

Environmental Assessment  
University City FD Proposed Fire Station  
University City, MO  
EMW-2009-FC-03208  
*March 2010*



**FEMA**

**FEMA Region VII**  
9221 Ward Parkway, Suite 300  
Kansas City, MO 64114



## **ENVIRONMENTAL ASSESSMENT**

### **PROPOSED FIRE STATION EMW-2009-FC-03208 6601 VERNON AVENUE UNIVERSITY CITY, MISSOURI**

*For Submittal to:*

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
U.S. DEPARTMENT OF HOMELAND SECURITY  
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*Prepared for:*

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*Prepared by:*

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**March 2010  
Contract C-10010**

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## QUALITY ASSURANCE/QUALITY CONTROL

**Project:**       **Environmental Assessment**  
                  **Proposed Fire Station**  
                  **6601 Vernon Avenue**  
                  **University City, Missouri**

**Project No.:**   **Contract C-10010**

This report has been prepared on behalf of and for the exclusive use of University City Fire Department solely for the purpose of documenting the above-titled project. This report and all documents contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without written consent of NPN Environmental Engineers, Inc. and University City Fire Department. However, NPN Environmental acknowledges and agrees that the report being submitted to Federal Emergency Management Agency may be conveyed as public information.

As part of NPN Environmental's QA/QC practices and procedures, this report has been reviewed and approved by the following:

**Project Manager:**

\_\_\_\_\_ *Ruth C. Mannebach*

**QA/QC Manager:**

\_\_\_\_\_ *Kimberly A. Polacek*

It is the professional opinion of David B. Row, P.E., a Registered Professional Engineer licensed to practice in the State of Missouri, that good environmental engineering practices were employed on this project.

Name:           David B. Rowe, P.E.

Title:           Principal

Signature:      \_\_\_\_\_

Date:           \_\_\_\_\_

Missouri Registration Number  
E-24039

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

CFR	Code of Federal Regulations
CWA	Clean Water Act
EA	Environmental Assessment
FEMA	Federal Emergency Management Agency
MDNR	Missouri Department of Natural Resources
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
SHPO	State Historic Preservation Office
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

## **INTRODUCTION**

The University City Fire Department (University City FD) serves the corporate limits of the City of University City in north central St. Louis County, as well as providing mutual response/automatic aid to the City of St. Louis and other municipalities in St. Louis County. The department has two existing fire stations within their geographic service area. The City of University City is within the metropolitan St. Louis area and although population within University City has declined over the past two decades, the number of service calls the fire department responds to within University City and as mutual aid has not decreased.

An existing fire station (Engine House 1) located at 6801 Delmar Boulevard in the southeast part of University City is proposed for replacement. The building (approximately 100 years old) has been structurally damaged from years of water intrusion through the roof, basement and foundation, as well as shifting of the building. Water intrusion has resulted in extensive growth of mold and mildew and damage to the HVAC system, resulting in a building that is unfit to inhabit. During the last building inspection, the building was listed as unsafe, with 58 inspection violations. Although the building is being inhabited and functioning, it was not originally designed for use as a fire station, which limits the size and type of fire apparatus that can be housed. Expansion and upgrades to this station house are not possible due to physical site restrictions. Additionally, the building is located adjacent to an elementary school and has poor access to public streets. The structural deterioration of the building, increases in respiratory problems and illnesses in firefighters attributed to poor indoor air quality of the building, inability to house modern apparatus, and increased response time due to traffic congestion and poor street access has degraded the University City FD's ability to respond not only locally, but as a mutual aid partner to neighboring communities.

NEPA requires that Federal agencies consider the environmental consequences of proposed actions before deciding to fund an action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed decision making. The Council on Environmental Quality was established under NEPA to implement and oversee Federal policy in this process and implemented the procedural provisions of NEPA codified at 40 CFR 1500-1508. An Environmental Assessment (EA) related to a FEMA program must be prepared according to the requirements of the Stafford Act and 44 CFR Part 10. This EA has been prepared to evaluate the potential effects to the natural and human environment from relocation and construction of a new fire station.

## **PURPOSE AND NEED**

This EA provides information to support the Department of Homeland Security's Assistance to Firefighters Fire Station Construction Grants process. The purpose of the proposed action is to provide funding for construction of a new fire station under the

American Recovery and Reinvestment Act to the Fire Station Construction Grant program.

The University City FD proposed fire station is needed to provide effective and timely fire protection and emergency services to the eastern portion of University City and surrounding municipalities. The proposed fire station will replace an existing station that is obsolete in function due to location, age, and configuration and unsafe and uninhabitable due to water damage and building settlement. Critical flaws of the existing station cannot feasibly be corrected due to physical structural and property constraints. The proposed new station will significantly reduce overall response time to the community as well as enhance the FD's ability to respond to crises involving critical infrastructure including five major state and interstate highways, the Metrolink regional rail system, several public schools, and a major electric utility substation by providing a more centrally located modern facility able to house modern fire apparatus.

## **ALTERNATIVES**

NEPA requires the investigation and evaluation of reasonable project alternatives, including impacts to the natural and human environment as part of the planning process. This EA addresses two alternatives, the No Action alternative and the Proposed Action. Washington University generously donated the parcel of land that is the Proposed Action to the city for the designated purpose of constructing the new fire station. Based on this action and a lack of funding or opportunity to investigate other sites, the University City FD did not consider alternative locations.

### **No Action Alternative**

The No Action alternative would result in no construction of a new fire station on the east side of University City and continued reliance on the existing station. This action would leave emergency response times to this area of the community and surrounding areas unchanged and likely to increase with future population growth and development. The No Action alternative would result in lower level of overall public safety than the proposed alternative.

### **Proposed Action**

The Proposed Action would result in construction of a new fire station on property currently owned by the City of University City at 6601 Vernon Avenue, within the city limits of University City, Missouri, as shown on *Figure 1 – Vicinity Map in Appendix A – Figures*. The preliminary design calls for an approximately 16,700 square foot, 2-story fire station with 5 vehicle bays (*Appendix B – Draft Facility Layout*). An equipment and gear storage room and decontamination area will be located in the bay area, and vehicle exhaust will be vented to the outdoors with a NFPA 1500 compliant exhaust extraction system. The living quarters will include a kitchen, day room, restrooms, bedrooms, and mechanical and utility areas. A training room will also be provided and during times of

disaster or severe weather, may be used as an Emergency Operations Center or community heating/cooling center. A final design has not been completed; however, the building will incorporate "green design" features with the intent of obtaining LEED silver accreditation at a minimum. All utilities are currently available to the site and the building will be tied into existing municipal water and sewer and the local electric utility. A backup generator system will also be installed to support building functions during power outages. The commercial property has been zoned for construction of the fire station and all necessary building permits have been obtained from the City of University City.

