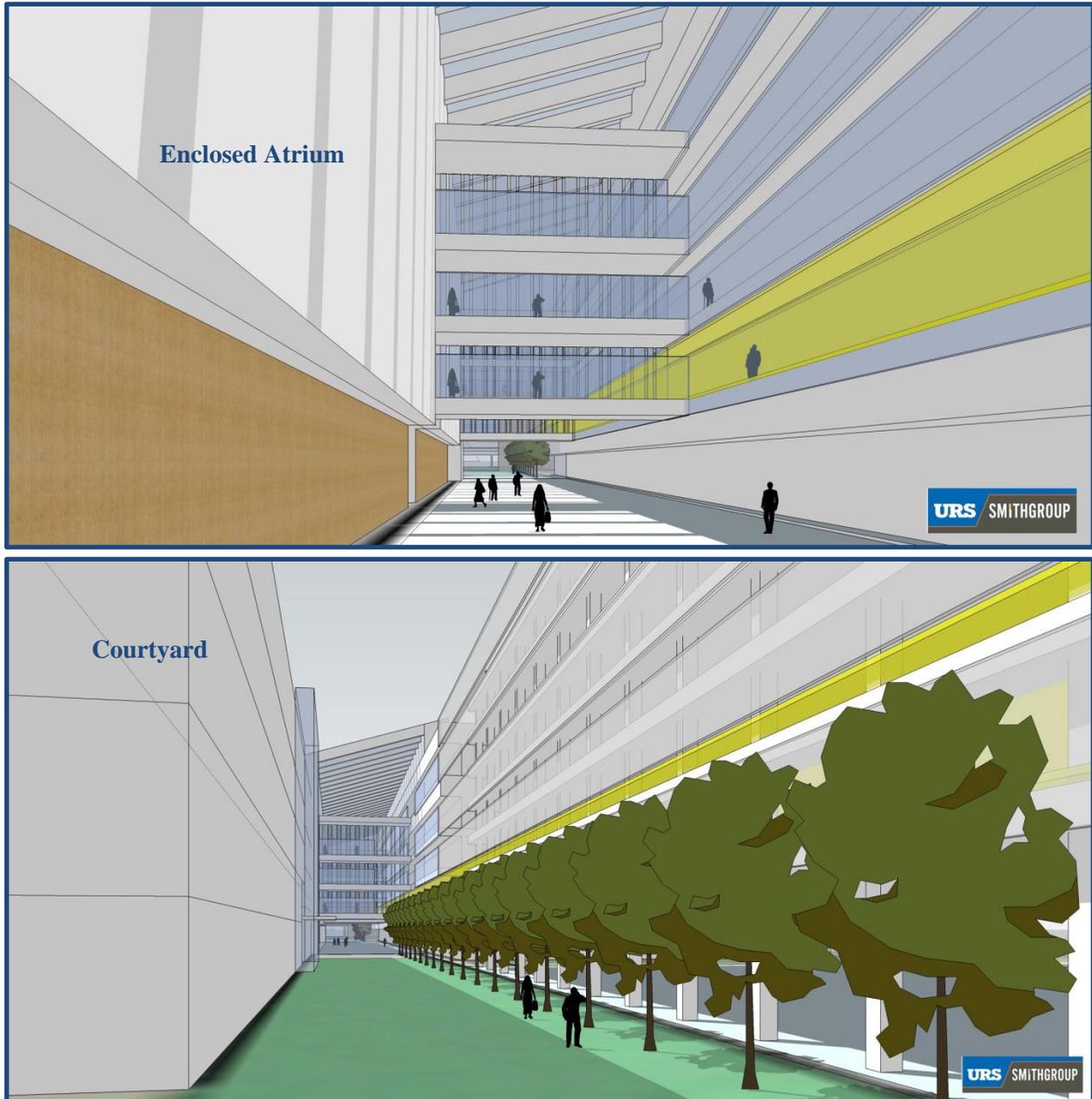


Figure 4. Atrium and Courtyard.



Source: URS/Smithgroup 2014a.

Figure 5. Proposed Exterior Concept for Front Elevation (East Bar).

2.2.1.2 VA Medical Center

The VAMC facilities would occupy approximately 898,500 square feet in both the west and east bars (URS/SmithGroup 2014b).

The medical center would employ approximately 1,750 persons when operating at full capacity, including staff from the existing facility and new hires. The inpatient areas (capacity of 104 beds) would operate 24 hours every day. Most administrative, outpatient diagnostic and treatment, and facility support activities would operate primarily during general business hours: Monday through Friday except holidays, from approximately 8 a.m. to 4 p.m.

2.2.1.3 VBA Regional Office Building

The VBA regional office building would occupy approximately 132,000 square feet in the east bar (URS/SmithGroup 2014b). The building would provide office space for 400 individuals, consisting of an estimated 357 VA employees and 43 Veterans service organization representatives (URS/SmithGroup 2014c). The VBA building would have a rectangular-shaped footprint with four floors and a partial lower level.

2.2.1.4 Central Utility Plant

A central utility plant would be detached from and located immediately southwest of the medical center building, and would contain the equipment to power, heat, and cool the VAMC facilities. It would provide the following utility services to the hospital basement through a direct-connecting utility corridor (URS/SmithGroup 2014a):

- Chilled water
- Heating water
- Medium pressure steam for hospital kitchen equipment
- Steam condensate return system
- Domestic cold water
- Domestic soft cold water
- Domestic hot water
- Domestic hot water recirculation
- Medical compressed air
- Medical vacuum
- Oxygen
- Fire protection water
- Emergency power generation
- Normal/redundant power source

The central utility plant would be buffered from the residential properties to the east by distance, other structures, and landscaping. Options are being evaluated to provide services to the non-mission critical VBA building both as systems tied into the VAMC central utility plant or separate systems at the VBA; details would be developed as the design for the proposed facility progresses.

To provide emergency backup in the case of loss of electrical power from the municipal utility, the power plant for the VAMC would house five 2.5-megawatt diesel generators and automatic switching equipment to provide standby generator capacity to support the mission critical facilities onsite during utility power failure (estimated to require just over 9 megawatts total capacity, with one additional generator and associated switchgear to meet the VA's electrical design requirements) (URS/SmithGroup 2014a; Oculus 2013).

Dual-fuel (natural gas / #2 fuel oil) condensing water boilers would provide the heating water to be distributed throughout the hospital to serve perimeter heating systems, heating coils at the air handling units, reheat coils at the air terminal units, and cabinet unit heaters at the vestibules and stair towers. Dual-fuel steam boilers would generate steam to supply the laundry (as needed, see Section 2.2.1.6), domestic water heating plant, humidification, nutrition services/canteen, and sterile processing department; the steam system is expected to be efficient for these locations due to their fairly even year-round load profile and close proximity of these areas to the central utility plant (URS/SmithGroup 2014a).

The physical plant would also house a chilled water generation plant, with four 1,000-ton water-cooled centrifugal chillers (three operating and one standby) plus space for expansion (URS/SmithGroup 2014a). Four double-cell, induced-draft cooling towers will be installed on the roof of the chilled water plant to support the four chillers.

The standby generators and dual-fuel steam and water boilers combined requirement for #2 fuel oil to supply mission critical requirements is the amount required to operate the equipment for 10 days in January (URS/SmithGroup 2014a). This fuel would be stored in five 40,000-gallon underground storage tanks adjacent to the southwest corner of the central utility plant.

2.2.1.5 Geothermal System for VBA Building

A geothermal heat pump system is proposed to serve the VBA regional office building. A geothermal heat pump system, also called a ground source heat pump or geexchange system, is an electrically

powered system that utilizes the ground as a large heat source or heat sink. The system takes advantage of the constant ground temperature and thermal mass of a site's underlying geology. The system utilizes the Earth as a heat source in the winter as a heat sink in the summer.

The system proposed for the VBA building is a vertical bore closed loop system. A closed loop system does not extract nor come into direct contact with groundwater. Instead, a well bore hole contains piping that is grouted into place. A heat transfer fluid, in this case consisting of water with small amounts of additives, would be circulated within the piping through the underground wells and back to the surface. A chemical shot feeder system would provide antimicrobial treatment, pH buffering, and corrosion inhibition for the heat transfer fluid in the closed loop system. The temperature of the fluid changes as it loops through the underground system. The warmed or cooled fluid, depending on the season, exchanges its heat in an above-ground refrigerant loop system, heating or cooling forced air that is ducted throughout the building.

It is estimated that 150 geothermal wells extending 400 feet deep are required to fully serve the VBA building. Each well bore requires 400 square feet of surface space, on a 20-foot by 20-foot grid spacing, to provide a sufficient heat sink / heat source capacity. The preliminary site plan places the proposed geothermal wells in two groupings, one north of the VBA building and the other north of the north parking deck, both within the perimeter drive. A sample test well would likely be drilled in each of these two areas during the design development phase, to more specifically determine thermal conductivity of the wells and to help refine the depth recommended for the field.

2.2.1.6 Laundry

The laundry would be located at the southwest corner of the west bar, accessible to the medical center and the central utility plant. Steam could be supplied by the adjacent central utility plant, but the design team is evaluating options to reduce the requirement for steam equipment in the laundry in support of achieving LEED Silver certification.

2.2.1.7 Site Lighting

Lighting designs would be dictated in part by safety and security requirements. The design concept states that lighting fixtures planned along the perimeter of the campus should be the same style as other neighborhood site lighting fixtures. Exterior lighting would be controlled to reduce light pollution (URS/SmithGroup 2013).

2.2.1.8 Parking Decks

The Atrium concept includes two parking structures, one each at the north and south ends of the campus, with a total capacity for 3,000 vehicles. The north deck would have nine levels; it would be primarily for use by patients, VAMC visitors, and those using VBA regional office services. The south deck would have six levels; it would be primarily for staff parking, but also available for use by patients and visitors.

Almost all of the campus parking would be provided in these two parking decks. The additional small amount of surface parking would include 15 spaces in a surface parking lot at the southwest corner of the site, 4 parking spaces for recreational vehicles west of the north parking deck, and 4 vehicle inspection spaces located near the security gate at the main entrance.

2.2.1.9 Site Access and Circulation

Vehicular

Vehicles would enter and exit the campus from Brownsboro Road at the north edge of the site. Ambulances and service, delivery, and maintenance vehicles would use a right-turn-only lane upon entering the campus and continue to the three-lane western perimeter road that services the ambulance entrance, loading docks, central utility plant, laundry, and other maintenance functions. Two other entrance lanes would continue along the eastern side of the campus to access the north parking garage, main patient/visitor drop-off entrance, and the south parking garage. The eastern perimeter road would be a divided drive with turnarounds and a traffic circle at the south end. Two exit lanes to Brownsboro Road and Northfield Drive would be part of the main entrance configuration.

An emergency access drive from Carlimar Lane would be located at the south edge of the property. This entry would be gated, locked, and accessible only when emergency vehicles could not access the main entrance on Brownsboro Road (such as in the case of a traffic accident or other road blockage).

Transit and Pedestrian

The Transit Authority of River City (TARC) provides public transportation through the area adjacent to the site. TARC Route 15 Market runs along Brownsboro Road and Northfield Road. The master plan for the replacement VAMC recommended that this route be realigned to enter the site from Brownsboro Road and serve both the VBA regional office and the medical center. If the bus route is extended into the site, a bus stop would be provided between the VBA and main hospital entrances. Buses would then be able to head south to the traffic circle to turn around and exit the site.

Pedestrian access to the campus would be co-located with the vehicle entrance from Brownsboro Road. Sidewalks would provide pedestrian connections to Brownsboro Road, parking decks, and campus facilities. Canopies and covered sidewalks at drop-off locations and between parking decks and entry lobbies would be provided for user comfort and safety. Sidewalks would be constructed to meet *Americans with Disabilities Act* guidelines and VA standards. The installation of pedestrian crossing facilities outside of the VA campus, such as signals, ramps, and pavement markings at the vehicle entrance from Brownsboro Road, would be subject to state and municipal plans in conjunction with improvements of the I-264 interchange at Brownsboro Road. Pedestrian access to Carlimar Lane is not planned.

2.2.1.10 Service / Deliveries

The loading dock for deliveries and shipping would be located along the western side of the campus between the west bar and the expressway. It would include 10 to 14 bays with recessed docks. These bays would be sized to accommodate full-sized tractor trailers. Loading docks would be covered and connected with an at-grade walk to the hospital and the laundry.

2.2.1.11 Physical Security Measures

An eight-foot or higher perimeter fence would meet VA standards for mission critical facilities. Located along the property line, the fence is envisioned to be ornamental metal pickets on the north property line and concrete or masonry block solid walls on the other three sides of the site to provide screening of the residential properties and the expressway (URS/SmithGroup 2013).

2.2.1.12 Stormwater Management

Approximately 65 percent of the site would be covered with impervious surfaces (buildings, roads, sidewalks). The Louisville and Jefferson County Metropolitan Sewer District (MSD) requires that site stormwater discharges be limited to the pre-development rates. Stormwater collection would be provided by a combination of surface and sub-surface detention basins.

Three surface dry-type detention basins and four subsurface storage tanks would temporarily impound water for gradual discharge. Two surface detention basins would be located at the north end of the site, and one at the south end. Three subsurface tanks would be placed along the west side of the site and one in the southeast corner

Water detained in the basins and subsurface tanks would be discharged at the allowed discharge rates. Stormwater discharge from the site would be directed toward the storm sewer system ditch maintained by the Kentucky Transportation Cabinet (KYTC) along Watterson Expressway, along the western property boundary.

2.2.1.13 Utilities

Utilities would be routed from off site to the central utility plant and then to each of the buildings on campus through an underground tunnel.

Sanitary Sewer

The MSD has stated that the sanitary sewer system has sufficient capacity to accept discharge from the new facility, subject to Department of Water approval, based on an average daily flow of 170,500 gallons and a peak flow of 875,000 gallons per day. The connection to the MSD sewer system would be at the southwest corner of the site at an existing manhole within the Carlimar Lane right-of-way.

An underground sanitary sewerage holding tank would be installed in the southwest corner of the site, to store a minimum of four days of hospital flows and seven days of “disaster-mode” central utility plant flows (the minimum required for a mission critical facility). The sewerage holding tank would have a capacity of 565,000 gallons, and would be approximately 90 feet in diameter and about 15 feet deep. Once sewer service is restored, an exterior dual pump lift station would lift the stored sewerage, allowing the contents to empty by gravity into an onsite manhole and into the MSD system.

Water

Domestic and fire protection water service would be provided by the Louisville Water Company (LWC), who has indicated there is adequate system looping and capacity to serve the new medical center. There would be two points of connection to the city system to ensure continuous service. Connections would be to the water mains in Brownsboro Road and Carlimar Lane. These two source mains would connect to the water tower (see below) and provide for site distribution via a 12-inch main along the west side and a 10-inch main along the east side of the property, connecting to 8-inch east-west water service lines serving the facilities. A fire hydrant would be located at least every 300 feet, in accordance with VA requirements.

A water tower would be located in the northwest section of the site. The water tower capacity would be based on the VA requirements to hold a minimum of 96 hours of domestic water use (approximately 674,000 gallons, allowing for 25 percent future expansion) plus 120,000 gallons of fire suppression water (URS/SmithGroup 2014a). The water tower design could be multi-column, composite or hydropillar, or

fluted pillar; a multi-column tower is the current recommendation of the VA's design consultant, based on cost considerations for a tank of the required size.

In the event of a disruption in supply of municipal water from LWC, makeup water for the cooling towers for the chilled water plant is proposed to be provided by groundwater drawn from two or more wells. These wells would be co-located with the water tower. The use of groundwater for an emergency cooling water supply would be determined to be feasible if a single well can yield more than 100 gallons per minute and withdraw up to 132,500 gallons per day during an emergency situation. A second well, located at least 50 feet from the first well, would be required for redundancy. If a single well cannot support this withdrawal rate, multiple wells may be required, with the number of wells to be determined after aquifer pumping tests are conducted. The wells are not currently planned to be used simultaneously. Each well would be 150 to 400 feet deep. The groundwater would be piped to the cooling towers only, with valves separating this supply from the campus potable water supply during well operation. The quality of the groundwater has not been characterized, although it is likely that some water treatment would be required to condition the water for use in the cooling tower system, to prevent corrosion and scale buildup. One approach could be softening using sodium salt to remove calcium, magnesium, and other metal ions. Another treatment could be pressure filtration and nanofilter membrane filtration using chlorine, sodium bisulfite, and a proprietary antiscalant, or just pressure filtration using chlorine and sodium bisulfite (URS 2014a).

Natural Gas

Natural gas would be provided by the Louisville Gas and Electric Company (LG&E). Natural gas primary service would be extended from LG&E's natural gas main along Brownsboro Road to the central utility plant. Separate connections and metering for the VBA would be provided from this primary service extension. A second, redundant service would also be required to serve the central utility plant and medical center as mission critical facilities. This second service would be coordinated with LG&E, and could possibly come from the highway right-of-way.

Communications

Telecommunications and data would be provided by AT&T Kentucky. Service connections would be along Brownsboro Road. The hospital would require redundant service in a separate distribution separated by at least 100 feet. The primary service would be routed from Brownsboro Road to the hospital, and the redundant service may come from either the highway right-of-way or from Carlimar Lane. The VBA would have separate telecommunication/data service from Brownsboro Road. Distribution to other buildings would come from the hospital.

Electricity

Electrical service would be provided by LG&E. There is no nearby electrical source capable of serving this site. However, there are three possible locations from which primary and secondary services can be extended to the campus. To accommodate the dual and independent service needs of the medical center as a mission critical facility, service would need to be provided from two separate sources. The three potential source locations are:

1. Taylor Substation: This substation is approximately one mile west of the site along Brownsboro Road. Minor upgrades to this facility would be required and it would have the ability to serve approximately six megawatts of power along a new circuit extension from the substation to the site along Brownsboro Road.

2. Lyndon Substation: This substation is located approximately 3.5 miles from the site, at Ormsby Road and Railroad Road. The substation currently has no capacity to service this site. It would require a substation expansion (limited space) and a 3.5-mile extension of a single circuit to accommodate the campus.
3. New Substation: LG&E has purchased property at the southwest corner of the I-71 interchange with US 42. This site can have a new substation built to meet the capacity needs of the new medical center campus, and a new circuit can be extended approximately 1.5 miles to the site.

LG&E has stated that their commitment to providing service to the new medical center, and once their analysis is complete, they are confident they would be able to provide a single service source to the site at its cost. A separate dual service feed would be at the VA's expense. Under any of the three options, the two sources to the site would be brought in from the north along Brownsboro Road. The primary line would be brought to two locations, and a primary switch gear at each location would allow extension to the central utility plant along separate routes.

Each primary and redundant service site would require a minimum of 100 feet separation. Each would be routed to the central utility plant in concrete-encased duct banks along the east and west perimeter roads. Electrical distribution would come from the central utility plant and be routed to each location requiring service. The hospital, as a mission critical facility, would require two service leads: primary service routed in concrete-encased ducts and redundant service routed through the utility tunnel from the central utility plant.

In accordance with the VA's intention to achieve a LEED Silver certification, photovoltaic (solar) panels for additional electrical energy generation are being considered for installation on the roofs of the two parking decks, as well as the roof of the VBA building (URS/SmithGroup 2014a).

2.2.1.14 Site Landscaping

There would be approximately 13.6 acres of green space on the site. Landscape materials would be appropriate to the climate, consider maintenance, and include a mixture of lawn, ground cover/perennials, shrubs, and trees. Landscaping on the site would be based on site use patterns and would follow the Concentric Plant Zones guidance as identified in the VA's *Site Development Design Manual* (VA 2013):

- Inner Plant Zone – close proximity to high use and high visibility areas, such as drop-offs and building entries. Plantings in this area would be the most intensive and would include landscape beds with four-season interest, ornamental trees, and some shade trees. Low water irrigation would be used in this zone.
- Intermediate Plant Zone – parking areas, access drives, and areas between buildings and other areas that would not be as visible or heavily used. Lower levels of landscape could include ornamental trees at focal points and significant intersections, shade trees along the boulevard and other roads, and shade trees along sidewalks for user comfort in hot summer months. Irrigation would not be provided in these zones.
- Outer Plant Zone – areas at the perimeter of the site, when screening is not needed. The lowest amount of landscape materials would be installed in this zone, and would typically focus on shade trees in lawn areas. On the east and south sides, a 50-foot landscape buffer adjacent to the residential areas is proposed. This plant zone would supplement the solid perimeter fence, be continuous and heavily planted, and include a mix of evergreen, shrubs, and shade trees. Along

the expressway, evergreen screening trees would be installed to minimize views and buffer sound.

“Crime Prevention Through Environmental Design and Unobstructed Space” principles, particularly for visibility, would be followed in the landscaping of all areas of the campus (URS/SmithGroup 2014a). Lighting, video surveillance, emergency telephones, intrusion detection systems, and VA police operations will also contribute to the site security measures.

Roof gardens with low maintenance plant materials and rain harvesting strategies for irrigation are included in the design, as well as the potential for a terraced community garden in a courtyard south of the atrium (URS/SmithGroup 2014a).

2.2.1.15 Construction and Operation Milestones

All potential scheduling for the proposed construction and operation of the replacement Louisville VAMC is subject to change, due to factors such as the timing and availability of federal budget actions and appropriations, adjustments to construction planning and phasing, and construction interruptions or delays due to unforeseen events. The sequence of milestones in Table 2 can be used as a general reference for the timing of activities related to the Proposed Action, subject to these external factors.

2.2.1.16 Mitigation Measures and Best Management Practices

The Proposed Action to construct and operate a replacement VAMC includes mitigation measures and BMPs. The list of mitigation measures and BMPs that was identified in the PEA has been updated, further developed, and refined during this site-specific EA process, resulting in the full and updated list presented in Chapter 5, Mitigation.