Photographs of the subject property and adjacent properties taken on January 22, 2010 are included in *Appendix C – Site Photographs*.

## **AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS**

The City of University City is an inner-ring suburb in St. Louis County, located just west of the St. Louis city limits in east-central Missouri. The city has a total land area of 6 square miles. The 2000 United States Census Bureau population included 37,428 people; however, reductions in population growth have recently occurred due to overall shifts in the metropolitan demographic, with an estimated 2008 population of 36,289 people.

The proposed University City FD fire station will be located on a 0.695-acre parcel of vacant ground within the city limits, as shown on *Figure 2 – 2007 Aerial Photograph*. Historically, the project site was developed residentially from at least 1909 through 1965, at which time it was zoned for industrial development and the houses demolished. The property remained vacant from 1965 to 1989. In 1989, adjacent property to the west was developed with an office/warehouse building. The parking lot for this building extends onto the southern third of the project site. The northern two-thirds of the project site remained undeveloped and is currently maintained grass. Adjacent property to the north and west is commercial. Adjacent property to the east and south is single- and multi-family residential.

This section discusses the existing environmental conditions at the proposed project site including descriptions of the physical, biological, and socioeconomic resources throughout the general area and the proposed action site. The characterization of existing conditions provides a baseline for assessing the potential environmental impacts from activities associated with the proposed action.

### **Physical Resources**

The elevation of the subject property is approximately 490 feet above mean sea level, as depicted on the *1954 (Revised 1993) Clayton, MO. USGS 7.5 minute Quadrangle Maps*. The subject site and surrounding properties slope gently to the south. Stormwater flow is routed over land by sheet flow to local storm drains. A copy of this map (*Figure 1*) is included in *Appendix A*.

### *Geology and Soils*

The general stratigraphy of the subject site is characterized by the Meramecian Series of the Mississippian System in the Paleozoic Era, which contains three formations consisting mainly of limestone and some dolomite: Warsaw, Salem, and St. Louis. The Warsaw Formation (ranging in thickness from 40 to 100 feet) is composed of fine-to-coarse crystalline, fossiliferous limestone that may contain geodes. The Salem Formation (ranging in thickness from 100 to 160 feet) has two sections. The lower section is composed of light gray-to-white, fossiliferous, argillaceous, oolitic limestone. The upper section contains blue-gray, argillaceous, oolitic, dolomitic limestone with an abundance of speckled gray and tan chert. The St. Louis Formation (ranging in thickness from 0 to 100 feet) is composed of gray, lithographic-to-fine crystalline, medium to massively bedded limestone.

The subject site is located on Urban Land-Harvester complex (18A) with 0 to 2 percent slopes. This complex is composed of Urban land intermingled with areas of nearly level, moderately well-drained Harvester soils. Typically found on broad upland divides, individual areas are irregular in shape and range in size from 30 to 900 acres. The Urban land-Harvester complex consists of approximately 65 percent Urban land and 30 percent Harvester soils. Surface runoff in this complex is slow. Urban land is developed with buildings, parking lots, and streets that obscure identification of the original soils and is impervious to water.

The Harvester soil surface layer is brown silt loam about 4 inches thick overlaying approximately 33 inches of multicolored silt loam and silty clay loam fill material containing fragments of bricks, glass, and cinders. Below the fill material lays dark yellow-brown, mottled, firm, silty clay loam to a depth of 60 inches. In places, the fill material may be more than 40 inches thick, all the original soil may have been removed during land shaping, the surface layer may be silty clay loam, or the soil layers may contain more than 20 percent coarse fragments. Harvester soil permeability is moderately slow. These soils are not classified as prime farmland.

The proposed action will not significantly impact geology or soils at the site. All construction activity will incorporate practices to minimize soil erosion during the construction phase, including the use of best management practices such as installation of silt fencing and straw bales and proper staging of construction equipment. Following completion of the construction phase, the site will be landscaped with decorative and cover vegetation, reducing the potential for soil erosion.

Geology and soils will not be impacted by the No Action alternative as no construction activities would occur.

### *Air Quality*

The USEPA is required under the Clean Air Act to set National Ambient Air Quality Standards for pollutants harmful to public health and the environment. Primary standards protective of human health and secondary standards protective of public welfare have been established for ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), lead (Pb), particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>), and particulate matter with a diameter of 2.5 microns or less (PM<sub>2.5</sub>).

MDNR operates five air quality monitoring stations for primary air pollutants in St. Louis County. Currently, St. Louis County, Missouri is considered a non-attainment area for ozone and fine particulate matter (PM<sub>2.5</sub>), and an attainment area for the remaining criteria pollutants listed above.

The proposed action will require short-term construction activities including soil excavation and grading, cutting and filling, and soil placement. Heavy equipment including bulldozers, graders, and backhoes will be used during construction. These activities are likely to create fugitive dust; however, best management practices would be used to minimize dust and construction would be completed within a year. Once construction is complete and the facility is operational, the only anticipated source of air emissions would be from vehicle exhaust. As the proposed project is for construction of a new fire station and does not include acquisition of new vehicles or apparatus, no net increase of emissions over current local levels would occur.

Air quality will not be impacted by the No Action alternative as no construction activities would take place and no air emissions would occur.

### **Water Resources**

The USACE is responsible for administration of functions regarding navigable waters and wetlands of the United States under the Rivers and Harbors Act of 1899 and Section 404 of the CWA.

A site reconnaissance conducted on January 22, 2010 did not observe any natural surface water bodies (rivers, creeks, ponds, or wetlands) on or adjacent to the project location. The Urban Land-Harvester complex present at the property is characterized as a moderately well drained soil and is not classified by the USDA as a hydric soil, one of the three criteria required for determining the presence of wetlands. Therefore, the site does not contain waters of the United States.

Stormwater in the project area drains by surface flow to street level inlet structures along major roads. No evidence of ponding or inadequate drainage was observed during the site reconnaissance.

### *Water Quality*

Disturbance of soils at the project site during construction activity could result in erosion and runoff, which in turn could impact local surface water quality.

As the project site is less than 1 acre in size, it is exempt from MDNR and Metropolitan St. Louis Sewer District requirements for obtaining a land disturbance permit for construction activities. The City of University City Department of Public Works does not require or issue land disturbance permits. Although not required, best management practices such as silt fencing and mulching will be utilized during construction of the proposed action to minimize water quality impacts from site activities. Following construction, the site will be landscaped and vegetated to reduce the potential for soil erosion. The proposed action will have no significant impacts on water quality of waters of the United States and no Section 404 permitting will be required.

Water quality will not be impacted by the No Action alternative as no construction activities would take place.

### *Wetlands*

Lands subject to regulation as wetlands under Section 404 of the CWA (jurisdictional wetlands) are defined as: "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Typically, lands that exhibit characteristics of hydrology, support predominantly hydrophytic vegetation, and have a substrate that is predominantly undrained hydric soil are classified as jurisdictional wetlands. The USACE is responsible for administration of Section 404 and the issuance of permits for disturbance of wetlands, including discharge of dredged and fill material. Under Executive Order 11990, Protection of Wetlands, Federal agencies are required to take action to minimize the destruction or modification of wetlands.

The project site is located on Urban Land-Harvester complex, which is characterized as a moderately well drained, non-hydric soil. A wetlands map for the subject property prepared by the USFWS on-line map service was reviewed (*Appendix D – Additional Documentation*). No designated wetlands were identified on or adjacent to the subject property. In addition, no areas containing wetland characteristics were observed on or adjacent to the subject property during the site investigation; therefore, the proposed action would have no impacts to wetlands.

Wetlands will not be impacted by the No Action alternative as no construction activities would take place.

### *Floodplains*

Floodplains provide numerous beneficial environmental functions including flood abatement, stream flow mediation, filtering, and water quality enhancement. Federal agencies are required to minimize the occupancy and modification of floodplains under Executive Order 11988, Floodplain Management. Under this order, construction within the 100-year floodplain (500-year floodplain for critical facilities) is prohibited from receiving Federal funding unless there are no practical alternatives.

According to FEMA Flood Insurance Rate Map Community Panel 29189C0191H, the project site is located in an area classified as Zone X, outside defined floodplains (*Appendix D*). As such, the proposed action would not have an impact on floodplains.

Under the No Action alternative, construction activities would not take place and there would be no potential impacts to floodplains.

### **Biological Resources**

Under the Endangered Species Act of 1973, Federal agencies must review proposed actions to ensure they are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat.

#### *Threatened/Endangered Species and Critical Habitat*

The USFWS lists the following species in St. Louis County, Missouri:

- Gray bat (endangered) – caves
- Indiana bat (endangered) – caves/mines, small stream corridors with well developed riparian woods, upland forests
- Running buffalo clover (endangered) – disturbed bottomland meadow
- Decurrent false aster (threatened) – disturbed alluvial soils
- Mead's milkweed (threatened) – virgin prairies
- Pallid sturgeon (endangered) – Mississippi and Missouri Rivers
- Pink mucket (endangered) – rivers
- Scaleshell (endangered) – Bourbeuse and Meramec Rivers
- Spectaclecase (candidate) – Mississippi River
- Sheepnose (candidate) – habitat not listed
- Eastern massasauga (candidate) – habitat not listed

A Heritage Review Report of Federal and State listed species and critical habitats was requested from the Missouri Department of Conservation Policy Coordination Unit. The Heritage Review Report indicated no wildlife preserves, no designated wilderness areas or critical habitats, and no Federal or State endangered list species are located within one mile of the site or within five miles downstream on streams draining the project site.

The USFWS was also contacted for review of the proposed action. The USFWS reviewed the proposed action and determined that no Federally listed species, candidate species, or designated critical habitat occurs within the project area. Furthermore, the USFWS determined the proposed action will have negligible impacts on wetlands, migratory birds, and other priority fish and wildlife resources. Agency correspondence is included in *Appendix E – Agency Consultation Correspondence*.

Based on agency correspondence, construction of the proposed action will have no adverse affect on Federal or State-listed threatened or endangered species or critical habitat.

Under the No Action alternative, construction activities would not take place and there would be no potential impacts to biological resources.

#### *Wildlife and Fish*

The project site is a 0.695-acre upland lot located at the northwest intersection of Westgate and Vernon Avenues in an area historically and currently developed with commercial and residential buildings. The vacant site is vegetated with maintained ground cover (lawn) and has been historically disturbed by residential construction and demolition activities. No habitats conducive to wildlife are present at the site and any wildlife using or crossing the property would be transitory in nature. There are no surface water bodies present so no fish are located on the site. Thus, the proposed action will have no adverse affect on wildlife or fish.

Under the No Action alternative, construction activities would not take place and there would be no potential impacts to wildlife or fish.

#### **Cultural Resources**

Under Section 106 of the National Historic Preservation Act, Federal agencies must consider the potential effects of their actions on historical properties and cultural resources and consult with the MDNR SHPO to resolve any effects.

#### *Historic Properties*

NPN Environmental submitted a Section 106 Project Information Form to the MDNR SHPO to initiate review of the proposed action. In a Cultural Resource Assessment dated February 10, 2010, Mr. Mark Miles (Deputy State Historic Preservation Officer) determined that adequate documentation has been provided and there will be "no historic properties affected" by the current project. Agency correspondence is included in *Appendix E*.

Based on the MDNR SHPO review, the proposed action will have no adverse effect on cultural or historic resources. Should any evidence of cultural resources (artifacts or

human remains) be discovered during construction activities, work would cease and the MDNR SHPO would be notified.

Historic properties will not be impacted by the No Action alternative as no construction activities would take place.

#### *American Indian Cultural/Religious Sites*

The State of Missouri does not have a separate Tribal Historic Preservation Officer authorized by the National Park Service. Review of American Indian cultural and religious sites in Missouri is under the purview of the MDNR SHPO.

Based on the MDNR SHPO review, the proposed action will have no adverse effect on cultural or historic resources. Should any evidence of cultural resources (artifacts or human remains) be discovered during construction activities, work would cease and the MDNR SHPO would be notified.

Historic properties will not be impacted by the No Action alternative as no construction activities would take place.

#### **Socioeconomic Resources**

The 2000 census indicates the population of University City consisted of 49.26% white, 45.35% African American, 0.16% Native American, 2.85% Asian, and 2.39% from two or more races. Hispanic or Latino of any race was 1.56% of the population. The median income for a household in the city was \$40,902 and the median income for a family was \$52,539. About 9.5% of families and 14.7% of the population were below the poverty line, including 19.1% of those under age 18 and 12.1% of those aged 65 or over.

#### *Environmental Justice*

Executive Order 12898 requires that Federal agencies focus on achieving environmental justice by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.

Based on discussions with the University City FD, the proposed action will result in significant upgrades to and enhancement of the department's ability to respond quickly and effectively to all residents and establishments of the City of University City, as well as providing mutual aid to neighboring districts. As such, the proposed action will have no adverse effect on environmental justice.