Table 2. Proposed Milestones for Construction and Operation (Preliminary*)

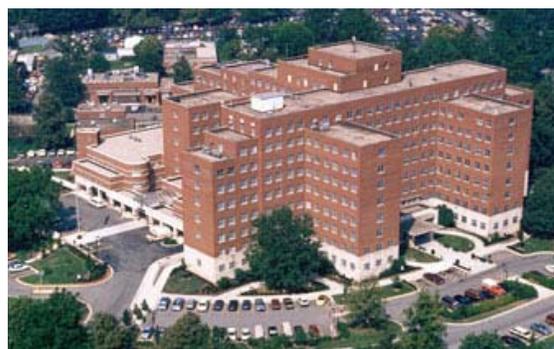
2014—Last quarter: Final EA available
2016—Mid-year: Final design complete
2017—Spring: Construction begins (Phase 1)
Central utility plant
Hospital
Site work: blasting underground utilities water and sanitary storage stormwater management circulation roads surface parking rough grade earthwork
2018—Fall: Construction continues (Phase 2)
VBA
Parking decks
Laundry
Site work: finish grading walks plazas plantings site lighting landscape site furnishing other site finishes
2023: Replacement VAMC campus opens

*Subject to budget/appropriations, further construction planning/schedules, unforeseen events.
 Source: URS/SmithGroup 2014a.

2.2.2 No Action

The No Action Alternative serves as a benchmark against which the effects of the Proposed Action can be evaluated. For this project, No Action is defined as not constructing and operating a replacement VAMC and VBA regional office at the Brownsboro Road site. VA would continue to operate the existing Louisville VAMC on Zorn Avenue, all eight CBOCs, and VBA regional office on West Main Street (Figure 2).

The existing VAMC is more than 60 years old and has exceeded its serviceable life span. It is an 816,000-



Existing Louisville VAMC (www.louisville.va.gov)

square-foot hospital located on a 47-acre suburban site approximately five miles east of downtown Louisville. The existing VAMC site contains approximately 22 acres of land in the central and northwestern portions of the site that are fully developed with the eight-story to nine-story main hospital building, several smaller buildings, and approximately 1,200 surface-level parking spaces. Areas of the site to the south, east, and northeast of the developed areas steeply slope down from the developed areas and are heavily wooded (Figure 6). There is no developable land remaining at the existing location to allow for expansion. More than 1,600 employees provide specialized hospital-based and outpatient care to Veterans living in the Louisville service area.

The existing VAMC includes several constraints (such as floor to ceiling height, limited developable area, parking deficiencies, and other limitations) that prevent the renovation of the existing VAMC or major additions to the site. Therefore, expanding or renovating the current VAMC on Zorn Avenue is not feasible. The No Action Alternative would challenge VA's ability to safely, economically, and consistently provide high-quality, integrated healthcare and services to the region's Veterans and, therefore, would not meet the purpose of and need for action.

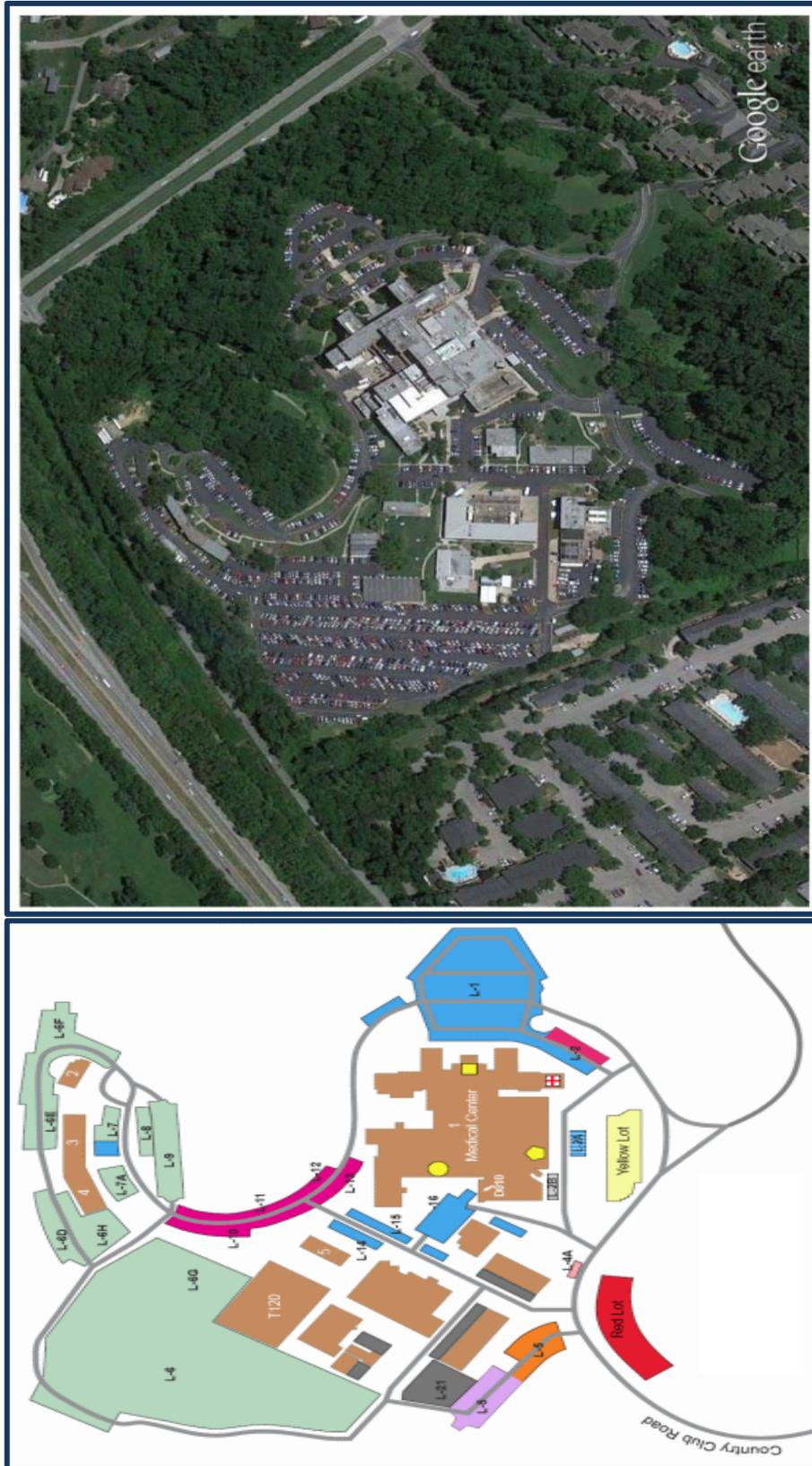


Figure 6. Existing Louisville VAMC Campus.

2.3 Alternatives Identified But Not Evaluated in Detail

Three other conceptual designs for the Brownsboro Road campus were evaluated, as illustrated in the thumbnail sketches below:



Based on the Evaluation Criteria (see Section 2.1), the Interlock concept was initially selected as the preferred design option. However, subsequent review of the criteria suggested that critical departmental adjacencies and other factors were not properly prioritized and weighted, and that the criteria needed to be modified. Once VA and its design team agreed on the revised criteria, the two highest scoring original concepts—Interlock and Campus—and the new Atrium concept were reevaluated against those criteria, and the Atrium concept was selected as the preferred concept in late 2013.

During the scoping process, a comment was received recommending that the Brownsboro Road site not be developed as a replacement VAMC, but instead used as the site of a new national cemetery. This would not meet the purpose of and need for action to address the inadequacy of the conditions and configuration at the existing Louisville VAMC facilities, which have reached the end of their serviceable lives and are inadequate to effectively and efficiently meet the expanding needs of VA's healthcare mission and VBA services in the region. This alternative was not further evaluated.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Each section of this chapter describes the environmental conditions at the site of the proposed replacement VAMC. These existing conditions provide a baseline for analyzing expected impacts. Potential impacts from the Proposed Action and from No Action to each resource are evaluated and described. Impacts, where identified, may be classified as “significant” when the context and intensity of the impact are considered (40 CFR 1508.27):

- The impact of the action must be analyzed in several *contexts*, such as society as a whole, the region, affected interests, and locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the wider region or the world as a whole. Both short- and long-term effects are relevant.
- The *intensity* of an impact results from considering whether it is beneficial or adverse; the degree to which it affects public health or safety; unique environmental characteristics of the geographic area; a high level of controversy; high uncertainty or unique or unknown risks; its potential for establishing a precedent for future actions with significant effects or for representing a decision in principle about a future consideration; whether it is related to other actions with individually insignificant but cumulatively significant impacts; the degree to which the action may adversely affect National Register-listed resources or cause loss or destruction of significant scientific, cultural, or historical resources; the degree of adverse effects to a listed species or critical habitat; and whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

For each resource for which potential effects are analyzed, the discussions below specify the criteria that were used to determine whether any identified impacts would be considered significant.

3.1 Aesthetics

Aesthetics include the physical (natural and manmade) and biological features of the landscape that contribute to the visual character or scenic quality of an area. Scenic quality is a measure of the visual appeal of the landscape, which is subjective and varies among observers.

3.1.1 Existing Environment

The project site is a vacant parcel of 34.9 acres within a suburban area. Features surrounding the project site that contribute to the visual character and scenic quality of the area include Watterson Expressway, commercial and office buildings, and power poles with overhead transmission wires.

The project site is visible to drivers northbound on Watterson Expressway and drivers exiting east onto Brownsboro Road at U.S. Highway 42 and Kentucky Route 22, occupants of the office building off the northeast corner of the site, and users of the three to five retail and commercial business on the north side of Brownsboro Road directly across from the site. The project site is also visible to the residents located along the north and south site boundaries, with visibility varying based on the density of the trees lining the project site and the landscaping maintained by the residents.

The short segment (approximately 675 feet) of Brownsboro Road along the north boundary of the project site is part of a scenic corridor designation. Commercial uses and power poles with overhead transmission

wires front this segment of Brownsboro Road. Approximately half of the segment has been cut off from the project site by the slip ramp exit from Watterson Expressway.

Sources of nighttime light in the area surrounding the project site include security lights for the parking lot and office building off the northeast corner of the site and businesses on the north side of Brownsboro Road, along with the street lights along Brownsboro Road, Watterson Expressway, and at intersections.

3.1.2 Evaluation Criteria

A visual impact is the creation of an intrusion or noticeable contrast to the landscape that affects visual character or scenic quality. Compatibility of introduced features within established views, together with observers' attitudes, expectations, and perspectives, determine the subjective importance or significance of the visual impact.

The scenic corridor designation subjects new development to specific setbacks, buffering, and landscape requirements along the road frontage. The Louisville-Jefferson County Land Development Code establishes the minimum building setback for non-residential use at 40 feet from the property boundary adjacent to the scenic corridor (LMG 2006). Within that 40-foot setback is a buffer of 25 feet where landscaping must be installed. In carrying out its federal functions, the VA is not subject to state or local regulations absent a clear statutory waiver to the contrary. This concept is based upon the Supremacy Clause (Article VI) of the U.S. Constitution. Although local governments cannot regulate or permit activities of the federal government on federally owned land, federal agencies must consider local requirements for landscaping, minimum setbacks, and aesthetic qualities of new building construction (40 U.S.C. 619(b)). For purposes of this evaluation, an impact would be considered significant if the action is not generally consistent with the land development codes for scenic corridors.

3.1.3 Environmental Consequences

3.1.3.1 Proposed Action

3.1.3.1.1 Construction

Construction activities would temporarily affect the visual quality of the area because of the presence of heavy equipment and unfinished stages of site preparation and building construction. The visual quality impacts would change over the course of the phased construction as each task is completed, progressing toward being negligible in the later stages as landscaping is completed and work focuses on the interiors of completed structures.

Construction activities would be limited to daylight hours so there would be no impact from nighttime lighting from the use of construction equipment lights. Security lighting would be required for construction staging areas, which would have a minor impact relative to existing nighttime light levels. The staging areas would be located in the northeast corner of the project site near existing street and intersection lights and away from residential areas. Security lighting throughout the construction site would be directed downward to minimize light trespass onto adjacent residential areas.

3.1.3.1.2 Operation

The VAMC campus buildings would vary in height at 56 feet for the central utility plant and laundry, 102 feet (four stories and rooftop mechanical penthouse) for the east bar buildings (VBA, inpatient, and medical center administration), 162 feet (five stories and rooftop mechanical and electrical penthouses) for the west bar building (outpatient, diagnostic, and treatment units), 83 feet for the south parking garage,

115 feet for the north parking garage, and 160 feet for the water tower. Although these structures would create a noticeable contrast to the existing landscape, they would be compatible with observers' expectations for the future appearance of the site because of the previous landowner's development plan that would have included a six-story hotel and commercial and residential buildings.

The exterior façade of the buildings would be designed to meet the goal of LEED Silver certification for healthcare facilities. The design elements serve a dual purpose of energy performance and aesthetics. The aesthetic design emulates the form and flow of military ribbons, while the design function provides sun control for thermal comfort and energy efficiency. The acceptance of the visual appearance of the exterior façade would vary by observer based on attitude and perspective of the military and the purpose of the buildings. Figure 7 presents proposed architectural renderings of the east and south views of the exterior façade.

Building setbacks and perimeter fences for the campus must conform to physical security and antiterrorism design requirements for mission critical VA facilities. The minimum setback for security is 50 feet from the property boundary, but wider setbacks would be designed to also address master plan recommendations for transitional zones (200 feet), noise (250 feet), and landscaping (50 feet). Security fencing along the east, south, and west property boundaries would be an eight-foot-high concrete masonry or stone veneer wall, with the fence on the north side along Brownsboro Road having six-foot-high vertical metal pickets on a two-foot-high brick base. Landscaping plans and materials (refer to 2.2.1.13 Site Landscape and Figure 3) address security requirements, aesthetics, noise, and privacy. The building setbacks, transitional zones, and landscape buffers for the VAMC campus exceed the minimum Land Development Code requirements, and therefore, adequately address aesthetic issues associated with the scenic corridor and adjacent land use.

Exterior lighting of the campus would be controlled to minimize light trespass but would be designed to meet physical security requirements. The lighting system must provide sufficient illumination for perimeter surveillance cameras, sensitive inner areas, and access control points. The roadway lighting would provide enough intensity so that vehicle drivers, pedestrians, and bicyclists can identify directional signage, access gates, queuing lanes, and curbs. Light fixtures (or luminaires) would use the cutoff design that directs light downward and minimizes glare. Fixtures for the security fence would be a similar style as adjacent neighborhood fixtures provided that cutoff design requirements are met. The exterior lighting would be generally consistent with the Land Development Code and, therefore, aesthetic issues associated with light trespass would be adequately addressed.



Figure 7. Proposed Architectural Renderings of East and South Views of VAMC Campus.

3.1.3.2 No Action

The project site would not be used by the VA for a new medical center campus and no construction or operational impacts to the aesthetics of the site would occur. However, future development of the project site by VA or others could have similar impacts on the aesthetics of the area as the Proposed Action.

There would be no changes in the appearance of the Zorn Avenue location of the existing Robley Rex VAMC under the No Action Alternative.

3.2 Air Quality

The National Ambient Air Quality Standards (NAAQS), established by the U.S. Environmental Protection Agency (EPA) and adopted by the Kentucky Department for Environmental Protection (KDEP), Division for Air Quality, define the maximum allowable concentrations of pollutants that may be reached but not exceeded within a given time period. The standards were selected to protect human health with a reasonable margin of safety. The ambient standards are for the criteria pollutants of carbon monoxide, nitrogen dioxide, lead, sulfur dioxide (SO₂), ozone, and particulate matter (PM). Particulate matter is further defined and regulated by size – smaller than 2.5 micrometers in diameter (PM_{2.5}) and between 2.5 and 10 micrometers in diameter (PM₁₀). While ozone is a regulated pollutant, it is not emitted directly from sources but is formed by a combination of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) reacting with sunlight in the atmosphere.

Exceeding allowable concentrations averaged over the specified time period is a violation of the NAAQS and constitutes nonattainment of the criteria. A federally enforceable state implementation plan (SIP) is required for areas of nonattainment, and an EPA-approved maintenance plan is required when an area is reclassified from nonattainment to attainment.

3.2.1 Existing Environment

Jefferson County is in nonattainment for the criteria pollutants of PM_{2.5} and SO₂ (EPA 2014a) and attainment for the others. The Kentucky Energy and Environment Cabinet submitted a revised SIP and maintenance plan to EPA to redesignate Jefferson County to attainment status for PM_{2.5} in 2012 (EEC 2012). EPA lowered the standard in 2013 and the state again recommended the redesignation of Jefferson County as being in attainment with the lower PM_{2.5} standard, based on monitoring data (EEC 2013). As of December 2014, EPA has not acted on the recommendation; therefore, Jefferson County's nonattainment designation for PM_{2.5} remains in effect.

Primary sources of fine particles (PM_{2.5}) in the area would be from combustion, such as motor vehicles, lawn mowers, and residential wood burning. The SIP addressed control measures to achieve attainment status for PM_{2.5} primarily by reducing its precursors (SO₂ and NO_x) through cleaner burning fuels, stricter emission standards for vehicles (including heavy construction equipment), and emission control technologies. Sources of PM₁₀ would primarily be dust from roads and disturbed ground surfaces.

Sources of SO₂ are from combustion, primarily from fossil fuel power plants and non-road equipment that burns high sulfur content fuel. Because of the recent (October 2013) designation of nonattainment for SO₂, revisions to the SIP are pending.

The Louisville Metro Air Pollution Control District (APCD) implements the regulations and permit requirements of the *Clean Air Act* and monitors the local air quality. The nearest monitoring station to the project site is more than three miles to the south, in the vicinity of the I-265/I-64 interchange

3.2.2 Evaluation Criteria

In attainment areas, an impact would be considered significant if the net increase in pollutants causes or contributes to a violation of the NAAQS, exposes sensitive receptors to substantially increased pollutant concentrations, or exceeds any evaluation criteria established by a SIP. In nonattainment areas, emission increases would be considered significant if they cause or contribute to a new violation of a NAAQS, increase the frequency or severity of a violation of NAAQS, or delay the attainment of any standard or other milestone contained in the SIP such that the project would not conform to the SIP.

Because the project site is located in an area designated as nonattainment for PM_{2.5} and SO₂, a “conformity applicability analysis” (provided in the following paragraphs) is required to determine if the construction and operation of the new VAMC campus are subject to the general conformity requirements of the Clean Air Act. A “conformity determination” is required if the total direct and indirect emissions equal or exceed the *de minimis* threshold of the criteria pollutant and any precursor, and to determine if the federal project could interfere with implementing the SIP to achieve attainment status. The *de minimis* threshold for PM_{2.5}, SO₂, and their precursors is 100 tons per year (40 CFR 93.153 (b)(1)).

3.2.3 Environmental Consequences

3.2.3.1 Proposed Action

3.2.3.1.1 Construction

Construction activities would generate both coarse and fine particulate emissions from grading the ground surface for site preparation, excavating and blasting to install utilities and building foundations, operating heavy equipment, and driving construction vehicles on paved and unpaved roads. The amount of particulate emissions from construction is based on the amount of ground surface exposed, type and intensity of the activity, soil type and conditions, wind speed, and dust control measures used. Total suspended particulates were calculated using the emission factor for heavy construction activity operations from AP-42 Compilation of Air Pollutant Emission Factors (EPA 1995) to provide a conservative estimate of PM₁₀ and PM_{2.5} emissions. The conservative estimate of particulate emissions from construction of the replacement VAMC campus are below the *de minimis* threshold level of 100 tons per year. The Proposed Action is therefore assumed to conform to the SIP for PM_{2.5} and would not contribute to a violation of the PM₁₀ standard, and no further conformity applicability analysis or determination is therefore necessary. The calculation results are shown in Table 3.

Table 3. Estimate of Annual Particulate Emissions from Construction

Project Site (acres)	Exposed Area ¹ (acres)	Duration (months)	Emission Factor ^{2, 3} (tons/acre/month)	Control Efficiency ⁴ (%)	Total Emissions (tons per year)
34.9	27.9	12	1.2	77.7	89.7

¹ Assumes 80 percent of project site is exposed for entire year; amount exposed would reduce as construction progresses.

² Total suspended particulates emission factor from EPA 1995.

³ Use of this factor to estimate PM₁₀ emissions will result in conservatively high estimates; therefore, it is also conservative for PM_{2.5}.

⁴ Control is water spray; efficiency percent is based on EPA 2014b.

Fuel combustion in construction workers’ vehicles and in diesel-fueled heavy construction equipment would temporarily increase VOCs, NO_x, SO₂, PM_{2.5}, and carbon monoxide emissions in the area. However, because of updated vehicular emission controls and required fuel standards, these increases are expected to be negligible.

3.2.3.1.2 Operation

Operating the new VAMC campus would have long-term effects on air quality from pollutant emissions from stationary and mobile sources. The new campus would include a central utility plant for the boilers, cooling towers, and generators to power, heat, and cool the facilities, underground and above-ground fuel storage tanks, and fuel dispensing pumps. The primary fuel source for the boilers would be natural gas. Fuel oil would be stored in five 40,000-gallon underground tanks as an emergency fuel source for the boilers and in five 300-gallon above-ground tanks to power the emergency generators. Regular and diesel gasoline would be stored in separate 10,000-gallon underground tanks for use in hospital and maintenance vehicles and equipment. The different equipment would be sources of NO_x, SO₂, VOCs, PM, carbon monoxide, and hazardous air pollutant emissions. Combustion of natural gas and fuel oil would also emit the greenhouse gases of carbon dioxide and methane.

The construction or installation and operation of the emission source equipment would be subject to the Louisville Metro APCD permit requirements. The APCD would review the design and manufacture information of the equipment; the type, rate, and potential quantity of emissions; and compliance monitoring and schedule. Based on the potential quantity of emissions, the APCD would determine if the VAMC campus would operate as a major or minor source of emissions and the appropriate permit to implement and enforce. Because of the stringent design and manufacturing regulatory requirements to control air emissions, along with the permitting and monitoring requirements enforced by the Louisville Metro APCD, the operation of emission source equipment would not emit a quantity of pollutants that would violate a NAAQS.

Gasoline dispensing equipment (storage tanks and nozzles) are considered non-emission sources for permitting purposes because emissions from the equipment are controlled by Stage I and Stage II vapor recovery systems. Although a permit from the Louisville Metro APCD would be required, the potential quantity of emissions does not need to be calculated, and therefore, the operation of this equipment would be assumed to not emit a quantity of pollutants that would violate a NAAQS.

Because the emission source equipment is subject to the Louisville Metro APCD permitting review and enforcement program, the emissions from operating the VAMC campus would be assumed to conform to the SIP; therefore, no further conformity applicability analysis or determination is necessary.

Fuel combustion in passenger and delivery vehicles and buses traveling to and from the replacement VAMC campus would increase VOCs, NO_x, SO₂, PM_{2.5}, and carbon monoxide emissions in the area. Because of updated vehicular emission controls and required fuel standards, and because these vehicle trips would replace those occurring to existing VA facilities throughout the metropolitan area, any increases in emissions are expected to be negligible.

3.2.3.2 No Action

The Brownsboro Road site would not be used by the VA for a new medical center campus and no construction or operational impacts to air quality would occur. Future development of the site by VA or others could have similar impacts as the Proposed Action.

Continued operation of the VAMC on Zorn Avenue would continue to result in air emissions from existing equipment under the minor source permit issued by the Louisville Metro APCD. That minor source permit is based on the potential to emit less than 50 tons per year of NO_x from the boilers and emergency generators (APCD 2012).

3.3 Cultural Resources

Cultural resources include both historic and prehistoric archaeological resources, as well as historic structures in the built environment. The cultural resource investigations were conducted to comply with federal regulations that implement Section 106 of the National Historic Preservation Act, concerning the impact of federal actions on sites and structures listed in, or eligible for nomination to, the National Register of Historic Places (NRHP) (36 CFR Part 800).

3.3.1 Existing Environment

The project area is located in northeastern Jefferson County, approximately 3.6 miles south of where Harrods Creek meets the Ohio River. The project area itself is a former farmstead, currently an empty field with no above-ground historic resources. Modern development surrounds the project area, from busy roads and highways (including Brownsboro Road and US 42 to the north and I-264 to the west) to shopping centers and subdivisions. Historic resources in the vicinity include several houses and other remnants of early nineteenth century farmsteads, now engulfed by mid-twentieth century residential, commercial, and ecclesiastical development.

In February 2012, the Brownsboro Road site, consisting of 13.6 hectares (34.2 acres), was surveyed in its entirety by a pedestrian survey supplemented with screened shovel testing (Eberwine et al. 2012). The purpose of the survey was to identify and evaluate any archaeological resources that might be adversely affected by the proposed undertaking. Shovel tests were excavated every 20 meters in transects spaced 20 meters apart. A total of 369 shovel tests were excavated. One new archaeological site, 15Jf809, was documented during the survey.

Site 15Jf809 was at the location of a historic farm/residence and a prehistoric open habitation without mounds. It consisted of a low density scatter of early twentieth century historic artifacts and temporally undiagnostic prehistoric artifacts; however, one of the prehistoric artifacts was tentatively assigned to the Early Archaic Kirk Corner-Notched Cluster. The site was located where a previously documented but no longer extant historic structure (JF 486) once stood. The building was recorded as an early twentieth century residence. Shovel tests revealed prehistoric artifacts (one flake and one hafted biface) and historic materials (domestic refuse and architectural debris). The site was recommended as not eligible for listing on the NRHP because it was not considered to have the potential to provide important information about local or regional history or prehistory.

A historic resource survey in April 2014 documented above-ground resources 50 years of age or older located in or within 1,000 feet of the proposed VAMC campus (Martinolich 2014). Fifteen cultural historic sites were identified within this area: two previously surveyed sites (JF 487 and 394), eight previously unrecorded sites (JF 2761–2768), and five previously unrecorded neighborhoods (JF 028–032). One previously recorded site within the project area was found to be demolished (JF 486). The individually recorded sites were two nineteenth century residences, two mid-twentieth century churches, a Ranch house, and five mid-twentieth century commercial buildings. The neighborhoods are all mid-twentieth century subdivisions featuring a combination of Ranch and Neocolonial style residences.

For a property to be eligible for listing in the NRHP, it must be at least 50 years old and possess both historic significance and integrity. Significance may be found in three aspects of American history recognized by these NRHP criteria:

- A. association with historic events or activities,
- B. association with important persons, or

C. distinctive design or physical characteristics.

A fourth criterion, D, which is the potential to yield important information in prehistory or history, is typically not used for above-ground resources. A property must meet at least one of the criteria for listing. Integrity must also be evident through historic qualities, including location, design, setting, materials, workmanship, feeling, and association.

Sites JF 487 and JF 2761–2768, and neighborhoods JF 028–032 were concluded to be not eligible for listing in the NRHP under Criterion A, B, or C due to lack of significant associations or a lack of integrity resulting from unsympathetic alterations. JF 394, the George Herr House, was listed in the NRHP in 1976 as part of the Herr-Rudy Family Houses nomination. The house remains eligible for NRHP listing for its associations with settlement patterns and early settlers in the area, and as an excellent example of an early Federal style residence.

In addition to these 15 documented properties, the Metro Louisville Historic Preservation Officer identified four other NRHP or National Historic Landmark sites located in the vicinity of the project but beyond 1,000 feet from the proposed project. These sites are JF 527, the Zachary Taylor House; JF 528, the Zachary Taylor National Cemetery; JF 593, the Taylor-Oldham-Herr House; and JF 395, the Taylor-Herr House, each of which was considered in the final evaluation of effects of the project. Figure 8 shows the location of these resources in relation to the Brownsboro Road site.

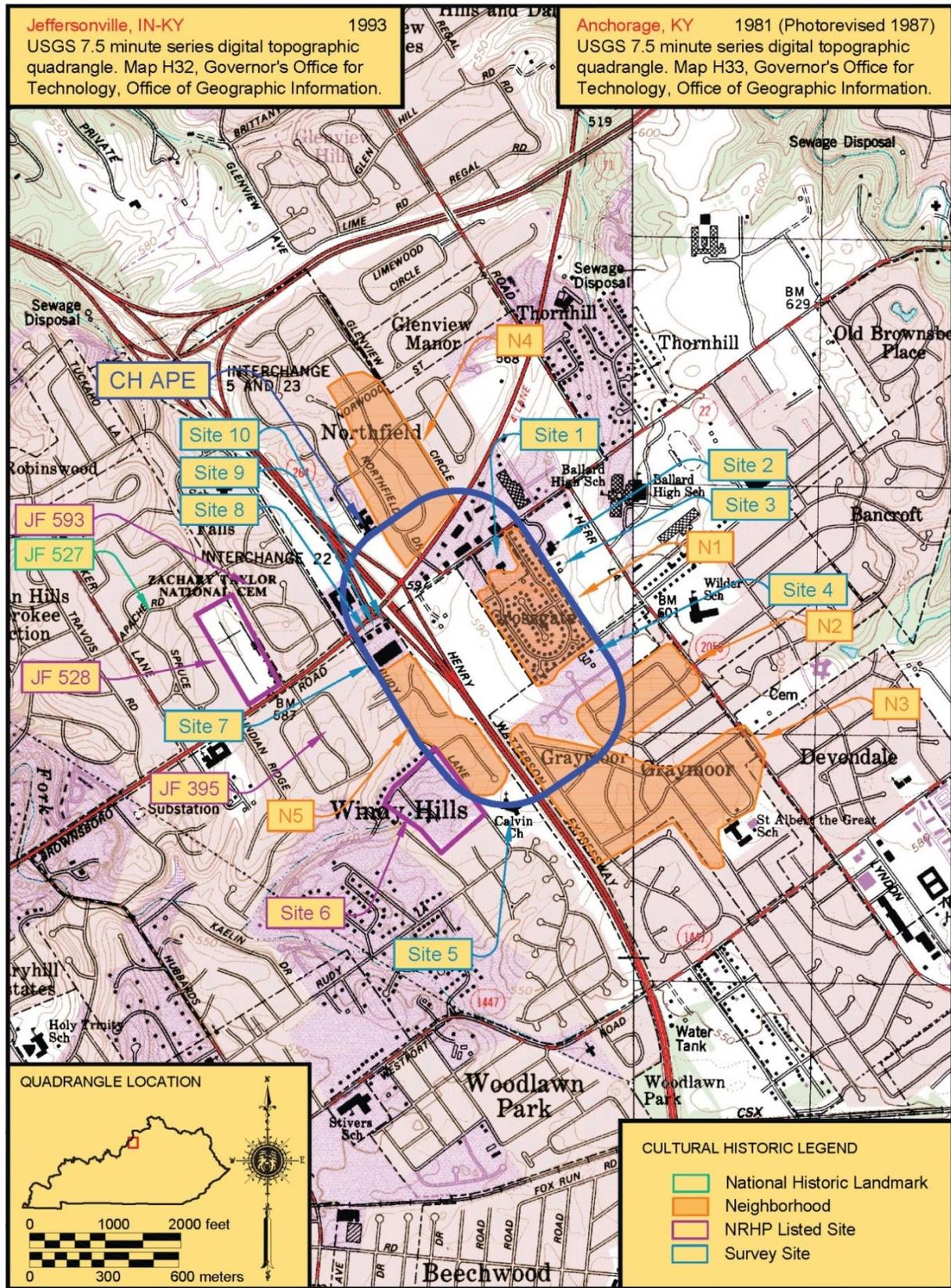


Figure 8. Historic Resources in the Vicinity of the Brownsboro Road Site.

3.3.2 Evaluation Criteria

This analysis applies the Criteria of Adverse Effect as described in the regulations for implementing the *National Historic Preservation Act* Section 106 process (36 CFR 800.5). The regulations define an undertaking (action) as having an adverse effect on historic properties if the undertaking would alter, directly or indirectly, any of the characteristics that qualify a property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Examples of adverse effects include but are not limited to (36 CFR 800.5):

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
- (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an
- (vii) Indian tribe or Native Hawaiian organization; and
- (viii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

The resources analyzed for potential effects are those within the area of potential effect (APE) that extends 1,000 feet from the proposed replacement VAMC site. The APE was defined in consultation with the Kentucky Heritage Council (State Historic Preservation Office) and the Louisville Metro Historic Preservation Officer. The APE was established in consideration of the scale, nature, and setting of the proposed project in order to account for direct effects resulting from construction activities and indirect effects, primarily visual in nature, resulting from the construction and operation of the proposed VAMC.

3.3.3 Environmental Consequences

3.3.3.1 Proposed Action

3.3.3.1.1 Construction

No historic properties were identified on the proposed project site. Therefore, the proposed construction of a replacement VAMC at the Brownsboro Road site would result in no direct effects to historic properties.

3.3.3.1.2 Operation

One historic property, the NRHP-listed George Herr House (JF 394) was identified within the APE. The house itself falls outside the APE, but the historic property boundary falls within 1,000 feet of the

proposed project site. Because the property is hemmed in by both trees and the Windy Hills subdivision, sightlines in all directions are interrupted by the house's surroundings. It is unlikely that the proposed VAMC would be visible from the property, and, given the distance between the property and the Brownsboro Road site, there is no potential for any other sort of indirect effects resulting from the project. Thus, there would be minimal, if any, noticeable effects from the proposed project on the historic residence.

Four significant historic sites located outside the APE were assessed for potential impacts from the project, at the request of Cynthia Johnson, Louisville Historic Preservation Officer. All four sites are listed on the NRHP, and one is also designated a National Historic Landmark. All were located west of the APE, and on the west side of the Watterson Expressway (I-264).

- JF 527, the Zachary Taylor House, is located on Apache Road and is approximately 0.68 miles west of the proposed VAMC location. It is a National Historic Landmark. The house is entirely surrounded by a subdivision, including many mature trees. Because of the surrounding residences and trees and the distance between the residence and the proposed project area, it is anticipated that the Proposed Action would have no effect on the Zachary Taylor House.
- JF 528, the Zachary Taylor National Cemetery, is located on Brownsboro Road, approximately 0.5 miles west of the Brownsboro Road site. The cemetery is surrounded on the west, north, and east by subdivisions, and more subdivisions and busy streets (including Brownsboro Road and the Watterson Expressway) are located between the cemetery and the proposed project site. Mature trees are scattered through the cemetery and surrounding neighborhoods. Because of the surrounding residences and trees and the distance between the cemetery and the proposed project site, it is anticipated that the Proposed Action would have no effect on the Zachary Taylor National Cemetery.
- JF 593, the Taylor-Oldham-Herr House, is located on Ballard Mill Lane, approximately 0.4 miles west-northwest of the proposed project location. The house is entirely surrounded by a subdivision, including many mature trees around the house and throughout the neighborhood. Because of the surrounding residences and trees and the distance between the residence and the proposed project site, it is anticipated that the Proposed Action would have no effect on the Taylor-Oldham-Herr House.
- JF 395, the Taylor-Herr House, is located on Waterford Road, approximately 0.38 miles west of the proposed project location. The house is entirely surrounded by the Wexford Hills subdivision, including many mature trees around the house and throughout the neighborhood. Because of the surrounding residences and trees and the distance between the residence and the proposed project site, it is anticipated that the Proposed Action have no effect on the Taylor-Herr House.

The proposed construction and operation of a replacement VAMC at the Brownsboro Road site would result in no adverse effects to historic properties.

3.3.3.2 No Action

The project site would not be used by the VA for a replacement medical center campus and no construction or operational impacts would occur. Because no historic properties are present, future development of the project site by VA or others would have similar impacts as the Proposed Action.

3.4 Geology and Soils

Geology and soils include the physical surface and subsurface features and landforms of the project site.

3.4.1 Existing Environment

The project site is generally level with an elevation of approximately 585 to 595 feet above mean sea level (AMEC 2014). The topography of the site gently slopes from the north and east to the south and west.

The project site is situated in the Outer Bluegrass Region physiographic Province (USGS 2014). Jefferson County, except for the Knob Hills region to the southwest, is almost entirely within the Outer Bluegrass Region. The Outer Bluegrass Region typically has low to moderate relief and soils that range from thick over limestones to thin over shales (USGS 2001). Bedrock beneath the project site is Devonian-aged Jeffersonville and Sellersburg limestone, with Louisville limestone mapped below the Jefferson limestone (AMEC 2014). Based on the results of geotechnical borings across the project site, the soil layer depth where bedrock was encountered was from 5.3 to 18.5 feet below ground surface, with typical depths of 8 to 12 feet (AMEC 2014). The top of rock elevation ranged from 574 to 584 feet, with an average elevation between 577 and 578 feet (AMEC 2014). Additional and deeper test bores would be drilled during the detailed design phase for the proposed project to map the subsurface geology and provide information for groundwater and geothermal well drilling (URS/SmithGroup 2014a).

The project site is underlain by Crider silt loam, Nicholson silt loam, and the Lawrence silt loam (NRCS 2013). The Crider silt loam is a deep well-drained soil of the limestone uplands; permeability is moderate and moisture capacity is high. Nicholson silt loam is moderately well-drained soil found on summits and ridges, and formed from thin fine silty loess over clayey residuum weathered from limestone. Water capacity is low to moderately low. Lawrence silt loam is somewhat poorly drained soil found on the limestone uplands. Permeability is moderate in the upper part and very slow in the lower part. The moisture capacity is moderately low.

The soils on the site are designated as prime farmland, which have the best combination of physical and chemical characteristics for producing agricultural crops with minimum inputs of fertilizer, pesticides, and little erosion, and are capable of producing high yields of various crops when managed properly.

The site lies within an area of moderate karst potential (Greenbaum Associates 2011), indicating that the limestone units may contain a high percentage of soluble minerals. Traditional soil borings, refraction microtremor testing, and a visual reconnaissance of the project site in 2013 indicated minor karst features in isolated locations (URS/SmithGroup 2014b). A few small diameter depressions located within the drainage swale in the northern portion of the site appeared to be surface indications of underlying karstic activity in the underlying rock formations (AMEC 2014). Karstic features include fractures within the rock that can create areas for soil to migrate from above the rock into the fractures causing sinkholes and/or collapse of the above soils and surface.

3.4.2 Evaluation Criteria

The Louisville Metro Government Land Development Code (Chapter 4, Part 9) guides development on land within a karst-prone area, including geologic assessments conducted by a geologist or engineer licensed in Kentucky. For purposes of this evaluation, an impact would be significant if the results of the geological assessment found the project site unsuitable for construction, or if construction activities could disrupt karst features so as to cause property damage or safety concerns.

The *Farmland Protection Policy Act* (7 U.S.C. 4201 *et seq.*) requires the VA, as the lead federal agency, to ensure its actions would not unnecessarily convert farmland designated as prime, unique, or of statewide importance to nonagricultural uses. For purposes of this evaluation, an impact would be considered significant if the irreversible conversion of prime farmland is not compatible with local farmland protection policies.

3.4.3 Environmental Consequences

3.4.3.1 Proposed Action

3.4.3.1.1 Construction

Construction activities would disturb the surface layer of soils throughout the project site. Disturbed and exposed soils are prone to erosion by wind and stormwater. Preliminary grading plans indicate the topography (elevation) of the site would be raised by approximately 10 to 12 feet to a finished floor elevation of 600 feet for the east bar buildings and north parking deck, and would be excavated approximately 6 feet for a basement elevation of 582 feet for the west bar buildings and 588 feet for the south parking deck. In addition to onsite cut materials, approximately 256,000 loose cubic yards of fill material would be imported to raise the site elevation for construction (URS/SmithGroup 2014b). Bedrock would be encountered in some areas during excavation for utilities, for basement floor elevations, and foundations. Figure 9 is a schematic of the subsurface soil and bedrock conditions of the project site showing the proposed building elevations.

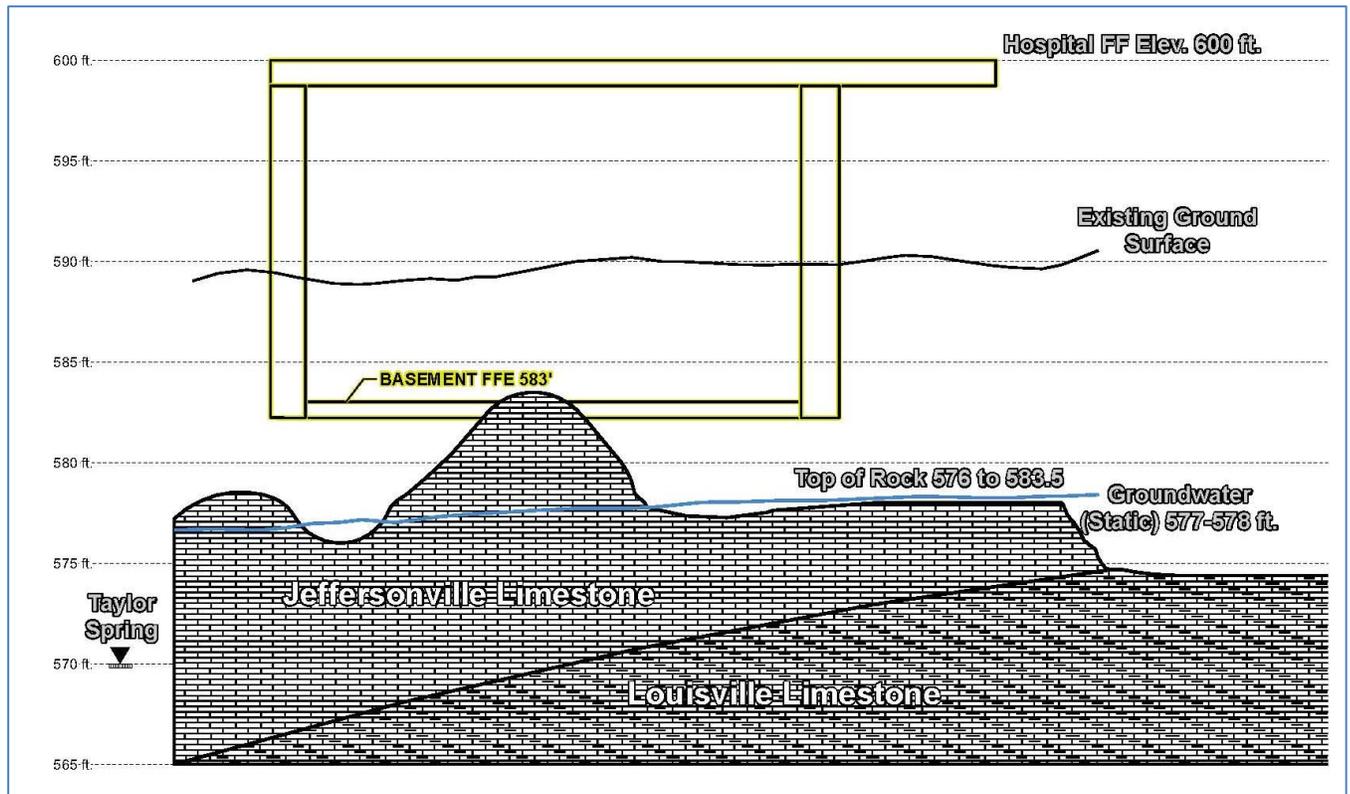


Figure 9. Schematic of Subsurface Soil and Bedrock Conditions.

The building foundation systems are anticipated to consist of deep foundations – drilled piers socketed into the relatively shallow bedrock. This system would provide the best combination of lateral and vertical strength and stiffness to support the buildings given the soil and rock profile at the site. It is the opinion of the geotechnical engineer that the karst features found on the project site are minor and shallow enough that drilled piers can easily be extended through these features (URS/SmithGroup 2014b). Sinkholes could be exposed during grading and excavation activities, and would be evaluated and treated on an individual basis if exposed. During construction, a geotechnical engineer would be present to observe the excavation and rock removal to determine treatment methods to minimize the potential for karstic activity (URS/SmithGroup 2014b). Treatment methods (mitigation) would be based on the size of the karst or sinkhole opening, but would likely include concrete plugs or various sizes of rock rip-rap and aggregate overlain by compacted clay backfill. Contractor selection and well drilling procedures for the geothermal system for the VBA building would follow the requirements and best practices detailed in VA's *Master Construction Specification, Division 23 81 49, Ground-Source Heat Pumps*. This specification requires (1) the contractor is accredited by the International Ground Source Heat Pump Association (IGSHPA) or an equivalent nationally recognized association; (2) loops are constructed in accordance with specific IGSHPA configurations; and (3) specific borehole construction and grouting practices are utilized to protect hydrogeological resources.