Under the No Action alternative, construction activities would not take place, eliminating the potential for positive socioeconomic benefits to the community.

### *Noise*

The Noise Control Act (NCA) of 1972 provides federal regulation of noise, which is defined as undesirable sound. The NCA gives the USEPA authority to establish guidelines for acceptable ambient noise levels. Under USEPA guidelines, outdoor sound levels in excess of 55 decibels (dB) are considered "normally unacceptable" for noise-sensitive land uses such as residences, schools, and hospitals.

The project site is located in the Vernon Avenue corridor and is zoned for commercial development. The site is bordered by commercial businesses to the north and west and by single- and multi-family residences to the south and east. Temporary short-term impacts due to noise are anticipated during the construction period. To reduce noise levels during this period, construction activities will take place during normal daylight business hours.

The proposed action will introduce long-term operational impacts to adjacent residences. Fire equipment and station alarms during an emergency can range from approximately 95 to 120 dB. This intermittent elevated noise would be above acceptable levels but would only be sustained for extremely short durations. This impact cannot be mitigated due to NFPA 1901 and State Fire Marshal requirements for minimum sound-warning requirements for fire equipment when responding to an emergency.

Under the No Action alternative, short-term construction activities and long-term use of alarms would not take place and noise impacts would not occur.

### *Traffic*

The proposed action is located in an area along the Vernon Avenue corridor and is zoned for commercial development. Development of the project site with the new fire station would be compatible with this zoning classification. The St. Louis County Department of Highways and Traffic 2006 average annual daily traffic volume on this stretch of Vernon Avenue is 8,890 vehicles.

The new fire station will be located at 6601 Vernon Avenue on the northwest corner of the intersection of Westgate and Vernon Avenues and would not adversely affect average daily traffic volume on adjacent roads or general area traffic and circulation. The new fire station would result in short-term, intermittent effects to traffic on Westgate Avenue during fire response actions; however, current design plans do not include egress of emergency vehicles onto Vernon Avenue. Westgate Avenue is under the jurisdiction of the University City Street Department. Mr. Olshwanger indicated the City of University City would consider installation of emergency vehicle warning signs on Westgate Avenue; however, a final decision has not been made.

Under the No Action alternative, no impacts to traffic flow would occur.

### *Public Service and Utilities*

The project site is located within an area zoned for residential and commercial use and is currently heavily developed. All utilities (electric, telephone, water, and sewer) run along Vernon Avenue and/or Westgate Avenue and are available to the site. A limited amount of trenching and installation of underground lines and connections to the utilities will be required. The proposed action will place an additional, limited demand on utilities in the area; however, the utility infrastructure has been designed to accommodate the planned commercial development of the area.

The No Action alternative would result in no construction activities and would not impact local utilities.

### **Cumulative Impacts**

Cumulative impacts represent the impact on either the natural or human environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

The proposed alternative would occur on a project site zoned for commercial development, specifically for the fire station. Other development in this area includes commercial, manufacturing, retail, and single- and multi-family residential. Construction of the new fire station represents the replacement of an existing, obsolete fire station and would not introduce an additional facility to the area that would potentially result in an increase in cumulative impacts. The new fire station design will incorporate "green building" features that meet stringent environmental standards and energy efficiencies that will lower the overall impact of the new building on the environment.

Under the No Action alternative, no new construction would occur and there would be no net increase in cumulative impacts to the University City area.

### **SUMMARY OF IMPACTS**

**Table 1 – Summary of Affected Environments and Impacts** summarizes the potential impacts of the proposed project and, where appropriate, mitigation measures to minimize the impacts. Further discussion of the affected environment is provided in sections following the table.

**Table 1 – Summary of Affected Environments and Impacts**

<b>Affected Environment</b>	<b>Impacts from Proposed Action</b>	<b>Mitigation</b>
Geology and Soils	Disturbance of shallow soils during construction activities	Implement stormwater best management practices during construction to minimize erosion; landscape after construction to prevent erosion
Air Quality	Minor and temporary impacts from construction vehicle exhaust and fugitive dust during construction activities	Air pollution will be minimized through proper equipment maintenance and dust suppression techniques.
Water Quality	Minor and temporary impacts from soil disturbance (erosion and runoff) during construction activities	Land disturbance permit is not required; however, stormwater best management practices during construction to minimize erosion and landscape after construction to prevent erosion will be implemented.
Wetlands	The proposed action would not impact waters of the United States or wetlands.	Not applicable
Floodplains	The proposed action is not located in a floodplain.	Not applicable
Threatened/Endangered Species	No threatened or endangered species or critical habitats are located near the proposed action.	Not applicable
Wildlife and Fish	No critical habitats or surface water bodies are located near the proposed action.	Not applicable
Cultural Resources	Coordination with SHPO concluded there will be no historic properties affected by the proposed action.	Not applicable
Environmental Justice	The proposed action would benefit all citizens equally.	Not applicable
Noise	Short-term construction noise impacts and intermittent long-term impact from emergency equipment sirens	Construction activities will be restricted to normal daylight hours and equipment properly maintained. Mitigation not possible for emergency equipment sirens.

**Table 1 – Summary of Affected Environments and Impacts (cont.)**

<b>Affected Environment</b>	<b>Impacts from Proposed Action</b>	<b>Mitigation</b>
Traffic	Intermittent increase of emergency equipment on Westgate Avenue	Emergency vehicle warning signs will be considered by the City of University City
Public Service and Utilities	The proposed action will not place significant demands on in place utility infrastructure.	Not applicable
Cumulative Impacts	The new fire station will be constructed on commercially zoned property and will incorporate energy efficient design.	Not applicable

## **PUBLIC INVOLVEMENT**

The availability of this EA will be advertised by public notice in The Countian-St. Louis County newspaper. Copies of the EA will be placed at University City FD's main office at 6801 Delmar Boulevard in University City and the University City Public Library at 6701 Delmar Boulevard, University City, Missouri. The public comment period will extend for a period of 30 days. The EA can also be viewed and downloaded from FEMA's website at <http://www.fema.gov/plan/ehp/envdocuments/index.shtm>. If no substantive comments are received, the EA will become final and the initial public notice will also serve as the final public notice. The EA will then be archived on FEMA's website at <http://www.fema.gov/plan/ehp/envdocuments/archives-index.shtm>.

## **MITIGATION MEASURES AND PERMITS**

Construction of the new fire station will be completed in general accordance with the following mitigation measures to lessen impacts to the local community.

During construction, the applicant will water down construction areas as necessary to prevent fugitive dust emissions that would impact local air quality. Additionally, construction equipment will be operated with factory-equipped vehicle emissions controls.