There is a low risk of soil dropouts developing over previously undetected sinkholes in areas of karst activity similar to the project site based on experience in this part of Jefferson County (AMEC 2014). Site development planning in karst areas must weigh the cost of site development and risk reduction measures with the risk of future sinkhole activity. Development of other similar sites in Jefferson County with both deep and shallow foundation support has been successfully performed in the past. The risk from development of this site does not appear to be any greater than development in other similar areas of Jefferson County (AMEC 2014); thus, the presence of karst features would not be associated with an adverse effect due to the Proposed Action.

Bedrock in confined areas (utility trenches and foundation footings) would be removed using ripping tools and pneumatic hammers; however, blasting would also likely be required to efficiently remove resistant bedrock and large boulders. Vibration standards and damage criteria from blasting are based on years of research and legal proceedings – ground vibration or peak particle velocity (PPV) limited to 0.5 inches per second would avoid offsite damage (ODOT 2014). This PPV would feel like a loaded truck or bus going by 50 to 100 feet away. Two primary factors affecting ground vibration levels are weight of the explosive fired and distance from blast to point of concern, such as a house. To maintain the PPV standard and avoid damage, fewer explosives would be used as a blast hole gets closer to a point of concern. Adherence to this standard and the requirements of the Kentucky Revised Statute 350.430 for blasting operations would minimize impacts and avoid damage to nearby buildings and houses.

Construction of the new VAMC campus would irreversibly convert soils designated as prime farmland for building foundations and impervious surfaces. The Farmland Conversion Impact Rating form completed jointly by the VA and the Natural Resources Conservation Service indicates a 100-point relative value of the soils as productive farmland (NRCS 2014). Since the total points for the land evaluation and site assessment are less than 160, no alternatives to farmland conversion need be considered and this impact is not considered significant.

Placement of both geothermal and groundwater wells would be based on information from test wells during the detailed design phase and ensure negligible impacts from construction in potentially karstic geology.

3.4.3.1.2 Operation

Operation of the replacement Robley Rex VAMC would have no impacts to geology and soils.

3.4.3.2 No Action

The project site would not be used by the VA for a new medical center campus and no construction or operational impacts to the soils or geology of the site would occur. Future development of the project site by VA or others would have similar impacts to the soils and geology as the Proposed Action.

3.5 Hydrology and Water Quality

Hydrology addresses surface and stormwater drainage patterns, whereas water quality addresses the control of stormwater runoff to protect the quality of receiving waters, and the presence and quality of groundwater.

3.5.1 Existing Environment

The project site is in the upper reach of the Muddy Fork of the Beargrass Creek watershed, which is an urbanized watershed that covers approximately nine square miles of metropolitan Louisville. A relatively high percentage of this watershed is impervious because of intense development (MSD 2014a). A number of poorly performing septic tanks and considerable usage of lawn chemicals contribute to impaired water quality within the urban streams, and overall impacts to the watershed area are considered moderate to severe (MSD 2014a).

There are no intermittent or perennial flowing surface waters on the project site. Surface drainage (based on topographic elevations) on the north half of the site is generally toward the center of this half of the property, where stormwater ponds or collects before infiltrating or evaporating. The south half of the site drains generally toward the southwest corner, where stormwater exits the property to a drainage ditch within the Watterson Expressway right-of-way.

Stormwater from the office building parking lot located east of the project site drains to a narrow concrete ditch that runs along the edge of the parking lot and then disperses on to the project site. Stormwater from the adjacent properties along the east border generally drains west towards the project site.

Shallow groundwater was encountered in only 2 of the 96 soil test borings drilled at the project site (AMEC 2014). The groundwater was between 11 and 13 feet below ground surface at an elevation of approximately 577 feet above mean sea level, which was about one foot above the bedrock in these borings. Published data indicate groundwater conditions in the area are related to either perched water or water confined within karst features in the upper portions of the underling rock units. Two perennial springs (Taylor and Winding Hills) are located approximately one-third mile west of the project site. The springs exit the ground surface at approximate elevations of 570 and 546 feet (AMEC 2014). In Jefferson County, groundwater is hard to very hard and may contain salt or hydrogen sulfide (KGS 2014a). There are no groundwater wells within four miles of the project site (KGS 2014b).

3.5.2 Evaluation Criteria

Section 438 of the *Energy Independence and Security Act of 2007* requires federal agencies to reduce stormwater runoff from federal development projects to protect water resources. Facilities with footprints

exceeding 5,000 square feet must be designed in a manner that maintains or restores the predevelopment site hydrology to the maximum extent technically feasible. Development on the project site is also subject to the stormwater discharge regulations enforced by the MSD to maintain compliance with the Kentucky Division of Water MS4 stormwater quality permit. These regulations were effective August 1, 2013, and address the core requirement of the MS4 permit to use onsite “green infrastructure” or “green management practices” to control and treat stormwater runoff. For purposes of this evaluation, an impact would be considered significant if the VAMC campus cannot be designed so that stormwater retention onsite meets specific storm or rain events.

Control of stormwater from the project site during construction is subject to the Construction General Permit for Stormwater Discharge enforced by the Kentucky Division of Water, and the Erosion Prevention and Sediment Control ordinance enforced by the MSD. For purposes of this evaluation, an impact would be considered significant if construction activities cannot control erosion and stormwater runoff from the project site.

Drilling groundwater supply wells and geothermal wells would require preparing and adhering to the requirements of groundwater protection plans (GPPs) for closed loop geothermal boreholes and for water well drillers. For purposes of this evaluation, an impact would be considered significant if the GPP is not adhered to during drilling.

Withdrawal of groundwater without a permit would be considered significant if the withdrawal volume or rate exceeds the threshold requiring a permit or if withdrawal occurs on a non-emergency or ongoing basis.

The key environmental concerns associated with vertical closed loop geothermal heat pump systems are groundwater contamination caused by antifreeze leaks that could migrate to groundwater or improperly constructed boreholes that could potentially serve as channels of contamination from the surface to the subsurface or from one aquifer to another (EPA 1997). The proposed geothermal system for the VBA building would be considered to have a significant impact on groundwater if either of these circumstances occurred.

3.5.3 Environmental Consequences

3.5.3.1 Proposed Action

3.5.3.1.1 Construction

Construction activities would expose the ground surface to erosion from stormwater runoff. If not controlled, runoff from the project site could have an adverse impact on water quality within the watershed by allowing sediment and other pollutants from construction activities to enter the stormwater drainage system and urban streams. Because the amount of ground surface that would be disturbed is greater than one acre, the construction contractor would be required to file a Notice of Intent application with the Kentucky Division of Water for the Construction General Permit for stormwater runoff from the project site, and prepare a Stormwater Pollutant Prevention Plan outlining measures to be used during construction to minimize runoff from the site. In addition, the construction contractor would be required to apply for a site disturbance permit from the MSD and prepare an Erosion Prevention and Sediment Control Plan that details measures to trap 80 percent of the total suspended solids that could come from the project site during construction. Any potential impacts to water quality from stormwater runoff from the construction site would be localized and negligible with implementation of the required control plans.

Blasting would likely be required to remove bedrock for construction of foundations and other below grade structures. Studies have shown that extensive fracturing in the rock around a blast hole that could affect groundwater is generally limited to a distance of 20 to 40 blast hole diameters (ODOT 2014). Thus, for the typical 3½ inch drill hole, the zone of damage would generally be 6 to 12 feet. Studies have also concluded that there are little to no significant long-term mechanical changes in an aquifer that could be attributed to blasts detonated at distances greater than 500 feet from an observation well (ODOT 2014). Because there are no groundwater wells in close proximity to the project site, blasting would not be expected to impact groundwater.

Before drilling the groundwater supply wells and the geothermal wells, GPPs would be prepared in accordance with Kentucky Administrative Regulation (Title 40, Chapter 5:037). A GPP establishes the minimum acceptable groundwater protection practices for construction of wells. Kentucky Division of Water has generic GPPs for public use, which would be modified with site-specific information for the proposed groundwater supply and geothermal wells at the new campus (URS 2014b). A state-certified water supply well driller would construct the groundwater supply wells and the geothermal wells; the well driller(s) would provide project-specific details in the GPPs, identifying the construction practices that would be implemented to protect groundwater for this specific project, such as full-depth grouting for each borehole to prevent shallow, often lower-quality groundwater from reaching deeper groundwater. The Kentucky Division of Water recommends that the GPPs be retained in the drill rig(s) or contractor vehicle(s) that would be present onsite during the drilling. The rock and soil material removed during well construction would be temporarily stored onsite, and may be either used as clean fill or disposed offsite in accordance with local regulations, depending on the need for fill on the project site the nature and properties of the removed material. The Erosion Prevention and Sediment Control plan required for statewide construction would include provisions that would minimize or eliminate erosion sediment in runoff from drilling areas and from temporary onsite soil/rock storage locations.

The threshold for requiring a permit for groundwater withdrawal is 10,000 gallons per day under non-emergency situations. The Kentucky Division of Water would not require a groundwater withdrawal permit during the aquifer pumping pilot tests to determine groundwater well capacity, even though in all likelihood the withdrawal rate during this phase would greatly exceed 10,000 gallons per day (URS 2014a). Purge water generated during the well testing pilot phase would be discharged to the storm sewer; a temporary discharge permit under the National Pollutant Discharge Elimination System regulations would not be required (URS 2014b).

3.5.3.1.2 Operation

The design of the VAMC campus would result in approximately 65 percent impervious surfaces on the project site that would impact the amount and rate of stormwater discharge from the site. Stormwater would be managed to meet predevelopment discharge rates for the 2-, 10-, and 100-year storm events in accordance with the MSD Design Manual (MSD 2014b), and should therefore have minimal adverse effects on the hydrology of the project site and adjacent properties, surface water quality, and the rate of groundwater recharge.

Stormwater management would include a combination of three surface and four subsurface detention basins. The surface basins would be of the “green dry” type (see Figure 10), with wet meadow vegetation over highly permeable topsoil that is underlain by drain aggregate and perforated pipe. The 2- and 10-year storm events would infiltrate through the permeable topsoil and aggregate into the perforated pipe. This design allows for extended detention (length of time that stormwater would pond or remain in the basin) of about 48 hours (MSD 2014b). The surface basins would not likely be a breeding source for mosquitoes because it takes approximately 7 to 10 days for larvae to enter the pupal stage. If a water source

evaporates before the larvae and pupae within it transform into adult mosquitoes, those young often will die (Orkin 2014).

An outlet control structure would collect drainage from the perforated pipes and control the discharge rate and flow from the detention basins into the surface drainage ditch in the Watterson Parkway right-of-way along the western edge of the project site. Two of the green dry detention basins would be designed for the north end of the project site with the third basin located on the southwest corner of the site (refer to Figure 3).



Source: MSD 2014b.

Figure 10. Example of a Green Dry Basin.

The subsurface detention basins would be located along the west side and in the southeast corner of the project site. These would be concrete tanks or structures installed below grade to collect runoff primarily from roads, building roof drains, and parking areas. A bioswale would be constructed along the east edge of the project site to collect drainage from adjacent properties and runoff from the exit road. A bioswale is a shallow vegetated ditch with highly permeable topsoil underlain by drain aggregate and perforated pipe. The bioswale would be sloped to direct the drainage to the subsurface detention structure in the southeast corner of the project site. The stormwater would be pumped or gravity-drained from the structures and conveyed through storm sewer pipes to discharge to the surface drainage ditch in the Watterson Parkway right-of-way. Discharge from the subsurface structures would be controlled to emulate the predevelopment rate and volume of the particular storm event, so as not to affect hydrology, surface water quality, and the rate of groundwater recharge.

Groundwater-bearing strata would likely be exposed in excavations, which could produce widely varying seepage durations and rates, depending on recent rainfall activity and other hydrogeologic characteristics. These perched groundwater sources are often not linked to the more continuous relatively stable groundwater table that typically occurs at greater depths (AMEC 2014), so the Proposed Action would not adversely affect groundwater quality. However, the VAMC and VBA building foundations would likely require dewatering of the perched groundwater and saturated soil conditions during and after construction. A temporary pump system would be used to dewater the foundation shafts before pouring concrete. A passive subsoil drainage system of perforated drainage tile on aggregate and sump pumps would be installed to remove seepage from around the installed foundation piers and other below-grade structures such as elevator pits. Groundwater that collects in the sump would be conveyed to the storm sewer system pipes and discharged to the surface drainage ditch in the Watterson Parkway right-of-way. The discharge of groundwater to surface water would be permitted in accordance with the Kentucky Pollutant Discharge Elimination System and would be monitored to ensure water quality standards are maintained to prevent adverse impacts from occurring.

All potable water needs would be supplied by the LWC, which has indicated there is sufficient system capacity to support the replacement VAMC campus.

Withdrawal of groundwater from the proposed supply wells would occur only during a situation in which the municipal water supply is unavailable. In general, groundwater wells do not require permitting for water withdrawals less than 10,000 gallons per day; however, based on estimated cooling water needs, in an emergency situation a withdrawal rate of 132,500 gallons per day could be required. This temporary withdrawal would be authorized by the Kentucky Division of Water through approval of an Application for Emergency Authorization to Withdraw Water (URS 2014a).

VA's *Master Construction Specification, Division 23 81 49, Ground-Source Heat Pumps* specifies strict requirements related to the chemical and physical properties and limits on the toxicity of the heat transfer fluid used in closed loop geothermal systems at VA facilities. The specification also requires installation of an Underwriter Laboratories-listed leak detection system with a sensor probe, control panel, and LED indicators. Adherence to these requirements would ensure no significant impact to groundwater due to operation of the geothermal well system.

3.5.3.2 No Action

The project site would not be used by the VA for a new medical center campus and no construction or operational impacts to hydrology and water quality would occur. The surface drainage patterns and stormwater runoff rates and volumes would remain unchanged. Future development of the project site by VA or others would have similar impacts as the Proposed Action.

There would be no changes in stormwater management and no impacts to hydrology or water quality as a result of the continuing operation of the Zorn Avenue location of the existing Robley Rex VAMC under the No Action Alternative.

3.6 Wildlife and Habitat

The term “wildlife” collectively refers to terrestrial and aquatic species, including mammals, birds, reptiles, amphibians, and fish, and “habitat” is the ecological and physical factors, including vegetation that sustain wildlife species. Wildlife and habitat are interchangeably discussed as biological resources.

Certain wildlife and habitats are provided special protections under the *Endangered Species Act* (16 U.S.C. 1531 *et seq.*) because of declining populations, loss of habitat, and inadequate conservation. A species is listed as “endangered” or “threatened,” with endangered being a more imperiled status; however, both are provided the same level of protection under the law. The *Migratory Bird Treaty Act* (16 U.S.C. 703 *et seq.*) provides most birds with some level of protection from harm.

3.6.1 Existing Environment

The project site is a remnant cultivated field now covered predominantly by various grasses, clovers, and alfalfa, with a few large deciduous trees. The vegetation is maintained by periodic mowing. This type of habitat surrounded by development can typically support wildlife common in urban settings, such as rodents, rabbits, and various songbirds. No aquatic habitat or species are present on the project site.

The U.S. Fish and Wildlife Service (FWS) stated during the PEA process that wildlife and plant species that are either federally listed as threatened or endangered, or are a candidate for listing, have the potential to occur in the area. These species included the Indiana bat (*Myotis sodalis*), running buffalo clover (*Trifolium stoloniferum*), and Kentucky glade cress (*Leavenworthia exigua* var. *lacinata*) (FWS 2011a). The FWS has since changed the status of the glade cress as a candidate species, which has no statutory protection under the *Endangered Species Act*, to threatened, which receives full protection under the law (FWS 2014).

Although the project site is within the home range of a known Indiana bat maternity colony, the remaining trees on the site are not suitable roost trees for the bat (FWS 2011b).

Running buffalo clover is found in partially shaded woodlots, mowed areas (parks, lawns, cemeteries), and along streams and trails; it does not tolerate full-sun or severe disturbance. The project site has been severely disturbed by agricultural practices and is exposed to full sun. The clover is not known to occur in the vicinity of the project site (FWS 2011a, 2011b).

Critical habitat for the glade cress is designated in specific areas south of I-265 and east of I-65 in Jefferson County (FWS 2014). The project site is not included in or near any designated critical habitat.

3.6.2 Evaluation Criteria

Section 7 of the *Endangered Species Act* requires consultation with the FWS to ensure that a federal action is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. For purposes of this evaluation, an impact would be significant if the viability of protected species or habitat is altered, migratory birds are harmed, or abundance or distribution of common wildlife and habitat are substantially changed.

3.6.3 Environmental Consequences

3.6.3.1 Proposed Action

3.6.3.1.1 Construction

Construction activities would displace common wildlife that inhabit or use the project site for nesting, foraging, or cover and potentially cause direct mortality of less mobile subterranean species, such as moles. The typical terrestrial wildlife species that could be impacted are widely distributed; thus, loss of some individuals and habitat would not measurably impact population abundance or distribution throughout their range.

Surface disturbance and construction activities could facilitate the establishment of non-native noxious weeds, such as thistles and foxtail. Aggressive noxious weed species could become established on disturbed, bare ground surfaces.

If clearing the project site to begin construction is scheduled to occur during bird breeding season (generally April through July), any migratory bird found nesting on the project site could be impacted.

The FWS has stated that development on the project site would not likely adversely affect the Indiana bat (FWS 2011b). The project site does not have habitat to support the running buffalo clover or Kentucky glade cress (FWS 2011a, 2011b, 2014), and therefore, the Proposed Action would have no effect on these listed plant species or critical habitat. Concurrence with this conclusion has been requested from the FWS; relevant correspondence will be included in Appendix A of the Final EA.

3.6.3.1.2 Operation

No impacts to wildlife and habitat specific to the operation of the replacement Louisville VAMC are expected.

3.6.3.2 No Action

The project site would not be used by the VA for a new medical center campus and no construction or operational impacts would occur. Because no protected wildlife and habitat are present, future development of the project site by VA or others would have similar impacts as the Proposed Action.

There would be no impact to wildlife or habitat as a result of continuing operation of the Zorn Avenue location of the existing Robley Rex VAMC under the No Action Alternative.

3.7 Noise

Noise is defined as unwanted sound that interferes with normal activities or in some way reduces the quality of the environment. Response to noise varies according to its type, its perceived importance, its appropriateness in the setting and time of day, and the sensitivity of the individual receptor. Noise-sensitive receptors are locations where a state of quietness is a basis for use or where excessive noise interferes with the normal use of a particular location. Noise sensitive receptors include schools, hospitals, churches, libraries, houses, cemeteries, and parks.

A decibel (dB) is the physical unit commonly used to describe sound pressure levels. Sound measurement is further refined by using an “A-weighted” decibel (dBA) scale that more closely describes how a person perceives sound. Figure 11 shows typical sound levels from common outdoor and indoor noise sources.

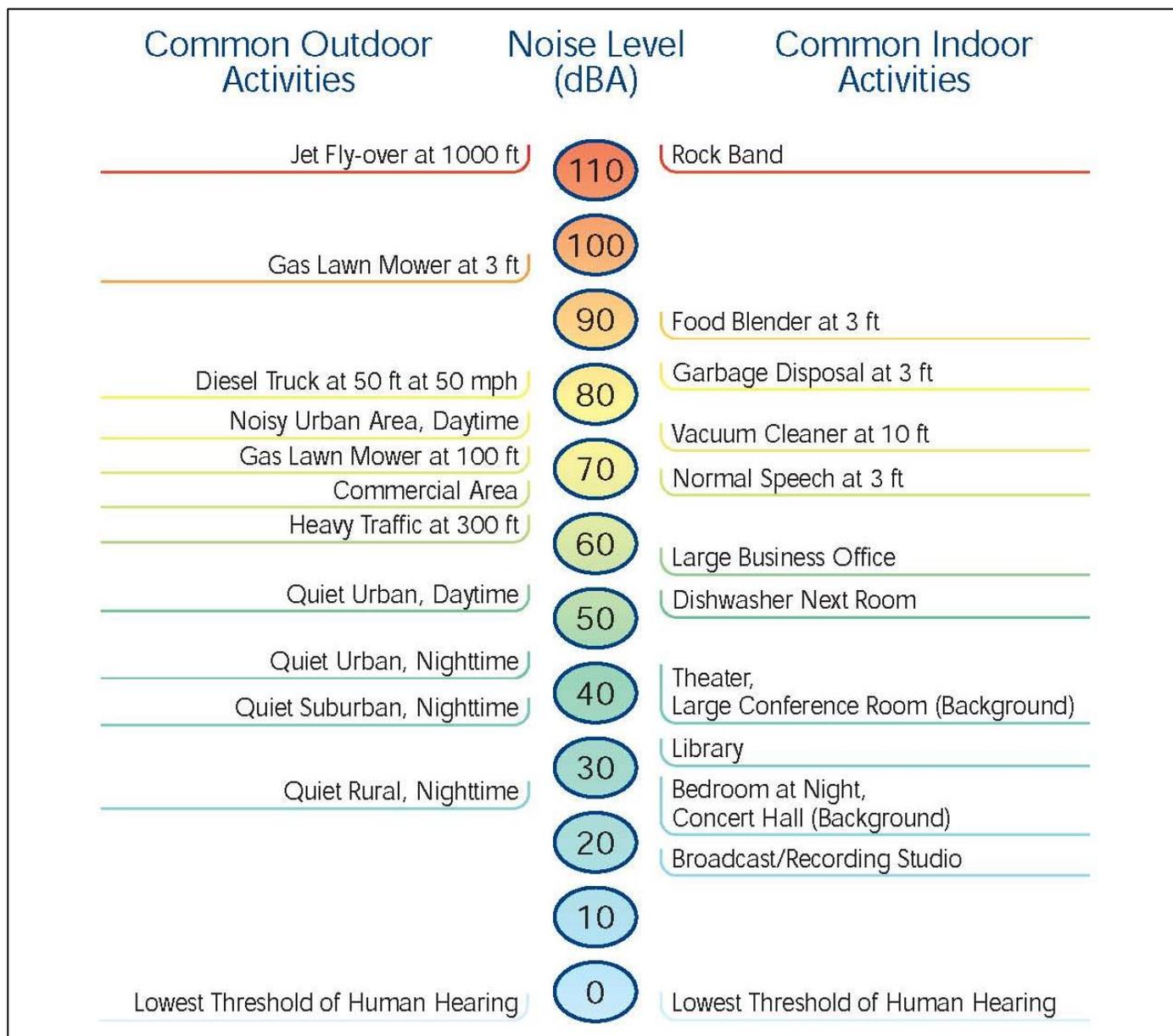


Figure 11. Sound Levels of Noise Sources

3.7.1 Existing Environment

The project site is located in a suburban residential area with houses on the east and south, an urban interstate highway on the west, and a commercial and retail business district on the north. The primary source of ambient (background) noise is vehicle traffic on Watterson Expressway and Brownsboro Road. Sources of intermittent noise include landscaping equipment, delivery trucks, and garbage trucks and noise caused by weather events (wind, thunderstorms). Daytime ambient noise levels at the vacant project site would likely range between 60 and 75 dBA based on the time of day and the typical outdoor activities that occur in the vicinity. Daytime ambient noise levels in the residential areas east and south of the project site would likely range between 50 and 65 dBA.

Noise-sensitive receptors include the residences of Crossgate, Crossmoor, and Graymoor subdivisions that border the project site to the east and south. Nearby schools include Ballard High, Kammerer Middle, and Willard Elementary located from approximately 3,000 feet to over 4,000 feet east of the project site, and Dunn Elementary located over 4,000 feet to the north of the project site and west of Watterson Expressway. The Zachary Taylor Cemetery is over 3,000 feet to the west of the site.

3.7.2 Evaluation Criteria

An evaluation of noise focuses on potential changes to ambient or background noise conditions during construction and operation of the VAMC campus and whether it is compatible with the existing noise environment. The evaluation addresses the three principal types of noise sources – mobile, stationary, and construction. Construction noise also includes mobile (heavy equipment) and stationary (compressors, generators) sources, in addition to impact (pile drivers, jackhammers, blasting) sources. Construction noise is temporary, regardless of the construction duration.

The Louisville-Jefferson County Metro Government has not established noise standards for land uses, construction, or blasting in the Land Development Code. Construction noise between 7:00 a.m. and 9:00 p.m. is exempt from the Metro Government's noise ordinance (LMG 2014), and Kentucky Revised Statutes are followed for notification criteria for blasting (explosives) (KRS 2014). For the purposes of this evaluation, an impact would be considered significant if typical noise thresholds are exceeded at sensitive receptor locations during construction or blasting.

3.7.3 Environmental Consequences

3.7.3.1 Proposed Action

3.7.3.1.1 Construction

Construction of the VAMC campus would cause increases to the ambient noise environment. Construction would be phased based on general industry practices. The first phase would be rough grading, site preparation, rock removal, and geothermal and water supply well installation. The mass removal of rock would be needed in most areas to install utilities, provide subgrade, and construct foundations. The central utility plant would be the first structure built, followed by the main hospital and the laundry facility. The VBA, parking garages, and site improvements (landscaping, perimeter security fence) would be part of the second phase of construction. Total construction time for both phases would be approximately 6.5 years.

Noise associated with different construction phases can vary greatly as each phase has a specific equipment mix depending on the work to be accomplished. Noise levels depend on type and model of equipment, the operation being performed, condition of the equipment, and length of time the equipment is operated. Average noise levels at 50 feet from typical construction equipment are listed in Table 4.

Table 4. Construction Equipment Noise Levels

Equipment	dBA*	Equipment	dBA*
Auger drill rig	85	Gradall (forklift)	85
Backhoe	80	Grader	85
Bar bender	80	Horizontal boring hydraulic jack	80
Blasting	94	Hydra break ram	90
Boring jack power unit	80	Impact pile driver	95
Chain saw	85	In situ soil sampling rig	84
Clam shovel	93	Jackhammer	85
Compactor	80	Mounted impact hammer	90
Compressor (air)	80	Paver	85
Concrete batch plant	83	Pickup truck	55
Concrete mixer truck	85	Pneumatic tools	85
Concrete pump	82	Pumps	77
Concrete saw	90	Rock drill	85
Crane (mobile or stationary)	85	Scraper	85
Dozer	85	Slurry plant	78
Dump truck	84	Slurry trenching machine	82
Excavator	85	Soil mix drill rig	80
Flatbed truck	84	Tractor	84
Frontend loader	80	Vacuum street sweeper	80
Generator (<25 KVA)	70	Vibratory concrete mixer	80
Generator (>25 KVA)	82	Welder	73

* Average level at 50 feet.
 Source: USDOT 2006.

Mobile and stationary construction equipment noise can be averaged over a period of time. Noise levels from construction sites measured approximately 90 dBA at a distance of 50 feet from the center of the site (CERL 1978). Sites in flat-lying areas with minimal vegetation experience noise attenuation at a rate of 6 dBA for each doubling of distance (100, 200, 400, 800 feet) between the noise source and the receptor, and a further reduction of 5 to 10 dBA if there is dense vegetation or a break in the line of sight between source and receptor (CERL 1978). A receptor located between 400 and 800 feet from the center of a construction site could hear intermittent construction noise levels between 72 and 66 dBA (with no attenuation), which are comparable levels to heavy traffic at 300 feet, a commercial business area, or a lawn mower at 100 feet. The intermittent increase in noise would likely be an annoyance but would not exceed typical noise thresholds; thus, impacts would not be significant. This distance would encompass receptors (houses) located within approximately 350 to 450 feet from the east boundary of the project site, and 200 to 300 feet from the south boundary. Receptors immediately adjacent to the site boundaries would experience the most increase in noise; however, existing trees at the site boundaries could attenuate noise levels by 5 to 10 dBA at some of these receptors. Receptors farther away from the site boundaries (but within the 800 feet distance from the center of construction) would be shielded by other receptors closer to the site, and would therefore likely experience a much lower or no increase in noise levels. The schools and cemetery are at too great of a distance from the project site to be affected by construction noise.

Although construction noise from heavy equipment and stationary equipment can be averaged over a period of time, impact pile driving and blasting noise consist of a series of peak noise events. A blasting event would produce a short noise like a thunderclap (120 dBA) that could be audible at greater distances. The amount of noise generated by the blast depends primarily on the amount of explosives used, but is typically around 94 dBA and could be as high as 126 dBA at 50 feet from the blast. Blasting is expected to be needed for rock removal; therefore, the requirements of Kentucky Revised Statute 350.430 pertaining to explosives would be followed (see Chapter 5 Mitigation for noise mitigation measures). Blasting activities may occur periodically over a six- to nine-month period causing an adverse noise impact to nearby receptors. However, the noise (blast) event would be brief and be comparable to loud thunder. The intermittent increase in noise would likely be an annoyance but would not exceed typical noise thresholds; thus, impacts would not be significant. Receptors would be notified in advance of the blasting schedule (in accordance with the statute) to minimize the startle effect of the blast noise, and to offer possible precautions, such as staying indoors, that receptors could take to minimize temporary adverse noise impacts.

The daily commute of construction workers and deliveries of construction materials to the project site would add to traffic noise in the area. The size of the workforce would vary throughout the construction schedule based on the types of construction activities; upwards of 1,500 workers could be commuting to the project site on a given day. Temporary increases in traffic noise would vary in location based on the travel routes of construction workers and delivery vehicles. It is likely that most construction-related vehicles would access the project site from Watterson Expressway thereby limiting most traffic noise increases to the commercial business area at the Brownsboro Road/US 42 interchange. The increase in traffic from construction-related vehicles would not likely increase ambient noise levels by more than 3 dBA, which would not be perceptible to the human ear and therefore would not exceed typical noise thresholds.

Although construction noise would be adverse to affected receptors, it is considered temporary and would occur only during daylight hours as required by the Metro Government's noise ordinance. Other BMPs and measures to minimize the temporary adverse effects of construction noise are detailed in Chapter 5 Mitigation.

3.7.3.1.2 Operation

The operation of the VAMC campus would increase the number of mobile noise sources (passenger and delivery vehicles) in the area. The KYTC calculated average daily traffic (ADT) and design hourly volumes (a percentage of ADT) on a segment of Brownsboro Road between the intersection with Northfield Drive (traffic signal at slip ramp from Watterson Expressway) and the intersection with Herr Lane/Lime Kiln Lane. This segment, which passes along the north boundary of the project site, is part of Kentucky Route 22 (KY 22), is referred to locally as Old Brownsboro Road, and has a posted speed limit of 35 miles per hour. The KYTC traffic calculations covered existing conditions (2013) and future conditions (2020), which included a fully operational VAMC campus. The ADT on this segment is expected to increase from 21,400 to 22,000 vehicles with a design hourly volume increase from 2,030 to 2,090 vehicles (KYTC 2013).

Traffic noise varies based on number, type, and speed of vehicles and condition of the roadway. The typical noise level at 50 feet from a roadway with 2,000 vehicles per hour traveling at 35 miles per hour is 69 to 70 dBA, and for 3,000 vehicles the noise level is 71 to 72 dBA (USDOT 1995). Studies have shown that the smallest change in sound level perceptible to the human ear is 3 dBA, while increases of 5 dBA or more are clearly noticeable. Thus, any increase in noise from additional traffic on the segment of Brownsboro Road adjacent to the project site would not likely be noticeable.

Traffic circulation for passenger and delivery vehicles on the VAMC campus is designed to minimize noise near the residential areas to the east and south of the project site. Delivery trucks, which are the louder vehicle noise sources, would likely access the campus from Watterson Expressway and be routed to the west side of the campus. Passenger vehicles and TARC and other shuttle buses would be routed along the east side (refer to Figure 12 Traffic Circulation). The solid perimeter security fence and landscaping adjacent to the residential areas would attenuate traffic noise and therefore would not adversely affect receptors.

Stationary sources of noise would primarily be the equipment associated with the central utility plant and laundry facility. These buildings would be located along the west side of the project site closest to Watterson Expressway. Any equipment not inside the buildings would be shielded from residential areas by other buildings or by landscaping that would attenuate the noise and thus would not adversely affect receptors.

3.7.3.2 No Action

The project site would not be used by the VA for a new medical center campus and no construction or operational noise impacts would occur. However, future development of the project site by VA or others could have similar impacts on the ambient noise environment of the area as the Proposed Action.

Noise levels associated with operation of the Zorn Avenue location of the existing Robley Rex VAMC would continue unchanged under the No Action Alternative.

3.8 Land Use

Land use is described by land activities, ownership, and the governing entities' management plans. Local zoning defines land use types and regulates development patterns.

3.8.1 Existing Environment

The project site is vacant and undeveloped, as observed and as indicated by the existing land use map in the Cornerstone 2020 Louisville and Jefferson County Comprehensive Plan (Comprehensive Plan) (LMG 2000). Previous land use was a farmstead and agricultural fields. The farm buildings were removed and the fields have been fallow since approximately 2005. Adjacent land uses include single-family residential, commercial and retail businesses, office buildings, and interstate right-of-way.

The project site is zoned as "PD" (planned development district) and "ROW" (right-of-way) (LOJIC 2014). Adjacent zoning includes residential (R4, R5) and commercial (C1, C2).

A planned development district promotes efficient and economic uses of land, diversifies and integrates new development that is compatible with existing development, and is consistent with the applicable form district (LMG 2006). A "form district" is a further delineation of zoning that governs the pattern and form of development. The project site is located in a "TC" (town center) form district, which is typically a compact area with a mixture of moderately intense uses, including retail, commercial, residential, institutional, and public services (LMG 2006).

Hospitals, clinics, and other medical facilities are defined as "conditional uses". These types of facilities may be allowed in any zoning or form district provided the use is compatible with the Comprehensive Plan and applicable development codes (LMG 2006).

3.8.2 Evaluation Criteria

In carrying out its federal functions, the VA is not subject to state or local regulations absent a clear statutory waiver to the contrary. This concept is based upon the Supremacy Clause (Article VI) of the U.S. Constitution. Although local governments cannot regulate or permit activities of the federal government on federally owned land, federal agencies must consider local requirements for zoning, landscaping, minimum setbacks, and maximum heights of new building construction (40 U.S.C. 619(b)). For purposes of this evaluation, an impact would be considered significant if the Proposed Action is not generally consistent with the goals of the Comprehensive Plan and the zoning requirements of the Land Development Code.

3.8.3 Environmental Consequences

3.8.3.1 Proposed Action – Construction and Operation

The previous landowner had the project site zoned as a planned development district for mixed uses, including commercial buildings, multi-family residential buildings, and a six-story hotel; therefore, future change to the existing land use was expected. The Proposed Action would result in a similar change from vacant, undeveloped land to full development of the project site.

During the conceptual design phase of the Proposed Action, the length and height of the structures were reduced and the location and orientation on the project site were modified to be more compatible with adjacent land uses. The taller structures were placed along the north and west sides of the site at the farthest distance from residential areas. Traffic circulation for service vehicles and ambulances follows the north and west sides to also be farther from the residential areas along the east and south sides of the project site. The downsizing of the structures provided more flexibility and options for landscaping plans that meet setback requirements for transitional zones, noise, and security.

Hospitals, clinics, and other medical facilities are conditional land uses within residential, commercial, and industrial zoning districts; thus, the Proposed Action would be generally consistent with the existing zoning of the project site. The development requirements for these types of facilities include limitations on height (10 feet) and size (80 square feet) of entrance signs and a minimum setback (30 feet) from the property boundary. Other provisions of a conditional use include compatibility with form district transition zone design standards and landscaping. The buildings would be set back from the property boundary approximately 200 feet and 115 feet along the residential areas to the east and south, respectively, which exceed the minimum setback requirements of 25 feet for R4 and R5 zoning and 30 feet for a conditional use of the project site. The master plan and conceptual design for the VAMC campus recommend landscape buffers up to 50 feet adjacent to residential areas, which is greater than the transition zone standard of 25 to 35 feet for landscaping. A masonry perimeter wall and landscaping are considered compatible design standards between residential uses and the more intense uses of a TC form district (LMG 2000, 2006); thus, the Proposed Action with its planned security fence (wall) and landscape buffer would be generally consistent with existing zoning of the project site.

Maximum building height within a TC form district is 120 feet and 45 feet within the transition zone, which covers a distance of 200 feet from the property boundary. The height limitation would not apply to the water tower since it is not considered a “building” that is subject to development code provisions. At 162 feet, the west bar’s rooftop mechanical electrical penthouses would exceed the maximum height. A lower design height for the west bar would require a larger footprint or require the electrical and mechanical equipment be placed alongside the building, which would place the building and equipment closer to the residential area to the south. Approximately 85 feet of the south parking deck would extend into the transition zone, and at 83 feet high, the structure would exceed the lower height limitation of the

transition zone. A lower design height would require a larger footprint for the south parking deck and would require it be placed at the minimum setback distance; thus, construction activities and daily operational activities would be closer and likely more disruptive to the residential area to the south. Even with the parking deck set closer to the south property boundary, the design could still exceed the height limitation to accommodate the required parking spaces, traffic circulation through the campus, and security requirements for mission critical facilities. Providing adequate parking while maintaining a greater setback distance, landscape buffer, and perimeter wall are policies and guidelines described in the Comprehensive Plan for compatible land uses; thus, the Proposed Action would be generally consistent with the Comprehensive Plan and with the existing zoning of the project site.

3.8.3.2 No Action

The project site would not be used by the VA for a new medical center campus and no construction or operational impacts would occur. There would be no near-term impacts to the existing land use or zoning of the project site. However, future development of the project site by VA or others would have similar impacts as the Proposed Action.

There would be no impact to land use as a result of continuing operation of the Zorn Avenue location of the existing Robley Rex VAMC under the No Action Alternative.

3.9 Floodplains, Wetlands, and Coastal Zone Management

3.9.1 Existing Environment

The project site has been evaluated for flooding hazards under the National Flood Insurance Program by the Federal Emergency Management Agency. Based on the latest Flood Insurance Rate Map (FEMA 2006), the project site is not within a 100-year or 500-year floodplain that is subject to special management or construction requirements; therefore, this resource issue is not discussed further.

The State of Kentucky is not a coastal state subject to the Coastal Zone Management Act; therefore, this resource issue is not discussed further.

The project site was evaluated for the presence of wetlands as defined by Executive Order 11990 *Protection of Wetlands* and by U.S. Army Corps of Engineers (USACE) regulations implementing Section 404 of the *Clean Water Act*. Three indicators (hydric soil, hydrophytic vegetation, and wetland hydrology) must all be present during some portion of the growing season to define an area as a wetland. The evaluations (URS 2011; TTL 2012) determined that not all three indicators were present and thus there are no wetlands on the project site.

3.9.2 Evaluation Criteria

Section 404 of the *Clean Water Act* requires authorization for activities that fill or disturb waters of the U.S, including wetlands. The USACE determines if a wetland is within their jurisdictional authority to regulate waters of the U.S. To be a jurisdictional wetland, it must meet the regulatory definition and be adjacent to other waters of the U.S. For purposes of this evaluation, an impact would be considered significant if the loss of a jurisdictional wetland cannot be avoided or if compensatory mitigation is not feasible, and the USACE does not authorize the activity that fills or disturbs the wetland.

3.9.3 Environmental Consequences

3.9.3.1 Proposed Action – Construction and Operation

There is no area on the project site that meets the regulatory definition of a wetland and the site is not adjacent to other waters of the U.S. Therefore, no jurisdictional wetlands would be impacted by the Proposed Action and no authorization by the USACE under Section 404 of the *Clean Water Act* is required.

3.9.3.2 No Action

The project site would not be used by the VA for a new medical center campus and no construction or operational impacts would occur. Because no jurisdictional wetlands are present, future development of the project site by VA or others would have similar impacts as the Proposed Action.

There would be no impact to floodplains, wetlands, or coastal zone management as a result of continuing operation of the Zorn Avenue location of the existing Robley Rex VAMC under the No Action Alternative.

3.10 Socioeconomics

The socioeconomic environment described in the PEA included demographics, employment and income, commuting patterns, and housing. The environmental health risks and safety risks to children were also considered, as required by Executive Order 13045 *Protection of Children From Environmental Health Risks and Safety Risks*.

The PEA analysis concluded that development at the project site would not have adverse socioeconomic effects; therefore, no additional site-specific impact analysis for the Proposed Action is necessary. Construction of a replacement VAMC campus, with a preliminary estimated cost of approximately \$700 million, would have short-term beneficial effects on the local economy, construction employment, and personal income. Operation of the larger VAMC and VBA facilities and expanded campus would likely provide additional long-term employment opportunities for the area. Indirect benefits to local businesses would occur from spending by construction workers and by employees, patients, and visitors to the new VAMC campus. New businesses could open in the vicinity to support the users of the new VAMC campus, providing additional indirect economic and employment benefits.

Construction of the VAMC campus could lead to short-term impacts to property values due to short-term visual, noise, and land disturbance effects. However, hospitals are considered to be secure and long-term developments that bring beneficial value to communities in the form of jobs and improved infrastructure, which tend to increase property values. The proximity of the project site to the elementary, middle, and high schools, and the potential demand for housing near employment opportunities, could possibly increase local property values.

The PEA analysis concluded that construction or operation of the new VAMC campus at the project site would not have environmental health risks or safety risks to children. Construction areas would be secured to prevent unauthorized access by children from nearby residential areas, and measures to control dust and noise (Chapter 5) would minimize potential adverse environmental effects to children in the area.

No changes to existing socioeconomic conditions would occur under the No Action Alternative.

3.11 Community Services

Community services include police protection, fire protection, emergency services, schools, health care, and parks and recreation. The PEA determined that no significant additional load is expected to be placed on the fire or police departments, and changes are not expected in use of or access to other public or community services as a result of the replacement VAMC or of No Action. No additional analysis or differing conclusions regarding impacts to community services are required in this site-specific EA.

3.12 Solid Waste and Hazardous Substances

As defined under the *Resource Conservation and Recovery Act (RCRA)*, solid waste is any solid, semi-solid, liquid, or contained gaseous material discarded from industrial, commercial, mining, or agricultural operations, and from community activities. Solid waste includes garbage; construction debris; commercial refuse; sludge from water supply, waste treatment plants, or air pollution control facilities; and other discarded materials. Hazardous waste is a type of solid waste that can pose a substantial or potential hazard to human health or the environment when improperly managed; hazardous waste possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity) or appears on specific EPA lists.

Hazardous substances include toxic substances, hazardous materials, RCRA-designated hazardous wastes, and other toxic pollutants regulated by the *Clean Air Act*, the *Clean Water Act*, and the *Toxic Substances Control Act*. The EPA has the authority to designate any additional element, compound, mixture, or solution as a hazardous substance. The definition of hazardous substance specifically excludes petroleum and natural gas.

3.12.1 Existing Environment

The Brownsboro Road site is currently undeveloped and exhibits no evidence of petroleum products, hazardous materials, staining, odors, or potential negative environmental impacts warranting further action or investigation (VA 2012).

The existing Louisville VAMC on Zorn Avenue facility is listed as a RCRA Small Quantity Generator. No release incidents in connection with this status are on record (Oculus 2013).

The Zorn Avenue facility uses a commercial system (San-i-Pak) to steam-sterilize regulated medical waste and sharps containers, which is then disposed of with the rest of the facility's municipal solid waste. A contractor retrieves and replaces the solid waste dumpsters every six days. In fiscal year 2013, the Zorn Avenue facility generated 522 tons of municipal solid waste. The dumpsters are taken to Outer Loop Recycling and Disposal Facility in Louisville.

3.12.2 Evaluation Criteria

An impact would be considered significant if solid waste or hazardous substances were not stored, handled, or disposed of in accordance with VA policies and federal, state, and local laws and regulations that protect health, safety, and the environment; or if the volume of solid or hazardous waste generated would exceed the disposal capacity of local landfills or available hazardous waste disposal facilities.

3.12.3 Environmental Consequences

3.12.3.1 Proposed Action

3.12.3.1.1 Construction

The Proposed Action would result in short-term, less-than-significant adverse impacts due to the increased presence and use of petroleum and hazardous substances during construction. During construction, an increase in construction vehicle traffic and the operation of heavy construction equipment on the project site would increase the likelihood for release of vehicle operating fluids (such as oil, diesel, gasoline, and antifreeze) and maintenance materials. As such, a less-than-significant, direct, short-term adverse impact is possible. Small amounts of potentially hazardous substances (for example, oils, lubricants, solvents, cleaners, paints) would be used during construction but proper use and storage of the materials would ensure there is no impact to workers and the environment. Implementation of standard construction BMPs would ensure this impact is further minimized. Construction debris would be disposed of by a licensed contractor in accordance with all local, state, and federal regulations.