Best management practices to reduce or eliminate runoff impacts during construction will be implemented and following construction, the site will be landscaped and vegetated to reduce the potential for soil erosion.

Construction noise will be temporary and will be mitigated by limiting construction to normal daylight hours. Construction equipment will be operated with factory-equipped vehicle emissions controls including mufflers.

Permits required for the proposed project site will include a building permit issued by the City of University City, Missouri.

## **AGENCY COORDINATION AND REFERENCES**

Mr. Kevin Story  
Archimages, Inc.  
143 West Clinton Place  
St. Louis, MO 63122

DigitalGlobe Imagery  
2007 Aerial Photograph

Federal Emergency Management Agency  
Flood Insurance Rate Map Online Mapping Service  
<http://msc.fema.gov/>

Policy Coordination Section  
Missouri Department of Conservation  
PO Box 180  
Jefferson City, MO 65102-0180  
*Heritage Review Report*

Missouri Department of Natural Resources  
State Historic Preservation Office  
Section 106 Review  
PO Box 176  
Jefferson City, MO 65102-0176  
*Cultural Resource Assessment, Section 106 Review*

Missouri Geological Survey  
*Geologic Map of Missouri*  
2003

Ms. Tobi Moriarty, South Area Engineer  
St. Louis County, MO  
Department of Highways and Traffic  
314-615-8592

St. Louis County, MO  
Department of Highways and Traffic  
*Summary of Automatic Traffic Volume Counts*  
December 31, 2007

St. Louis County, MO  
Online GIS Mapping Service  
<http://maps.stlouisco.com/>

United States Census Bureau  
<http://www.census.gov>

United States Department of Agriculture  
Soil Conservation Service  
*Soil Survey of St. Louis County and St. Louis City, Missouri*  
April 1982

United States Department of the Interior Geological Survey  
Topographic Maps  
*Clayton, MO. USGS 7.5 minute Quadrangle*  
1954 (Revised 1993)

Mr. Charles Scott  
United States Department of the Interior  
Fish and Wildlife Service  
Columbia Ecological Services Office  
101 Park DeVille Drive, Suite A  
Columbia, MO 65203

United States Department of the Interior  
Fish and Wildlife Service  
National Wetlands Inventory Online Mapper  
<http://wetlandsfws.er.usgs.gov/wtlnds/launch.html>

United States Department of the Interior  
Fish and Wildlife Service  
State and County Distribution Lists  
[http://www.fws.gov/midwest/endangered/lists/cty\\_indx.html#missouri](http://www.fws.gov/midwest/endangered/lists/cty_indx.html#missouri)

Ms. Andrea Riganti  
University City Community Development  
314-505-8516

Chief Steve Olshwanger  
University City Fire Department  
6801 Delmar Boulevard  
University City, MO 63130  
314-505-8593

## **LIST OF PREPARERS**

Those responsible for preparation of this document include:

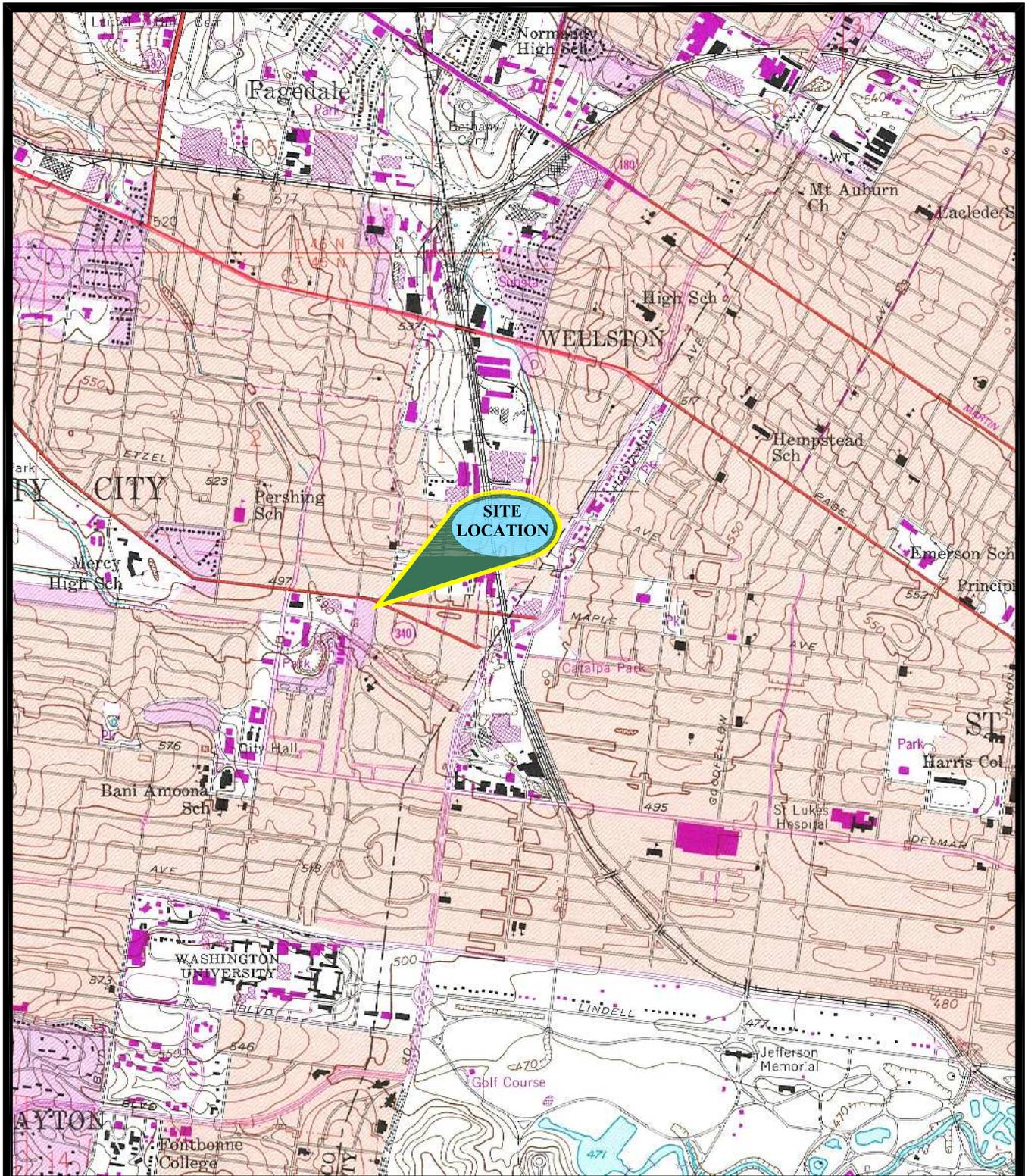
Ruth C. Mannebach, Senior Environmental Scientist  
NPN Environmental Engineers, Inc.