3.12.3.1.2 Operation

No significant adverse long-term impacts during operation are anticipated. Solid waste and hazardous materials would be managed in accordance with VA's solid and hazardous materials standard operating practices as detailed in Handbook 0062 *Environmental Compliance Management* (VA 2012b), Handbook 0059 *VA Chemicals Management and Pollution Prevention* (VA 2012c), Handbook 0063 *Waste Prevention and Recycling Program* (VA 2011), and all applicable federal and state laws. The Proposed Action would not result in a substantial increase in the generation of solid or hazardous wastes, the use of hazardous substances, the exposure of persons to hazardous or toxic substances, or the presence of hazardous or toxic materials in the environment. It is anticipated that treatment of medical waste, the volume of municipal solid waste generated (estimated to be 489 tons annually [URS/SmithGroup 2014-SD1]), and the disposal practices for waste at the replacement VAMC would be similar to those of the existing facility, resulting in no significant environmental impacts. Water treatment chemicals may be required to treat groundwater withdrawn for emergency use as cooling water, and additives would be used for the water serving as heat transfer fluid in the VBA building's geothermal system. Storage, use, and disposal of these chemicals would be managed in accordance with VA requirements and environmental regulations.

3.12.3.2 No Action

Under the No Action Alternative, no construction or operation of a new facility by VA would occur; therefore, no additional solid or hazardous waste would be generated and no additional petroleum or hazardous substances would be handled.

Negligible changes to solid or hazardous waste generation, or hazardous materials handling, would occur at the Zorn Avenue location of the existing VAMC under the No Action Alternative. The volumes of solid waste generated and hazardous materials used at the existing VAMC at Zorn Avenue would increase over time commensurate with projected future increases in the number of patients.

3.13 Transportation and Parking

Transportation and parking address the roadway network and physical structures that move a population throughout a specific area. The availability of the transportation infrastructure and its capacity to support growth are generally regarded as essential to an area's economic growth.

3.13.1 Existing Environment

The roadway network surrounding the project site includes Watterson Expressway (I-264), US 42, and KY 22. Watterson Expressway is a four-lane divided highway classified as an urban interstate, US 42 is an undivided principal urban arterial with four to six lanes, and KY 22 is a three-lane urban minor arterial. US 42 is commonly referred to as Brownsboro Road, whereas KY 22 is referred to as Old Brownsboro Road. The three roadways are part of the state system maintained by the KYTC. The interchange of Watterson Expressway with US 42 is classified as a compressed diamond.

TARC provides public transportation (bus) service along US 42 and KY 22.

Traffic data have been collected and analyzed for a number of studies of the roadways and interchanges in the vicinity of the project site. Various improvements have been made that changed traffic patterns and network capacity, including the slip ramp that opened in late 2012 from Watterson Expressway at the US 42 eastbound interchange that provided a direct connection to KY 22. The KYTC is currently analyzing alternatives to improve the Watterson Expressway (I-264) and US 42 interchange, with construction of their preferred alternative estimated to begin in 2018 and take about two years to complete.

The VA collected traffic data to complete a traffic analysis of specific intersections near the project site (Olsson 2012). The data collection and analysis methodology were based on guidance from KYTC. The analysis concluded that signalized intersections at baseline capacity (2012) were operating at acceptable levels of service (LOS)¹, except the intersection of US 42 at KY 22 (Brownsboro Road at Northfield Drive) during the morning peak travel time. Although the overall intersections were at an acceptable LOS, certain turn lanes were operating at a less than acceptable LOS. These baseline results were presented in the PEA.

The KYTC completed a traffic forecast and analysis of a number of different intersections for the Watterson Expressway (I-264) and US 42 interchange improvement project (KYTC 2014). The baseline conditions (2013) modeled by KYTC were comparable, but better than those from the VA's traffic analysis (Olsson 2012). Because the KYTC data are more recent, Table 5 shows the LOS and delay at intersections near the project site as modeled by the KYTC for peak morning (7:00 to 8:00 a.m.) and evening traffic (5:00 to 6:00 p.m.).

¹ LOS is a qualitative standard measurement that reflects the relative ease of traffic flow on a scale of A to F, with free-flow rated as LOS-A, and congested conditions rated as LOS-F.

Table 5. Existing (2013) Level of Service and Delay at Signalized Intersections

Intersection	Morning Peak Hour ¹		Evening Peak Hour ²	
	LOS	Delay ³	LOS	Delay ³
US 42 at Rudy Lane	C	24	D	42
US 42 at I-264 southbound ramp	C	35	C	34
US 42 at I-264 northbound ramp	C	24	C	25
US 42 at KY 22 (Brownsboro Road at Northfield Drive)	D	48	C	35
KY 22 at I-264 slip ramp (Old Brownsboro Road at Northfield Drive)	B	20	C	32

¹ 7:00 to 8:00 a.m.

² 5:00 to 6:00 p.m., except 4:00 to 5:00 p.m. for KY 22 at I-264 slip ramp

³ Seconds per vehicle

Source: KYTC 2014.

3.13.2 Evaluation Criteria

The LOS is a qualitative assessment of a road network’s operating conditions, generally in terms of traffic speed, travel time or delays, congestion or maneuverability, interruptions, and convenience. An LOS of A through C represents desirable (acceptable) conditions and D represents tolerable conditions. Congestion and delays increase under LOS-E to a level that is considered at capacity, whereas LOS-F ranks as the least functional level of traffic movement and is considered serious congestion. LOS-D is often considered an acceptable level of service for urban roadways like US 42, and LOS-D can also be considered acceptable when the cost to improve operations to LOS-C is prohibitive (KYTC 2014).

Impacts on transportation and parking infrastructure are evaluated for the potential to disrupt or improve existing levels of service and transportation patterns and circulation. For purposes of this evaluation, an impact would be significant if degradation of an LOS to unacceptable conditions can be attributed solely to the Proposed Action, or the Proposed Action increases ADT by at least 20 percent on access roads to the project site (38 CFR 26.6(a)(2)).

3.13.3 Environmental Consequences

3.13.3.1 Proposed Action

3.13.3.1.1 Construction

The daily commute of construction workers and deliveries of construction materials to the project site would add vehicle trips to the area. The size of the workforce would vary throughout the construction schedule based on the types of construction activities; upwards of 1,500 workers could be commuting to the project site on a given day during the most active construction period (Palmer Engineering 2014). Temporary increases in vehicle trips would vary by location based on the travel routes of construction workers and delivery vehicles. It is likely that most construction-related vehicle trips would affect the Watterson Expressway (I-264) slip ramp to Old Brownsboro Road and the I-264/US 42 interchange to Northfield Drive. Based on the anticipated sequence of construction activities and the size of the construction staging areas, parking on the project site would not accommodate all workers’ personal vehicles during the most active construction period. Construction workers would likely be forced to carpool, use public transportation, or use offsite public parking areas. Construction bid documents would

include the requirement for a plan to provide offsite parking and shuttle service to and from the project site, which would reduce construction worker vehicle trips and traffic in the area, and minimize adverse impacts from construction traffic.

3.13.3.1.2 Operation

Entrance to and exit from the project site would be at the northeast corner at the existing intersection of Old Brownsboro Road and Northfield Drive (see Figure 12). Patients, visitors, staff, buses, and deliveries would use two entrance lanes and two exit lanes. Traffic circulation would be designed to largely eliminate the need for left turns, separate users of the campus facilities, and minimize traffic noise on adjacent residential neighborhoods. An additional right turn lane would split from the main entry drive for staff, maintenance, emergency, and delivery vehicles to access the service road along the west edge of the project site, whereas patients, visitors, and buses would continue on the divided boulevard to access the parking structures and VBA and VAMC drop-off locations.

A secondary emergency access would be located at the southwest corner of the project site at Carlimar Lane. This entry/exit would be gated and accessible only to emergency responders (ambulance, fire, and police) should the main entrance on Old Brownsboro Road be inaccessible for some reason, such as an accident.

The roads and traffic circulation on the project site would be designed to accommodate TARC bus routes and stops. The VA would coordinate with TARC to realign the current bus routes on Old Brownsboro Road and Northfield Drive to enter the VAMC campus to serve the VAMC and VBA buildings.

Pedestrian and bicycle access to the VAMC campus would be located with the vehicle entrance and would be connected to existing sidewalks on Old Brownsboro Road and Northfield Drive. Pedestrian crossing signals, ramps, and pavement markings would be installed as part of the entrance/exit construction. Pedestrian access would not be provided to Carlimar Lane or Haverhill Road in adjacent residential neighborhoods. Bicycle parking would be provided in the north parking deck.

Two parking decks would accommodate approximately 3,000 vehicles. The number of parking spaces was based on number of employees (and overlapping shift changes), volunteers, outpatient visits, inpatient census, vendors, and visitors, and was planned to prevent offsite or street parking. The decks would be connected to the VAMC atrium and to the central activity corridor at the ground level. A minimal number of surface parking spaces would be located on the west side of the campus for maintenance and delivery vehicles.

The KYTC calculated ADT on a segment of KY 22 (Old Brownsboro Road from Watterson Expressway slip ramp to Lime Kiln Lane) that passes along the north boundary of the project site. The KYTC traffic calculations covered baseline conditions (2013) and future conditions (2020 and 2040), which included a fully operational VAMC campus and other projected growth at 0.8 to 1.0 percent annually. The ADT on this segment is projected to increase from 21,400 to 24,300 vehicles by 2040 (KYTC 2014), which is less than a 20 percent increase. The ADT on segments of US 42 (Brownsboro Road) between Watterson Expressway and Lime Kiln Lane is projected to increase from 33 to 46 percent; however, as with the segment on KY 22, no increase in ADT can be attributed only to additional traffic associated with the VAMC campus based on the projected growth rate of 0.8 to 1.0 percent annually.

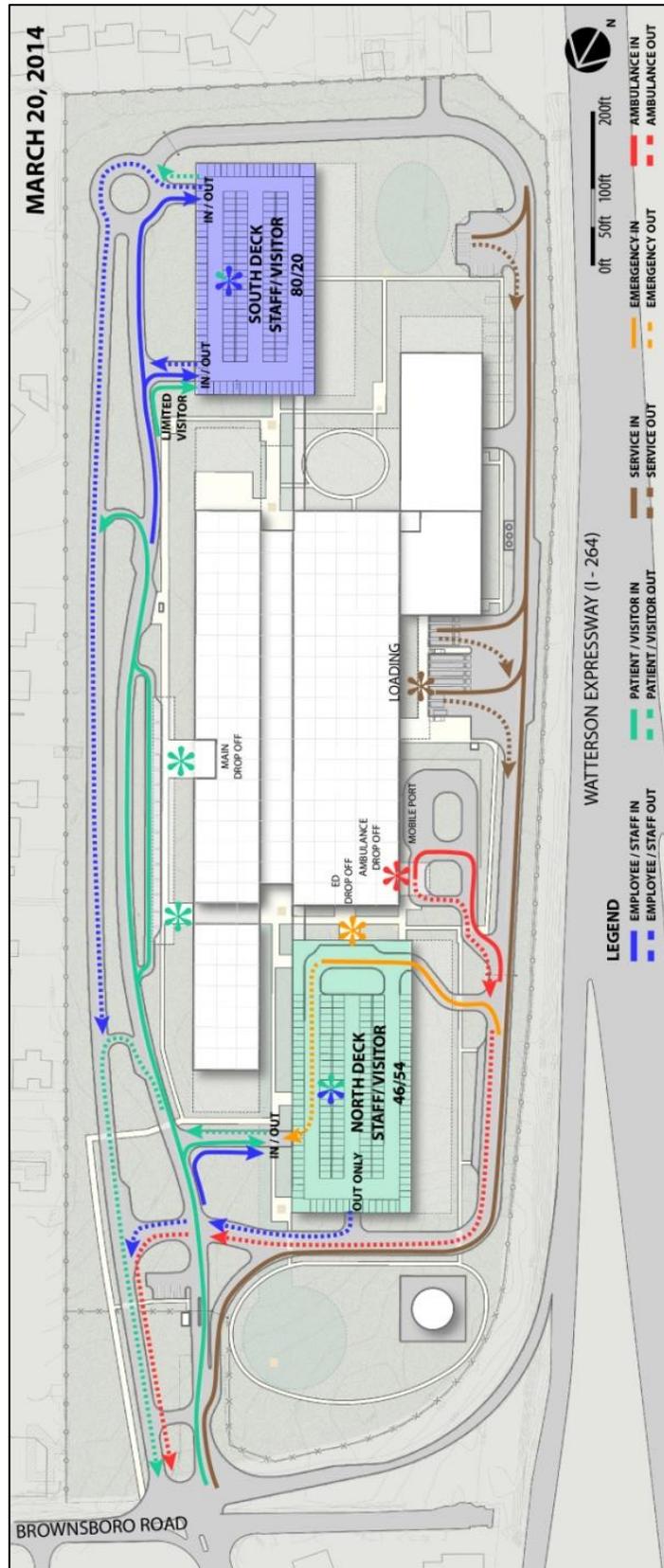


Figure 12. Traffic Circulation on VAMC Campus

The KYTC modeled different measures of effectiveness of the proposed interchange improvement alternatives at Watterson Expressway (I-264) and US 42; two of the measures included LOS and intersection delay. Table 6 shows the intersection LOS and delay results of the KYTC model for the design year of 2040 for the no build (no interchange improvements) and three interchange build alternatives. The LOS is projected to worsen and delays would increase from 2013 baseline conditions (refer to Table 5) by 2040 under the no build alternative with the operation of the VAMC campus, along with projected population growth and increased rate of development. The LOS and delay under the three build alternatives would vary—improve at some intersections, worsen at others, or remain comparable to baseline conditions—but would all be considered acceptable traffic conditions except at the intersection of US 42 at KY 22 (Brownsboro Road at Northfield Drive). Under KYTC’s no build and three build alternatives, the intersection of US 42 at KY 22 would experience highly congested traffic conditions. The future adverse conditions under any alternative cannot be attributed solely to the operation of the VAMC campus based on the projected growth of the area at 0.8 to 1.0 percent annually and, although adverse, the Proposed Action would not significantly contribute to the degradation of the LOS at the intersection of US 42 at KY 22.

Table 6. Future Level of Service and Delay at Signalized Intersections for Design Year 2040

Intersection	KYTC Interchange Improvement Alternatives							
	No Build		SPUI		DDI		Flyover	
	Morning ¹ /Evening ² Peak Hour							
	LOS	Delay ¹	LOS	Delay ³	LOS	Delay ³	LOS	Delay ³
US 42 at Rudy Lane	D/D	37/51	D/D	37/51	D/D	37/51	D/D	37/51
US 42 at I-264 southbound ramp	E/E	78/71	D/D	40/52	B/B	16/19	C/C	28/29
US 42 at I-264 northbound ramp	E/D	56/46			B/C	18/24	C/D	35/46
US 42 at KY 22 (Brownsboro Road/Northfield Drive)	F/F	160/213	F/F	86/193	F/F	86/149	F/F	86/193
KY 22 at I-264 slip ramp (Old Brownsboro Road/Northfield Drive)	D/F	48/96	C/D	26/50	C/D	26/50	C/D	26/50

SPUI = single point urban interchange

DDI = diverging diamond interchange

Flyover = flyover interchange

¹ 7:00 to 8:00 a.m.

² 5:00 to 6:00 p.m., except 4:00 to 5:00 p.m. for KY 22 at I-264 slip ramp.

³ Seconds per vehicle

Source: KYTC 2014.

The peak hour LOS at an intersection is based in part on the “turning movements” or number of vehicles in the available travel lanes (right turn, left turn, and through lanes) at the intersection. Table 7 shows the morning and evening peak hour turning movements for baseline (2013) and future (2040) conditions for the intersections of US 42 at KY 22 and KY 22 at I-264 Slip Ramp, the two nearest intersections that would serve the project site. The morning and evening peak hour vehicle trips projected to be generated by the new VAMC campus, and the directional distribution of these trips, were part of the traffic analysis completed by the VA (Olsson 2012). The trip generation and distribution were provided to and approved by the KYTC prior to use in the analysis, and KYTC in turn used these data in their traffic analysis completed for the proposed Watterson Expressway (I-264) and US 42 interchange project (KYTC 2013, 2014).

The data in Table 7 show the number of turning movements entering and exiting the new VAMC campus as compared to the overall intersection movements. During the morning peak hour, vehicles entering (280) and exiting (140) the VAMC campus in the direction of the US 42 at KY 22 (Brownsboro Road at Northfield Drive) intersection amount to approximately 9 percent of the total turning movements (4,790) at that intersection. During the evening peak hour, the turning movements associated with the VAMC campus (645) would be approximately 13 percent of the total turning movements (5,010). The Proposed Action would therefore not significantly contribute to the degradation of the LOS at that intersection.

The VAMC campus would obviously be the source of a greater number of turning movements and higher percentage of total movements at the KY 22 at I-264 slip ramp (Old Brownsboro Road at Northfield Drive) intersection because this intersection would be the direct entrance and exit to and from the campus. At approximately one-third of the total turning movements at the intersection during the morning (39 percent) and evening (31 percent) peak hours, the Proposed Action would significantly contribute to the degradation of the LOS at that intersection from B/C (2013 baseline morning/evening) to D/F (2040 no build alternative morning/evening). However, only the LOS-F during the evening peak hour would be considered an unacceptable condition. Drivers could experience an increase in their wait time at that intersection during the evening peak hour by approximately one minute – from 32 to 96 seconds (refer to Tables 5 and 6). However, with any of the three I-264 and US 42 interchange improvement alternatives planned by the KYTC, the LOS would be at acceptable conditions of C and D during morning and evening peak travel hours, respectively. Since the interchange improvement is expected to be finished before the VAMC is fully operational, the Proposed Action would not significantly contribute to the degradation of the LOS at that intersection.

Table 7. Future Signalized Intersection Movements for Design Year 2040

	2013		2040	
	Morning Peak Hour ¹	Evening Peak Hour ²	Morning Peak Hour ¹	Evening Peak Hour ²
US 42 at KY 22 (Brownsboro Road at Northfield Drive)				
Total turning movements ³ (% increase)	3,231 (0%)	3,280 (0%)	4,790 (48%)	5,010 (53%)
To/from VAMC campus	0	0	420	645
Percent of total to/from VAMC campus	0	0	9%	13%
KY 22 at I-264 slip ramp (Old Brownsboro Road at Northfield Drive)				
Total turning movements ³ (% increase)	1,229	1,158	2,410 (96%)	2,915 (152%)
To/from VAMC campus	0	0	935	900
Percent of total to/from VAMC campus	0	0	39%	31%

¹ 7:00 to 8:00 a.m.

Source: KYTC 2014.

² 5:00 to 6:00 p.m., except 4:00 to 5:00 p.m. for KY 22 at I-264 slip ramp.

³ Turning movements = number of vehicles in travel lanes.

3.13.3.2 No Action

The project site would not be used by the VA for a replacement medical center campus and no construction or operational impacts to transportation would occur; however, traffic conditions around the project site would not remain static because of projected growth and development in the area of 0.8 to 1.0 percent annually. Future development of the project site by VA or others could have similar impacts as the Proposed Action.

No changes to current traffic patterns near the existing VAMC's Zorn Avenue location are expected under the No Action Alternative. Traffic at the existing VAMC would increase over time commensurate with projected future increases in the number of patients.

3.14 Utilities

Utilities include the municipal water, natural gas, and electricity supply systems; sanitary sewer; stormwater discharge receiving system; and telecommunications.

3.14.1 Existing Environment

The LWC would supply domestic and fire protection water service to the Brownsboro Road site. There is an existing 12-inch water main in Brownsboro Road just north of the site, and an 8-inch main in the right-of-way for Carlimar Lane, which runs to the southeast corner of the site.

LGE supplies the natural gas and electrical services to the area of the Brownsboro Road site. There is a point of connection for natural gas service along Brownsboro Road but there is no existing nearby electrical source capable of serving the site.

The MSD is the approval authority for the storm sewer system design for the Brownsboro Road site. The KYTC Department of Transportation has a storm drainage system along the Watterson Expressway, which would be the receiving stormwater system for discharges from the proposed VAMC.

The MSD also supplies sanitary sewer service to the site. A location to connect to the sanitary sewer system is available just south of the southern site property line, near the southeast corner of the site, where there is an existing manhole within the Carlimar Lane right-of-way.

AT&T Kentucky provides telecommunications service to the Brownsboro Road area.

3.14.2 Evaluation Criteria

An environmental impact related to utilities would be identified if a utility service was not currently available to supply the project site and could not be constructed without significant impacts; if a utility could not be provided to the site at all; or if operation of the replacement VAMC would strain existing capacity, affecting other utility customers or requiring expansion of existing facilities, the construction of which could cause significant impacts.

3.14.3 Environmental Consequences

3.14.3.1 Proposed Action – Construction and Operation

Preliminary meetings with the LWC and their April 3, 2013 letter to the VA indicated there is sufficient spare capacity in the existing water supply system along Brownsboro Road to accommodate the domestic and fire protection water requirements of the proposed VAMC campus. A minimum of two points of connection would be made to the LWC system: a main connection to the 12-inch water main in Brownsboro Road, and a secondary connection to the 8-inch water main in the right-of-way of Carlimar Lane. Costs for extensions and improvements of the LWC municipal water supply system to accommodate the needs of the proposed VAMC campus would be borne by the VA. No significant adverse impacts to the municipal water supply system would occur as a result of the Proposed Action.

The VA's design contractor has pointed out that a water tower tank large enough to meet the VA's requirements (see Section 2.2.1.13 for discussion on capacity) would likely cause water quality problems (low chlorine residual, bacterial growth, and might violate other primary drinking water standards), and they would continue to work with the VA to refine estimates of the required water tower capacity, incorporate water quality monitoring and a tank mixing system into the tank's design, and address any potential need for a disinfection booster system to maintain water quality. This water tower would not have any significant adverse impacts on capacity or systems of the utility providers.

LGE stated that natural gas service is available for the proposed development; no impacts related to primary and redundant natural gas service for the replacement Louisville VAMC were identified.

Two separate sources of electrical supply are needed because the proposed VAMC would be a mission critical facility. Although there is no existing nearby electrical source that is capable of serving the site, LGE has stated their commitment to providing service and is confident that they will be able to provide a single service source to the site at LGE's cost. The second, separate service feed can also be provided, but would be at the VA's expense. LGE has identified three possible locations from which primary and secondary services can be extended to the campus. In all three of these options, a circuit would be brought into the site from the north along Brownsboro Road. The electrical utility's capacity and infrastructure could be expanded to accommodate the Proposed Action with no significant impacts.

The proposed facility's stormwater management design is described in Section 2.2.1.12 and evaluated for effectiveness and potential environmental impacts in Section 3.5 Hydrology and Water Quality. The MSD requires that the first sixteenth of an inch of rain must be stored and treated onsite; MSD also requires the site discharges to their system for 2-year, 10-year and 100-year storm events be limited to the predevelopment discharge of the site for each storm (URS/SmithGroup 2014a). The system would be designed to meet the MSD guidelines to ensure there would be no significant adverse impacts to the MSD's stormwater handling system from the Proposed Action. The VA would share the system design with MSD for their review and feedback.

In August 2012, the MSD informed the VA that they have capacity to handle the estimated sanitary sewerage flow of 170,500 gallons per day from the facility, as well as a peak flow of 875,000 gallons per day (URS/SmithGroup 2014a). In a meeting in March 2014, MSD confirmed that they could continue to reserve this capacity for the VAMC campus facilities (URS/SmithGroup 2014a, URS/SmithGroup 2014b). The PEA reported that MSD also stated that the proposed development of the Brownsboro Road site would likely have negligible impacts on the existing sanitary system.

AT&T would provide telecommunications service connections from a point along Brownsboro Road, with redundant service coming in to the VAMC also from Brownsboro Road or from the south at

Carlmar Lane; the final configuration would be coordinated with AT&T. The VBA would have separate telecommunication / data service from Brownsboro Road. No significant impacts were identified related to establishing or maintaining telecommunications service to the site.

Construction of the proposed replacement VAMC would initiate consumption of utilities at the Brownsboro Road site at levels that can be accommodated by the providers, as described above. Temporary connections would transition to permanent ones as construction progresses. Some temporary onsite sources may be used at times, such as generators for electricity, water trucks, and portable toilet facilities.

As stated in the PEA, operation of the proposed facility would not be anticipated to require extraordinary utility needs beyond those of similar hospital developments. In addition, operation of this proposed facility would eventually replace the current utilities consumed by the existing Louisville VAMC in terms of the portion of those utilities that support VA-provided healthcare in the Louisville area.

In summary, no significant impacts related to utilities are expected to result from the Proposed Action.

3.14.3.2 No Action

Under the No Action Alternative, no construction by VA would occur. Therefore, there would be no impacts related to utility availability, supply, or use at the Brownsboro Road site.

The Zorn Avenue location of the existing Louisville VAMC would continue to be serviced by the utility providers currently used by the VA, at the same or similar levels of use. No additional or expanded supply or transmission capacity would be required. No environmental impacts to utilities are associated with the No Action Alternative.

3.15 Environmental Justice

The concept of environmental justice is to review federal actions for disproportionately high and adverse effects on the health or environment of minority and low-income populations.

The PEA analysis compared the demographics of the City of Louisville and Jefferson County, and did not identify the presence of an environmental justice population based on minority or low-income status in Jefferson County where the project site is located. The PEA concluded that no minority or low-income population would be disproportionately affected by the construction and operation of a new VAMC campus at the project site; therefore, no additional site-specific impact analysis for the Proposed Action is necessary. The No Action Alternative would not have any impacts.

Potential indirect effects on the health or environment of minority or low-income Veterans or VAMC employees within the City of Louisville that may have to travel further to reach the new VAMC campus would not be disproportionately higher or more adverse than other Veterans or employees.

3.16 Cumulative Impacts

The CEQ regulations for implementing NEPA define cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). This site-specific EA considers

past, present, and reasonable foreseeable short-term and long-term future effects from implementing the Proposed Action and other projects that coincide with the location and timetable of the Proposed Action.

Given the nature of the Proposed Action and the mostly developed area surrounding the Brownsboro Road site, no significant cumulative adverse effects to any resources are anticipated. The following paragraphs further discuss the basis for this conclusion related to land use and transportation.

3.16.1 Land Use

As described in the PEA, the area around the Brownsboro Road site is mostly developed. Little space remains for infill development other than an approximately 19-acre area of unimproved land located approximately ¼ mile northeast of the site along Herr Lane, which is owned by Providence Point Commercial, LLC. Identified as Providence Point, the proposed development of this area would include 312 residential condominiums and a center piece mixed-use building with the first floor containing 46,000 square feet of retail and each of the second and third floors containing 46,000 square feet of offices. In addition, outparcels for commercial use are also included in the development plans. The Providence Park development was scheduled to begin in 2007 or 2008, but has not begun. The developer is undertaking a marketing study to determine if some adjustments may be requested to the original development plan, but does plan to begin construction of a project essentially similar to the one described above within the next two years (personal communications, T. Edwards and K. Hedden of Hagan Properties, July 31, 2014).

3.16.2 Transportation

Various improvements have been made to the surrounding transportation network resulting in changes to traffic patterns. Area improvement projects completed by the KYTC included capacity improvements to the I-264 eastbound off-ramp and construction of the slip ramp completed in October 2012 that connected to Old Brownsboro Road (KY 22). The I-71 and I-264 interchange was also improved in the fall of 2012 receiving auxiliary lanes on I-264 and lengthening the merge/diverge areas on I-71.

Several roadway projects would impact traffic flow patterns and volumes in the near future, including the construction of two new bridges over the Ohio River and the improvements to I-264 (Watterson Expressway) between the Westport Road and I-71 interchanges, which includes the reconstruction of the US 42 (Brownsboro Road) interchange. The Watterson Expressway (I-264) would be widened to three through lanes in each direction and auxiliary lanes between interchanges. Two-lane ramps would be added from I-264 eastbound to I-71 northbound and at the I-264 westbound off-ramp to Westport Road. A two-lane on-ramp would be provided from any of the three interchange alternatives at US 42 to I-264 westbound. Further to the east on US 42, there is currently a half interchange with the Gene Snyder Freeway. This interchange would soon become a full interchange and US 42 would be directly connected to the east end of the Ohio River bridge.

The KYTC included these future roadway projects and projected growth and development, including the new VAMC campus, that are planned for the area in their traffic forecast model in designing the three build alternatives for the US 42 interchange improvement project. The foreseeable actions having a cumulative impact on transportation include KYTC's build and no build alternatives for the US 42 interchange. Therefore, the potential cumulative impacts were accounted for in the analysis of transportation impacts for the operational phase of the Proposed Action (see Section 3.13 Transportation and Parking). As discussed in Section 3.13, future traffic volumes would be considered acceptable at all intersections in the area surrounding the project site, except at Brownsboro Road and Northfield Drive. The Proposed Action would therefore contribute to adverse cumulative traffic impacts at this intersection

along with other roadway projects and increased growth. Based on the percentage of the total turning movements at that intersection that would be to and from the direction of the VAMC campus, the Proposed Action would not be a significant cumulative contributor to the traffic volumes or degradation of the level of service.

The construction schedules for the US 42 interchange project and the new VAMC campus would overlap for approximately two years, having a temporary adverse cumulative impact on the transportation network from construction traffic. The interchange project is scheduled to be completed before the VAMC campus is completed; thus, construction traffic conditions would be expected to improve while final construction of the new VAMC continues.

3.17 Potential for Generating Substantial Controversy

As discussed in the PEA and updated in Section 4 of this site-specific EA, VA has solicited input from various federal, state, and local government agencies regarding the Proposed Action. Several provided input to the PEA; none of these agencies expressed opposition to the Proposed Action. These agencies will also now have an opportunity to comment on this Draft EA, with their input incorporated into the Final EA.

During both the PEA and the scoping for this site-specific EA, some residents in the vicinity of the Brownsboro Road site expressed opposition to the replacement VAMC at this location. Table 9 in Section 4.2.1.2 summarizes the comments received. The residents were particularly expressive regarding the potential for further deterioration of the traffic conditions in the area, changes in travel distances for Veterans to be served at the proposed replacement VAMC, and the effects on adjacent properties of stormwater runoff, aesthetic changes, and property values due to construction of the facility on a parcel that is currently undeveloped.

Since the project was first announced, several dozen newspaper articles have been published in local newspapers regarding VA's need for a replacement VAMC in the Louisville area. In addition, articles regarding the Proposed Action at the Brownsboro Road site have been published in local newspapers and stories have been broadcast by local television stations. Additional public input regarding the Proposed Action was obtained through the scoping process for this site-specific EA (see Section 4.2.1).

In summary, the Proposed Action is associated with public controversy. The issues of concern to the public that were identified through the scoping process for this site-specific EA (see Section 4.2.1) have been evaluated in this impact analysis.

4.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

4.1 Agency Coordination

During development and review of the PEA for siting the replacement VAMC, the VA contacted federal, state, and local agencies with oversight responsibilities related to this project. Table 8 lists the agencies and the input received.

Following the selection and acquisition of the Brownsboro Road site after the PEA was finalized, the VA and their design contractor have had ongoing technical interaction with the state and local agencies that have regulatory authority aspects of site development and building construction. This coordination is in addition to NEPA reviews and input documented in Table 8, and has the objective of ensuring that all planning, architectural, and engineering aspects comply with laws, codes, ordinances, recommendations, permit requirements, and BMPs as the design for the VAMC campus progresses. This compliance is reflected in the details of the preliminary design of the Proposed Action as evaluated in this site-specific EA.

Table 8. NEPA Agency Coordination for Replacement Louisville VAMC

Agency	Input*
U.S. Fish and Wildlife Service – Southeast Region	PEA: The site was previously cleared, is adjacent to a highway, and surrounded by development. Based on these factors, the site does not contain suitable roost trees for Indiana bats and future development would not likely adversely affect the Indiana bat. Site-specific EA: will be added in Final site-specific EA.
U.S. EPA Region 4	PEA: Records indicate no waters of the U.S. on the project site. Site-specific EA: will be added in Final site-specific EA.
U.S. Natural Resources Conservation Service – Mount Washington Service Center	PEA: No response was reported. Site-specific EA: will be added in Final site-specific EA.
Kentucky Department of Natural Resources	PEA: No response was reported. Site-specific EA: will be added in Final site-specific EA.
Kentucky Department for Environmental Protection	PEA: <ul style="list-style-type: none"> • Division of Air Quality stated that any future VA development of any site would be required to comply with regulations 401 KAR 63:010 (Fugitive Emissions), and recommended that local government regulations should be considered. • Nature Preserves Commission indicated that they did not have any concerns. • Division of Water stated that BMPs should be used to reduce runoff from development of any site into adjacent surface waters. • Division of Waste Management stated that they do not have any comments and would provide comments after the site selection has been completed Site-specific EA: will be added in Final site-specific EA.

Table 8. NEPA Agency Coordination for Replacement Louisville VAMC (continued)

Agency	Input*
Kentucky Department of Fish and Wildlife Resources	<p>PEA:</p> <ul style="list-style-type: none"> • Impacts to aquatic resources should be minimized through the implementation of strict erosion control measures prior to any future construction to minimize siltation into streams and stormwater drainage systems located within the project area. Such erosion control measures may include, but are not limited to, silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures would need to be installed prior to any future construction and should be inspected and repaired regularly as needed. • No listed threatened or endangered species were identified for the site. However, this site falls within known Indiana bat summer maternity habitat and is considered a sensitive area for this species. The Kentucky Department of Fish and Wildlife Resources stated that further coordination with the FWS Kentucky Field Office would be required prior to any future construction. <p>Site-specific EA: will be added in Final site-specific EA.</p>
Kentucky Transportation Cabinet	<p>PEA: The KYTC has planned improvements to the I-264 and Brownsboro Road interchange (Single Point Urban Interchange). The reconfigured interchange would likely be able to accommodate the proposed VAMC without significant, additional modifications to roadways.</p> <p>Site-specific EA: will be added in Final site-specific EA.</p>
Kentucky Heritage Council (State Historic Preservation Office)	<p>PEA: The SHPO concurred with findings that the site does not contain cultural resources listed, or eligible for listing, in the NRHP and that no further archaeological investigations are indicated. Additional analyses would be required to evaluate direct and indirect impacts to above ground cultural resources within the APE.</p> <p>Site-specific EA: A cultural resources survey of the APE was completed, with a recommended finding of no adverse impacts to historic properties. Report submitted to the SHPO for concurrence at time of Draft EA. The SHPO's response will be included in the Final site-specific EA.</p>
Jefferson County – Louisville Metro Air Pollution Control District	<p>PEA: No response was reported.</p> <p>Site-specific EA: will be added in Final site-specific EA.</p>
Jefferson County – Louisville Economic Development Department	<p>PEA: No response was reported.</p> <p>Site-specific EA: will be added in Final site-specific EA.</p>
Jefferson County – Louisville Inspections, Permits, and Licensing Department	<p>PEA: No response was reported.</p> <p>Site-specific EA: will be added in Final site-specific EA.</p>
Jefferson County Soil and Water Conservation District	<p>PEA: No response was reported.</p> <p>Site-specific EA: will be added in Final site-specific EA.</p>
Jefferson County – Louisville Planning and Design Services	<p>PEA: No response was reported.</p> <p>Site-specific EA: will be added in Final site-specific EA.</p>

Table 8. NEPA Agency Coordination for Replacement Louisville VAMC (continued)

Agency	Input*
Jefferson County – Louisville Metro Public Works and Assets	PEA: <ul style="list-style-type: none"> • Concern regarding the potential future loss of pervious surfaces but did not indicate that this would prevent the future development of a VAMC at the site. • The site includes prime and unique farmland soils. • Future construction of a VAMC at this site would create traffic and associated air quality issues. The US 42 and I-264 interchange is already congested and any further development in this area could require major improvement to the highway infrastructure, likely involving improvements to the I-264 interchange. With the congestion at this location, further degradation to traffic and air quality would be problematic. • Indiana bats have been found in many wooded areas in Jefferson County. Site-specific EA: will be added in Final site-specific EA.
Jefferson County – Louisville Metro Parks Department	PEA: No response was reported. Site-specific EA: will be added in Final site-specific EA.

*The PEA input summarized in this table is that which was specific to the Brownsboro Road site and is relevant to its environmental conditions.

4.2 Public Involvement

As stated in the VA’s *NEPA Interim Guidance for Projects* (VA 2010), public involvement for an EA may include public engagement during scoping and drafting and finalizing the EA through publication of notices or public meetings. The public involvement process to date for this site-specific EA has consisted of a scoping period with a public scoping meeting, and publication of a Notice of Availability of this Draft Site-Specific EA. The process will continue with a public comment period on the Draft Site-Specific EA, including a public meeting to accept comments on the document.

4.2.1 Scoping

4.2.1.1 Scoping Process

Scoping is an early and open process for determining the scope of issues to be addressed in a NEPA document, and for identifying the significant issues related to a proposed action (40 CFR 1501.7). Appendix B contains a detailed report of the scoping process for this site-specific EA.

Postcards were mailed to 213 individuals, organizations, and government agencies notifying them of the scoping process, a public scoping meeting, and options for submitting scoping comments on the Proposed Action. This information was also published in the Louisville *Courier-Journal* on April 4, 5, and 6, 2014, and publicized in press releases to print media, radio, television, and online news sources.

A public scoping meeting was held at the Clifton Center on Wednesday, April 16, 2014. Approximately 85 individuals attended the meeting. Posters displayed the NEPA process and project timeline, the alternatives and resources to be evaluated in this site-specific EA, the proposed concept and site plan, and the project location. A presentation offered further details and the floor was opened for members of the public to offer verbal scoping comments, documented in a transcript prepared by a court reporter.

4.2.1.2 Summary of Scoping Comments

Nineteen individuals provided verbal comments at the public scoping meeting and 23 written comment letters were received. Table 9 summarizes the scoping comments. All comments are given equal weight in this EA regardless of whether they were mentioned once or mentioned several times.

Table 9. Summary of Scoping Comments

Purpose and Need
<ul style="list-style-type: none"> • Quality of health care for Veterans should be the major consideration. • Explain how the project site was selected.
Proposed Action
<ul style="list-style-type: none"> • Compare size (square footage) of proposed new facilities to existing facilities. • Provide estimated number of patients, visitors, and staff and number of deliveries entering the new VAMC campus. • Provide estimated cost to construct and operate a new VAMC. • Size of the project site is too small for the planned buildings. • Size of the project site limits future expansion. • Explain how the project site was selected. • Purpose for and use of emergency gate at Carlimar Lane.
Alternatives
<ul style="list-style-type: none"> • Use project site as a cemetery.
Aesthetics
<ul style="list-style-type: none"> • Obstruction of views from adjacent neighborhoods. • Visual appearance of buildings. • Security lights and illumination of VAMC campus at night.
Air Quality
<ul style="list-style-type: none"> • Effects to local air quality from additional traffic. • Dust and pollutants from construction equipment and activities.
Geology and Soils
<ul style="list-style-type: none"> • Potential damage to houses from blasting activities.
Hydrology and Water Quality
<ul style="list-style-type: none"> • Surface drainage from adjacent properties. • Stormwater management ponds increasing amount of groundwater infiltration. • Stormwater management ponds as a source of mosquito breeding habitat.

Table 9. Summary of Scoping Comments (continued)

Noise
<ul style="list-style-type: none"> Increased noise levels from additional traffic. Noise from construction and blasting activities. <p>Reduce noise to adjacent properties by installing a concrete security wall (fence).</p>
Land Use
Compatibility with adjacent land uses.
Socioeconomics
<ul style="list-style-type: none"> Lower property values from changed land use and visual appearance. Maintain property values and security to adjacent properties with concrete security wall (fence). Potential damage to houses from blasting activities.
Community Services
<ul style="list-style-type: none"> Hinder movement of emergency vehicles through the area with additional traffic. Security of adjacent neighborhoods. Capacity and availability of emergency response services (fire, police).
Transportation and Parking
<ul style="list-style-type: none"> Existing and future traffic congestion in vicinity of Watterson Expressway (I-264) and US 42/KY- 22 (Brownsboro Road). Access to the project site and adjacent businesses and neighborhoods. Availability of public transportation. Adequate parking. Synchronize traffic signals to improve traffic flow. Farther distance for most Veterans to travel. Farther distance for most VAMC staff to travel. Capacity of KYTC-proposed improvements at Watterson Expressway (I-264) and US 42/KY 22 (Brownsboro Road) to adequately handle additional traffic.
Utilities
<ul style="list-style-type: none"> Availability and capacity of water, sewer, gas, and electric services.
Environmental Justice
<ul style="list-style-type: none"> Travel distance for minority Veterans.
Cumulative Impacts
<ul style="list-style-type: none"> Future development (restaurants, hotels, housing) in the area to support out-patients, visitors, and staff.

Table 9. Summary of Scoping Comments (continued)

NEPA Process
<ul style="list-style-type: none">• Finding of No Significant Impact is inappropriate because of estimated traffic volume increases.• Prepare an environmental impact statement because traffic is projected to increase by more than 20 percent.• Consideration of comments that had been submitted in response to the Programmatic EA.
Outside Scope of NEPA or Proposed Action
<ul style="list-style-type: none">• Select a different location for the new VAMC.• The new VAMC should be in close proximity to University of Louisville Medical Center and other regional hospitals to provide specific medical services.• Remodel existing VAMC at Zorn Avenue location.• Prepare an environmental impact statement because the project site acquisition was more than 10 acres.• Hire 4,000 motorists to simulate the traffic conditions anticipated at full operational status of the new VAMC.• Acquisition cost of project site.• Availability of funding for KYTC to complete interchange improvements.

4.2.2 Public Review of Draft Site-Specific Environmental Assessment

The VA's NEPA guidance states that the EA process must include at least a 30-day public comment period on the Draft EA, which starts with the publication of a Notice of Availability (NOA). The NOA for this Draft EA was published in the *Louisville Courier-Journal* on January 2, 3, and 4, 2015. In addition, postcards notifying the public of the availability of the Draft EA were mailed to individuals and organizations that have expressed an interest in this project. Public meetings will be held from 1:00 to 3:00 pm and 6:00 to 8:00 p.m. on January 15, 2015 at the Clifton Center to summarize the analysis for members of the public, and to accept verbal comments. Comments may also be submitted by email to LouisvilleReplacementHospitalComments@va.gov, or by U.S. Postal Service mail to Robley Rex VAMC, Attn: Public Affairs Office, 800 Zorn Avenue, Louisville, KY 40206.

Any comments received on this Draft EA will be documented and considered in the Final site-specific EA.

4.2.3 Native American Consultation

As reported in the PEA, VA notified seven federally recognized tribes that have potential ancestral ties to Jefferson County, Kentucky and invited them to participate in the NEPA process via a coordination and consultation letter sent by certified mail. No response from any of these seven tribes was received during the PEA process. These seven tribes have been notified of the availability of this Draft site-specific EA and again invited to provide input. Responses will be summarized and considered in the Final EA.

1 **5.0 MITIGATION**

2 Table 10 identifies mitigation and BMP commitments that will be made by the VA in implementing the
 3 Proposed Action. This table includes the measures identified in the PEA, as updated, further developed,
 4 and refined in this site-specific EA.