Steve Olshwanger, Fire Chief  
University City Fire Department

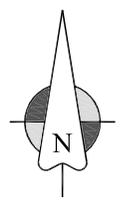
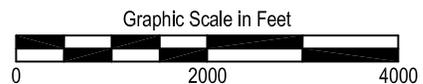
Ruth C. Mannebach was the principal preparer of this document, in consultation with Mr. Steve Olshwanger as well as the other individuals and agencies identified in this document.

## **APPENDIX A**

### *Figures*



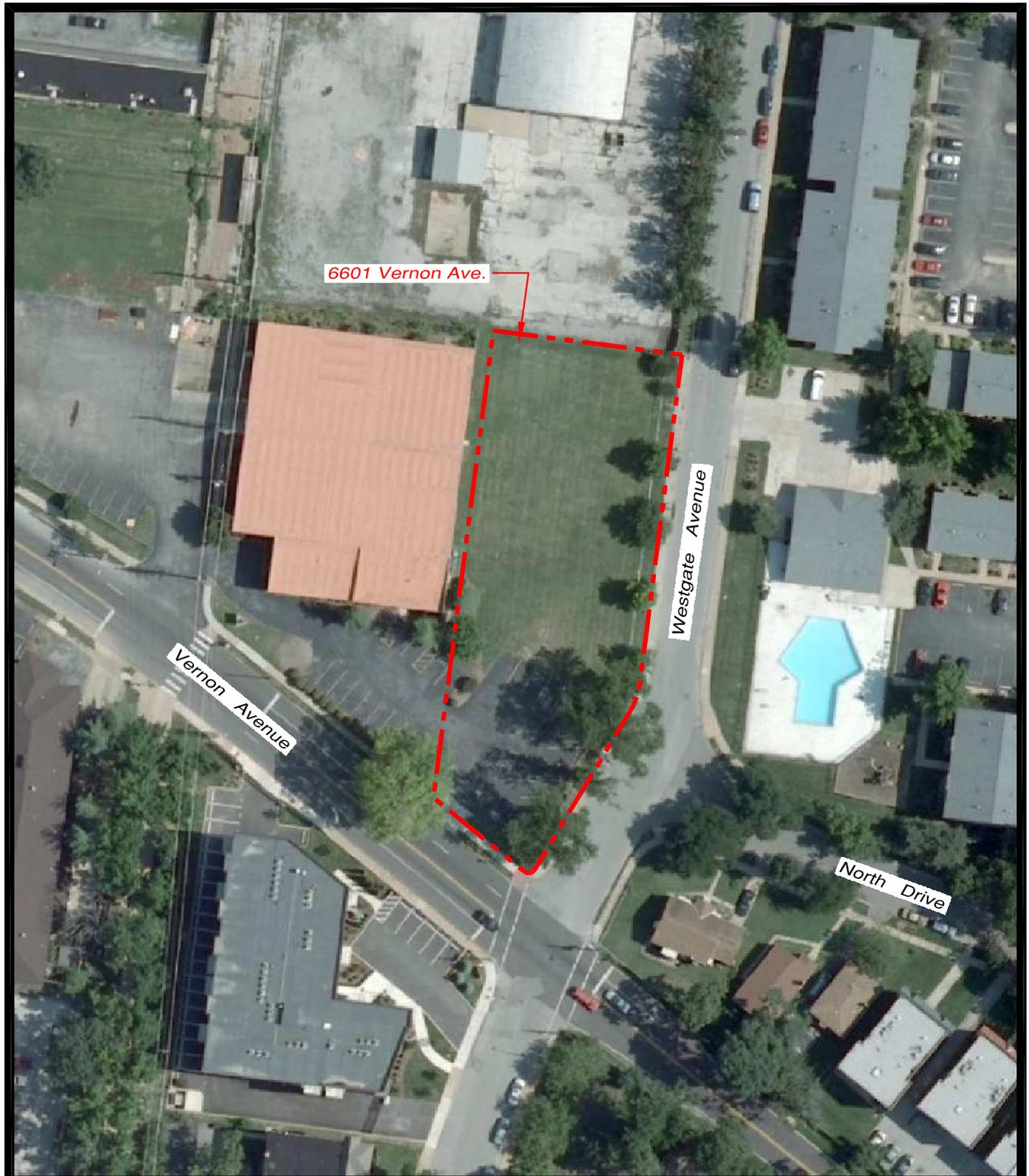
Adapted from Clayton, MO.  
 USGS 7.5 minute Quadrangle Map  
 1954 (Revised 1993)



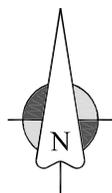
**FIGURE 1**  
 Vicinity Map

6601 Vernon Avenue - University City, MO

Project No. C-10010	Date March 2010	Scale AS SHOWN	Drawn By: SRR	Checked By:
------------------------	--------------------	-------------------	------------------	-------------



*Adapted from DigitalGlobe Imagery  
2007 Aerial Photograph*



**FIGURE 2**  
**2007 Aerial Photograph**

6601 Vernon Avenue - University City, MO

Project No.	Date	Scale	Drawn By:	Checked By:
C-10010	March 2010	AS SHOWN	SRR	

## **APPENDIX B**

*Draft Facility Layout*



Existing Development

Proposed Fire House

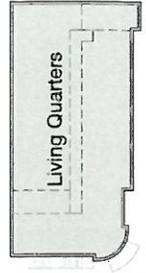
Westgate Avenue

Vernon Avenue

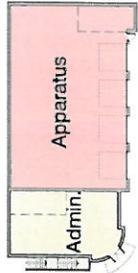
Potential Intersection Reconfiguration

Existing Development (Potential Shared Parking)

- PROJECT ATTRIBUTES:**
- Designed to meet local & national standards
  - Designed per NFPA standards
  - Designed to LEED Silver level
  - Utilize Energy Star guidelines
  - ADA compliant facility



[Upper Level]



[Main Level]



[Basement]

[Diagrammatic Floor Plates]

Above graphics are conceptual only. Final design to be developed in cooperation with the design team, local governing agencies and the University City Fire Department.