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 6 **Table 10. Mitigation Measures and Best Management Practices**

Resource	Mitigation Measure / Best Management Practice
Aesthetics	Consult with local officials and consider recommendations on setbacks, landscaping, lighting, and exterior facades in accordance with 40 U.S.C. 619(c) and (d).
Air Quality	<p>The LEED Silver certification design for the VAMC campus buildings requires energy conservation measures that reduce air pollutants associated with combustion sources. Some of these measures include types of building materials, solar panels, vehicle-sharing (carpool) programs and parking, and bicycle storage racks.</p> <p>The VA will implement any measures to minimize or monitor emissions as may be required by the Louisville Metro APCD as a condition of issuing the construction or operating permit.</p> <p>Measures to minimize particulate emissions during construction are specified by Louisville Metro APCD Regulation 1.14 on controlling fugitive dust. The VA will require the general construction contractor to prepare and submit a dust control plan to be reviewed and approved by the APCD before the start of any site preparation and construction activities. The plan will specify the abatement measures to prevent visible dust emissions beyond the property boundaries, and will include but not be limited to the following measures:</p> <ul style="list-style-type: none"> ▪ Provide the approved dust control plan to subcontractors and establish expectations for compliance with the plan. ▪ Post site rules for dust control. ▪ Install and maintain trackout control devices at the construction entrance and exit locations. ▪ Establish type and frequency of application of dust suppression methods, such as water sprays or dust palliatives. ▪ Apply dust suppression (water or palliative) on all disturbed ground surfaces and material stockpiles. ▪ Cover loaded haul trucks entering and exiting the project site. ▪ Limit vehicle speed to 15 miles per hour or less on the project site. ▪ Clean paved road surfaces adjacent to the project site of dirt and mud from construction traffic and activities. ▪ Suspend earth-moving activities during high wind conditions. ▪ Stabilize with mulch any disturbed areas expected to be inactive for several weeks or longer. ▪ Establish a schedule to monitor abatement measures for effectiveness and make adjustments as necessary.
Cultural Resources	Consult with the State Historic Preservation Officer and properly address any unknown cultural resources discoveries during site development.

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Table 10. Mitigation Measures and Best Management Practices (continued)

Resource	Mitigation Measure / Best Management Practice
Geology and Soils	<p>Designing and constructing the facilities of the VAMC campus following the guidelines of the Louisville Metro Government Land Development Code will ensure that the potential for adverse impacts of development on karst terrain are addressed. The VA will ensure the requisite karst survey or geological assessment is completed by a State of Kentucky licensed engineer, and construction performance standards that address karst features are included in the site design.</p> <p>During construction, a geotechnical engineer will be present to observe the excavation, rock removal, and geothermal and water supply well drilling to determine whether treatment methods will be required for any exposed sinkholes and to minimize the potential for karstic activity.</p> <p>Measures to minimize erosion of soils by wind and stormwater runoff during construction are discussed under air quality and hydrology/water quality.</p> <p>Any blasting operations will be conducted by a person certified by the Kentucky Department of Natural Resources. In accordance with Kentucky Revised Statute 350.430, the VA will provide advance written notice of the blasting schedule to the Louisville-Jefferson County Metro Government and area residents within one-half mile of the project site, and if requested by a resident or owner of a structure within the notification area, conduct a pre-blast survey of the structure.</p>
Hydrology and Water Quality	<p>The Stormwater Pollutant Prevention Plan and Erosion Prevention and Sediment Control Plan will outline required measures and best management practices to implement, monitor, and maintain to ensure stormwater runoff during construction is controlled and water quality is not adversely affected. The VA will ensure the construction contractor adheres to both plans, as well as the groundwater protection plans and VA specifications for well drilling.</p> <p>The approved design, operation, and maintenance of the stormwater management infrastructure will ensure stormwater runoff is restored to predevelopment site hydrology to the maximum extent feasible in accordance with MSD stormwater discharge regulations.</p>
Wildlife and Habitat	<p>To protect migratory birds if construction is scheduled to begin between April and July, the project site will be surveyed by a qualified biologist to confirm the absence of nests and nesting activity. If found, active nests (containing eggs or young) will be avoided until they are no longer active or the young birds have fledged. The Kentucky Department of Fish and Wildlife Resources will be contacted for guidance on appropriate avoidance measures for specific species and distances to keep away from active nests.</p> <p>Preventive measures such as monitoring and eradication will be implemented to reduce noxious weeds from invading the project site after ground disturbance occurs and before landscaping is installed.</p>

Table 10. Mitigation Measures and Best Management Practices (continued)

Resource	Mitigation Measure / Best Management Practice
Noise	<p>Conduct a community outreach effort to local elected officials, businesses, and residents to provide early information and schedules on construction activities and expected noise levels and durations.</p> <p>Construction staging and stockpile areas will be located in the northwest corner of the project site at the farthest distance from residential noise receptors.</p> <p>Although construction activities are allowed between 7:00 a.m. and 9:00 p.m. daily in accordance with the Louisville-Jefferson County Metro Government noise ordinance, construction contractors will be required to limit activities to Monday through Friday and to cease work at 5:00 p.m. unless construction schedules dictate otherwise.</p> <p>Construction contractors will be required to shut down heavy equipment and stationary construction equipment if not actively being used.</p> <p>The VA will include in the construction bid documents the requirement for construction contractors to provide an offsite parking plan and shuttle service for construction workers to minimize the number of personal vehicles accessing the project site.</p> <p>Construction contractors will be required to maintain equipment muffler, exhaust, and other systems according to manufacturing standards to minimize noise output.</p> <p>Any blasting operations will be conducted by a person certified by the Kentucky Department of Natural Resources. In accordance with Kentucky Revised Statute 350.430, the VA will provide advance written notice of the blasting schedule to the Louisville-Jefferson County Metro Government and area residents within one-half mile of the project site, and if requested by a resident or owner of a structure within the notification area, conduct a pre-blast survey of the structure.</p> <p>The landscaping plan will include trees and shrubs that are appropriate for attenuating noise and buffering adjacent residential areas.</p>
Solid Waste and Hazardous Materials	<p>Implement construction and operational BMPs to minimize effects and comply with applicable regulations.</p>

Table 10. Mitigation Measures and Best Management Practices (continued)

Resource	Mitigation Measure / Best Management Practice
Transportation and Parking	<p>The VA will continue to coordinate with the KYTC on the planning, design, and construction of the Watterson Expressway (I-264) and US 42 interchange improvement project, which includes construction of the intersection at Old Brownsboro Road and Northfield Drive at the entrance/exit to the VAMC campus.</p> <p>The VA will include in the construction bid documents the requirement for contractors to provide an offsite parking plan and shuttle service for construction workers to minimize traffic and the number of personal vehicles accessing the project site.</p> <p>The LEED Silver certification design for the VAMC campus requires energy conservation measures that reduce air pollutants associated with combustion sources, which in turn, also reduces vehicle trips. Some of these measures include vehicle-sharing (carpool) programs and parking incentives, public transit programs, and bicycle storage racks.</p> <p>The VA will implement, if practicable and feasible, flextime and variable staff work schedules with the objective of avoiding morning and evening peak hour traffic.</p> <p>The VA will request service and supply deliveries be scheduled, if practicable and feasible, to avoid morning and evening peak hour traffic.</p> <p>The VA will encourage TARC to extend bus routes onto the VAMC campus to serve the VAMC and VBA buildings for patients, visitors, and staff to reduce personal vehicle trips.</p>
Utilities	Comply with LWC, MSD, and Louisville Gas and Electric requirements.

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7.0 REFERENCES CITED

Chapters 1 and 2

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8.0 ACRONYMS AND ABBREVIATIONS

ADT	average daily traffic
APCD	Louisville Metro Air Pollution Control District
APE	area of potential effect
BMP	best management practice
CBOC	community-based outpatient clinic
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	decibel
dBA	A-weighted” decibel
DHV	design hourly volume
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
FONSI	finding of no significant impact
FWS	U.S. Fish and Wildlife Service
GPP	groundwater protection plan
KDEP	Kentucky Department for Environmental Protection
KYTC	Kentucky Transportation Cabinet
LEED	Leadership in Energy and Environmental Design
LG&E	Louisville Gas and Electric Company
LOS	level of service
LWC	Louisville Water Company
MSD	Louisville and Jefferson County Metropolitan Sewer District
NAAQS	National Ambient Air Quality Standards
NEPA	<i>National Environmental Policy Act of 1969</i>
NOA	Notice of Availability
NO _x	nitrogen oxides
NRHP	National Register of Historic Places
PEA	programmatic environmental assessment
PM	particulate matter
PPV	peak particle velocity
RCRA	<i>Resource Conservation and Recovery Act</i>
SIP	state implementation plan
SO ₂	sulfur dioxide
TARC	Transit Authority of River City
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
VA	U.S. Department of Veterans Affairs
VAMC	VA Medical Center
VBA	Veterans Benefits Administration
VOCs	volatile organic compounds

9.0 GLOSSARY

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Aesthetic resources: The components of the environment as perceived through the visual sense only. Aesthetic specifically refers to beauty in both form and appearance.

Affected environment: A portion of the NEPA document that succinctly describes the environment of the area(s) to be affected or created by the alternatives under consideration. Includes the environmental and regulatory setting of the proposed action.

Alternative: A reasonable way to fix the identified problem or satisfy the stated need.

Attainment area: An area that the Environmental Protection Agency has designated as being in compliance with one or more of the National Ambient Air Quality Standards for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. An area may be in attainment for some pollutants but not for others.

Conformity analysis: The *Clean Air Act* requires the Environmental Protection Agency to promulgate rules to ensure that federal actions conform to the appropriate state implementation plans (SIP) for air quality. Two sets of rules (one for transportation and one for all other actions) developed by EPA establish the criteria and procedures governing the determination of this conformity. A conformity analysis follows these criteria and procedures to quantitatively assess whether a proposed federal action conforms with the SIP.

Council on Environmental Quality (CEQ): Established by Congress within the Executive Office of the President as part of the *National Environmental Policy Act of 1969*, CEQ coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. The Council's Chair, who is appointed by the President with the advice and consent of the Senate, serves as the principal environmental policy adviser to the President. The CEQ reports annually to the President on the state of the environment, oversees federal agency implementation of the environmental impact assessment process, and acts as a referee when agencies disagree over the adequacy of such assessments.

Criteria pollutant: An air pollutant that is regulated by National Ambient Air Quality Standards. Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and two size classes of particulate matter, PM₁₀ and PM_{2.5}. New pollutants may be added to, or removed from, the list of criteria pollutants as more information becomes available.

Critical habitat: Habitat essential to the conservation of an endangered or threatened species that has been designated as critical by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the procedures outlined in the *Endangered Species Act* and its implementing regulations.

Cumulative effect (cumulative impact): The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Decibel (dB): A unit for expressing the relative intensity of sounds on a logarithmic scale from zero for the average least perceptible sound to about 130 for the average level at which sound causes pain to humans. For traffic and industrial noise measurements, the A-weighted decibel (dBA), a frequency-weighted noise unit, is widely used. The A-weighted decibel scale corresponds approximately to the frequency response of the human ear and thus correlates well with the loudness perceived by people.

Effects: Effects and impacts, as used in NEPA, are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial. There are direct effects and indirect effects. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Endangered species: Plants or animals that are in danger of extinction through all or a significant portion of their ranges and that have been listed as endangered by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the procedures outlined in the *Endangered Species Act* and its implementing regulations.

Environmental assessment (EA): A concise public document for which a federal agency is responsible that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact; aid an agency's compliance with NEPA when no environmental impact statement is necessary; or facilitate preparation of an EIS when one is necessary. Includes brief discussions of the need for the proposal, of alternatives, of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

Environmental impact statement (EIS): A detailed written statement required by Section 102(2)(C) of NEPA, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources.

Environmental justice: The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Executive Order 12898 directs federal agencies to make

achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs, policies, and activities on minority and low-income populations.

Finding of no significant impact (FONSI): A public document issued by a federal agency briefly presenting the reasons why an action for which the agency has prepared an environmental assessment has no potential to have a significant effect on the human environment and, thus, will not require preparation of an environmental impact statement.

Floodplain: The lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Fugitive emissions: Emissions that do not pass through a stack, vent, chimney, or similar opening where they could be captured by a control device. Any air pollutant emitted to the atmosphere other than from a stack. Sources of fugitive emissions include pumps; valves; flanges; seals; area sources such as ponds, lagoons, landfills, and piles of stored material (such as coal); and road construction areas or other areas where earthwork is occurring.

Hazardous material: Any material that poses a threat to human health and/or the environment. Hazardous materials are typically toxic, corrosive, ignitable, explosive, or chemically reactive.

Historic property: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Impacts: see Effects.

Impervious surface: A hard surface area that either prevents or retards the entry of water into the soil or causes water to run off the surface in greater quantities or at an increased rate of flow. Common impervious surfaces include, but are not limited to, rooftops, walkways, patios, driveways, parking lots, storage areas, concrete or asphalt paving, and gravel roads.

Karst terrain: Regions where the type of rock below the land surface can naturally be dissolved by groundwater circulating through them. Karst terrain is characterized by springs, caves, and sinkholes. About 20 percent of the land surface in the U.S. is classified as karst. Most of the groundwater flow and transport occurs through a network of interconnected fissures, fractures, and conduits in a relatively low-permeability rock matrix (summarized from www.usgs.gov).

Level of service: A standard measurement used by transportation officials that reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F.

Mitigation: Planning actions taken to avoid an impact altogether to minimize the degree or magnitude of the impact, reduce the impact over time, rectify the impact, or compensate for the impact. Mitigation includes (40 CFR 1508.20) avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or

magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

National Ambient Air Quality Standards (NAAQS): Standards defining the highest allowable levels of certain pollutants in the ambient air (i.e., the outdoor air to which the public has access). Primary standards are established to protect public health; secondary standards are established to protect public welfare (for example, visibility, crops, animals, buildings).

National Pollutant Discharge Elimination System (NPDES): A provision of the *Clean Water Act* that prohibits discharge of pollutants into waters of the United States unless a special permit is issued by the Environmental Protection Agency, a state, or, where delegated, a tribal government on an Indian reservation.

National Register of Historic Places: The nation's inventory of known historic properties that have been formally listed by the National Park Service (NPS). The National Register of Historic Places is administered by the NPS on the behalf of the Secretary of the Interior. National Register listings include districts, landscapes, sites, buildings, structures, and objects that meet the set of criteria found in 36 CFR 60.4.

No action alternative: The alternative where current conditions and trends are projected into the future without another proposed action.

Non-attainment area: An area that the Environmental Protection Agency has designated as not meeting (that is, not being in attainment of) one or more of the National Ambient Air Quality Standards for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. An area may be in attainment for some pollutants, but not for others.

Particulate matter (PM), PM₁₀, PM_{2.5}: Any finely divided solid or liquid material, other than uncombined (that is, pure) water. A subscript denotes the upper limit of the diameter of particles included. Thus, PM₁₀ includes only those particles equal to or less than 10 micrometers (0.0004 inch) in diameter; PM_{2.5} includes only those particles equal to or less than 2.5 micrometers (0.0001 inch) in diameter.

Proposed action: In a NEPA document, this is the primary action being considered. Its impacts are analyzed together with the impacts from alternative ways to achieve the same objective and the required no action alternative, which means continuing with the status quo.

Runoff: The portion of rainfall, melted snow, or irrigation water that flows across ground surface and is eventually returned to streams. Runoff can pick up pollutants from the air or the land and carry them to streams, lakes, and oceans.

Scope: Consists of the range of actions, alternatives, and impacts to be considered in an environmental analysis. The scope of an individual statement may depend on its relationships to other statements (also see tiering).

Scoping: An early and open process for determining the extent and variety of issues to be addressed and for identifying the significant issues related to a proposed action (40 CFR §1501.7). The scoping process helps not only to identify significant environmental issues deserving of

study, but also to deemphasize insignificant issues, narrowing the scope of the NEPA process accordingly, and for early identification of what are and what are not the real issues (40CFR §1500.5(d)). The scoping process identifies relevant issues related to a proposed action through the involvement of all potentially interested or affected parties (affected federal, state, and local agencies; recognized Indian tribes; interest groups, and other interested persons) in the environmental analysis and documentation.

Significantly: As used in NEPA, requires considerations of both context and intensity. Context—significance of an action must be analyzed in its current and proposed short- and long-term effects on the whole of a given resource (for example, affected region). Intensity—refers to the severity of the effect

Solid waste: Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues. Technically, solid waste also refers to liquids and gases in containers.

Tiering: Refers to the coverage of general matters in broader environmental impact statements (EIS) (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin-wide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared. Tiering in such cases is appropriate when it helps the lead agency to focus on the issues that are ripe for decision and exclude from consideration issues already decided or not yet ripe.

Wetlands: Those areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances do, or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas. Jurisdictional wetlands are those wetlands protected by the *Clean Water Act*. They must have a minimum of one positive wetland indicator from each parameter (vegetation, soil, and hydrology). The U.S. Army Corps of Engineers requires a permit to fill or dredge jurisdictional wetlands.

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Appendix A: Agency and Tribal Correspondence

Farmland Rating Form

Additional correspondence will be provided in Final SEA

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U.S. Department of Agriculture					
FARMLAND CONVERSION IMPACT RATING					
PART I (To be completed by Federal Agency)			Date Of Land Evaluation Request August 5, 2014		
Name of Project New Robley Rex VAMC Campus			Federal Agency Involved Dept of Veterans Affairs		
Proposed Land Use Institutional			County and State Jefferson County, Kentucky		
PART II (To be completed by NRCS)			Date Request Received By NRCS Aug 8, 2014		Person Completing Form: David Gehring
Does the site contain Prime, Unique, Statewide or Local Important Farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)			YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Average Farm Size 60
Major Crop(s) Corn, Soybeans		Farmable Land In Govt. Jurisdiction Acres: 66794 % 27.3		Amount of Farmland As Defined in FPPA Acres: 53420 % 21.8	
Name of Land Evaluation System Used		Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS Aug. 13, 2014	
PART III (To be completed by Federal Agency)			Alternative Site Rating		
			Site A	Site B	Site C
A. Total Acres To Be Converted Directly			34.9		
B. Total Acres To Be Converted Indirectly			0		
C. Total Acres In Site			34.9		
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland			34.9		
B. Total Acres Statewide Important or Local Important Farmland			0		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted			0.07%		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value			13.6%		
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)			88		
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)			Maximum Points	Site A	Site B
1. Area In Non-urban Use			(15)	0	
2. Perimeter In Non-urban Use			(10)	0	
3. Percent Of Site Being Farmed			(20)	0	
4. Protection Provided By State and Local Government			(20)	0	
5. Distance From Urban Built-up Area			(15)	0	
6. Distance To Urban Support Services			(15)	0	
7. Size Of Present Farm Unit Compared To Average			(10)	2	
8. Creation Of Non-farmable Farmland			(10)	10	
9. Availability Of Farm Support Services			(5)	0	
10. On-Farm Investments			(20)	0	
11. Effects Of Conversion On Farm Support Services			(10)	0	
12. Compatibility With Existing Agricultural Use			(10)	0	
TOTAL SITE ASSESSMENT POINTS			160	12	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)			100	88	0
Total Site Assessment (From Part VI above or local site assessment)			160	12	0
TOTAL POINTS (Total of above 2 lines)			260	100	0
Site Selected: A		Date Of Selection		Was A Local Site Assessment Used?	
				YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Reason For Selection: Location for the VAMC campus meets the siting criteria for size, current zoning, accessible transportation, available utilities, proximity to local hospitals, and environmental constraints.					
Name of Federal agency representative completing this form: Mary B. Peters				Date: 08/05/2014	
(See Instructions on reverse side)				Form AD-1006 (03-02)	

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Appendix B: Summary of Public Scoping and Comments

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Appendix C: List of Environmental Permits / Coordination Required

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This appendix lists environmental permits or other coordination actions that potentially need to be obtained or completed at the federal, state, and local level.

Table: List of Environmental Permits / Coordination Required

Agency	Project Stage	Environmental Permit, Compliance, or Coordination	Key Requirements
U.S. Fish and Wildlife Service (FWS) – Southeast Region	Planning/ Construction	Consultation with the FWS under Section 7 of the <i>Endangered Species Act</i>	Accomplished through consultation with Kentucky Department of Natural Resources, Kentucky Department of Fish and Wildlife Resources. Completed for PEA. Further coordination required prior to construction – see mitigation measures.
Kentucky Heritage Council (State Historic Preservation Office)	Planning/ Construction	Consultation in accordance with Section 106 of the NHPA	Archaeological consultation completed at PEA stage, above-ground survey completed during site-specific EA, pending SHPO concurrence with finding of no adverse effect to historic properties.
Kentucky Energy and Environment Cabinet	Construction	Groundwater Protection Plan	Prepared by well driller in accordance with 401 KAR 5:037. Driller would use KDEP’s generic GPP and provide project-specific, identifying the groundwater-protective construction practices. Approval of GPP by Energy and Environment Cabinet, available for 30-day public review.
KDEP Division of Water	Construction	Kentucky Pollutant Discharge Elimination System General Permit for Stormwater Discharges associated with Construction Activities (KYR10)	File Notice of Intent with Division of Water prior to start of construction activities; prepare and implement a Stormwater Pollution Prevention Plan to control stormwater discharges (runoff) from project site during construction.
KDEP Division of Water	Operation	Kentucky Pollutant Discharge Elimination System Permit	File application with Division of Water to discharge groundwater from foundation dewatering system to surface water.
KDEP Division of Water	Operation	Application for Emergency Authorization to Withdraw Water	Submit in the case of an emergency situation requiring a withdrawal rate greater than 10,000 gallons per day.
Louisville Metro Air Pollution Control District	Construction/ Operation	Permits to construct and operate	Calculate potential to emit based on maximum capacity of emission sources to determine type of permit application (Title V or minor source).
Louisville Metro Air Pollution Control District	Operation	Gasoline Dispensing Facility Permit	Submit application for gasoline dispensing equipment.
Louisville Metro Air Pollution Control District	Construction	Dust Control Plan	Prepare and implement plan to control fugitive particulate emissions.
Louisville-Jefferson County Metropolitan Sewer District	Construction	Site Disturbance Permit	File permit application with detailed Erosion Prevention and Sediment Control Plan.
Louisville Metro Planning Commission	Planning / Construction	Zoning	Consult with local officials and consider recommendations on zoning issues, including landscaping, setbacks, building heights, and exterior facades in accordance with 40 U.S.C. 619(c) and (d).

Agency	Project Stage	Environmental Permit, Compliance, or Coordination	Key Requirements
Louisville Gas and Electric (LGE)	Planning	LGE would obtain right-of-way permits and approvals from the Kentucky Public Service Commission to provide a primary and backup electrical feed to the site.	VA to coordinate and provide information to LGE as needed.
Federal Aviation Administration	Planning	Notice of Proposed Construction or Alteration, FAA Form 7460-1	Provide notice for approval for construction of water tower that exceeds height restrictions within 20,000 feet of an airport.
Kentucky Airport Zoning Commission	Planning	Form TC 56-50	File form for final design and location of water tower