Site Concept Plan

## **APPENDIX C**

### *Site Photographs*

<b>Photo No:</b> <b>1</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> North	
<b>Description:</b> Project site (parking area and grassy field)	



<b>Photo No:</b> <b>2</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> East	
<b>Description:</b> Project site (grassy field)	



<b>Photo No:</b> <b>3</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> South	
<b>Description:</b> Project site (grassy field and parking lot)	



<b>Photo No:</b> <b>4</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> West	
<b>Description:</b> Project site (grassy field)	



<b>Photo No:</b> <b>5</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> North	
<b>Description:</b>  Adjacent commercial property to the north	



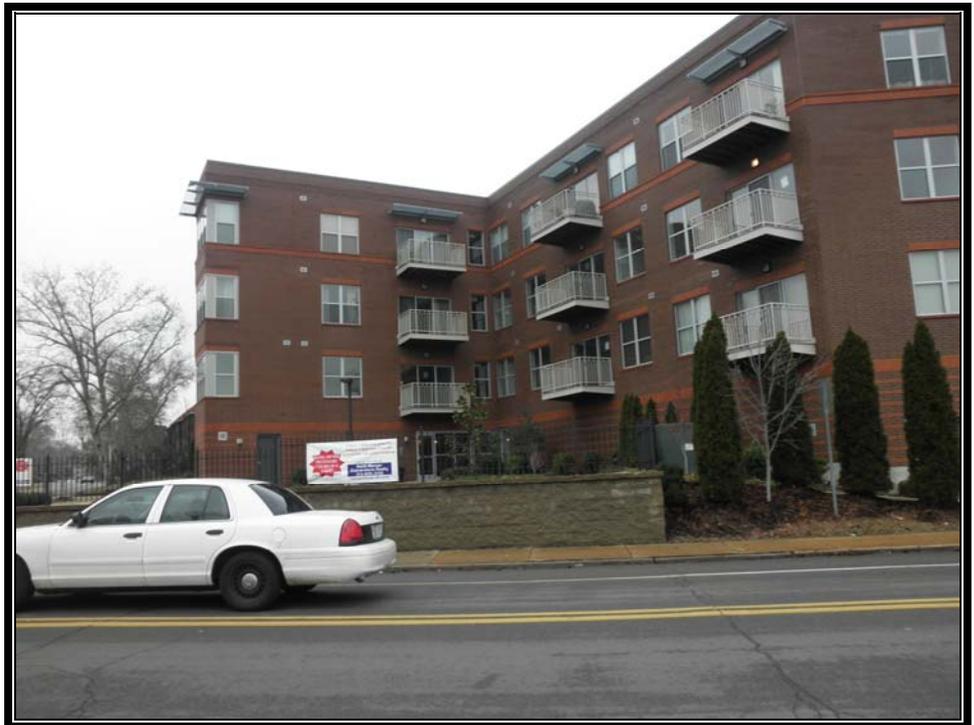
<b>Photo No:</b> <b>6</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> East	
<b>Description:</b>  Westgate Avenue and adjacent apartment complex to the east	



<b>Photo No:</b> <b>7</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> Southeast	
<b>Description:</b>  Westgate Avenue and adjacent single-family residence to southeast	



<b>Photo No:</b> <b>8</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> South	
<b>Description:</b>  Vernon Avenue and adjacent apartment building to the south	



<b>Photo No:</b> <b>9</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> West	
<b>Description:</b>  Subject property (foreground) and adjacent commercial property to the west	



<b>Photo No:</b> <b>10</b>	<b>Date:</b> 1-22-10
<b>Viewing Angle:</b> Northwest	
<b>Description:</b>  Adjacent commercial property to the west	



## **APPENDIX D**

*Additional Documentation*





APPROXIMATE SCALE IN FEET  
 500 0 500

**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM  
 FLOOD INSURANCE RATE MAP**

**ST. LOUIS COUNTY,  
 MISSOURI AND  
 INCORPORATED AREAS**

**PANEL 191 OF 420**  
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
PAGEDALE, CITY OF	290377	0191	H
ST. LOUIS COUNTY, UNINCORPORATED AREAS	290327	0191	H
UNIVERSITY CITY, CITY OF	290390	0191	H
WELLSTON, CITY OF	290395	0191	H

**MAP NUMBER  
 29189C0191 H**

**EFFECTIVE DATE:  
 AUGUST 2, 1995**

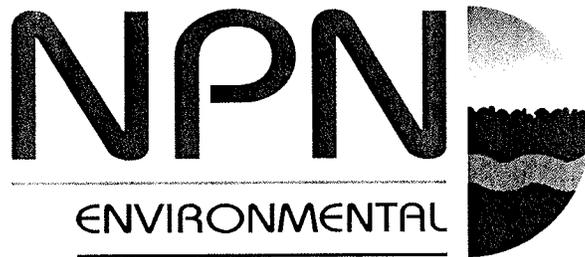


Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

## **APPENDIX E**

### *Agency Consultation Correspondence*



FILE COPY

January 26, 2010  
Contract C-10010

VIA CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Policy Coordination Section  
Missouri Department of Conservation  
P.O. Box 180  
Jefferson City, MO 65102-0180

**RE: Request for Information**  
**863 Westgate Avenue**  
**University City, MO 63130**  
**Latitude 38.6615, Longitude -90.3037**

The City of University City has retained NPN Environmental to prepare an Environmental Assessment in accordance with the Federal Emergency Management Agency (FEMA) regulations at 44 CFR Part 10 and Council on Environmental Quality Regulations at 40 CFT Part 1500-1508. As part of the Environmental Assessment for the above-referenced site, the following information is requested:

- Rare, threatened, or endangered species on or within one-half mile radius of site
- Commercially or recreationally important flora or fauna on or within one-half mile radius of site
- Wilderness, natural areas, critical habitat, preserves and forests, wildlife refuges, terrestrial breeding areas, and wildlife or game management areas on or within one-half mile radius of the site

The 0.695-acre project site is currently a vacant, grassed parcel with an asphalt parking lot on the south side as shown on *Figure 1 – Vicinity Map* and *Figure 2 – 2007 Aerial Photograph*. The City of University City proposes to construct a new fire station and associated paved parking and driveways on the project site.

Missouri Department of Conservation  
January 26, 2010  
Page 2 of 2

Thank you for your prompt consideration of our request. If you have any questions or require additional information, please contact me at 636-343-1300.

Sincerely,



Ruth C. Mannebach  
Senior Environmental Scientist

Enclosures    Figure 1 – Vicinity Map  
                  Figure 2 – 2007 Aerial Photograph



# Missouri Department of Conservation Heritage Review Report

February 2, 2010 -- Page 1 of 2

Policy Coordination Unit  
P. O. Box 180  
Jefferson City, MO 65102  
Prepared by: Shannon Cave  
[shannon.cave@mdc.mo.gov](mailto:shannon.cave@mdc.mo.gov)  
573-522-4115X3250

Ms. Ruth C. Mannebach  
NPN Environmental  
1631 Headland Drive  
St. Louis, MO 63026

**Project type:** Site redevelopment and building  
**Location/Scope:** 38.66156°N 90.3037°W  
**County:** St. Louis County  
**Query reference:** 863 Westgate Avenue, University City  
**Query received:** February 1, 2010

**This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project.** On-site verification is the responsibility of the project. Heritage records were identified at some date and location. This report considers records near but not necessarily at the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean a protected species will not be encountered. These records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed in order to avoid or minimize impacts. More information may be found at [www.mdc.mo.gov/nathis/endangered/](http://www.mdc.mo.gov/nathis/endangered/) and [mdc4.mdc.mo.gov/applications/mofwis/mofwis\\_search1.aspx](http://www.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx). Contact information for the department's Natural History Biologist is online at <http://www.mdc.mo.gov/nathis/contacts/>.

## Level 3 (federal-listed) and Level 2 (state listed) issues: Records of listed species or critical habitats:

Heritage records identify no wildlife preserves, no designated wilderness areas or critical habitats, no state or federal endangered-list species records within one mile of the site, or in the public land survey section listed above or sections adjacent, or within five miles downstream on streams draining the project site.

The project should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions. Revegetate areas in which the natural cover is disturbed to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Pollutants, including sediment, can have significant impacts far downstream. Use silt fences and/or vegetative filter strips to buffer streams and drainages, and monitor those after rain events and until a well-rooted ground cover is reestablished.

FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. Consult with U.S. Fish and Wildlife Service, 101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132

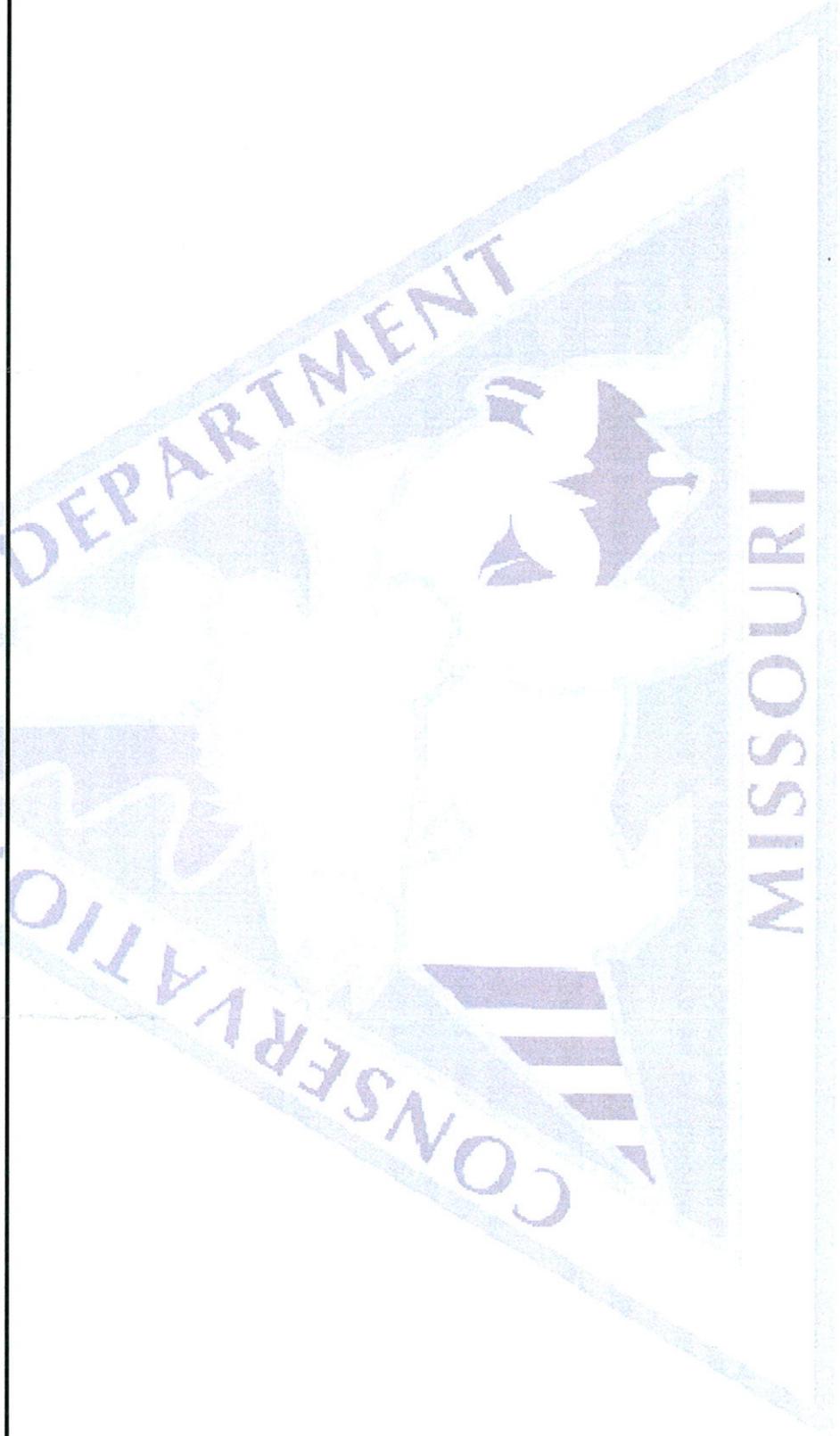
## General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific heritage records):

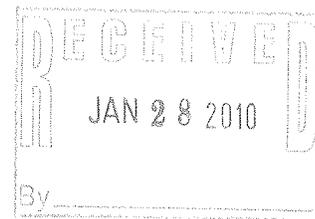
- St. Louis county has many known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area. See [http://mdc.mo.gov/nathis/caves/manag\\_construc.htm](http://mdc.mo.gov/nathis/caves/manag_construc.htm) for best management information.
- Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic

- habitats. Best management recommendations relating to streams and rivers may be found at <http://mdc.mo.gov/79>.
- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
- ◆ Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
  - ◆ Drain water from boats and machinery that has operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
  - ◆ When possible, wash and rinse equipment thoroughly with hard spray or HOT water ( $\geq 104^{\circ}$  F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

*These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Heritage records largely reflect only sites visited by specialists in the last 30 years. This means that many privately owned tracts could host unknown remnants of species once but no longer common.*

**Pre-screen heritage review requests at <http://tinyurl.com/heritagereview>. A "Level 1 response" will make further submission to MDC or USFWS unnecessary.**





January 26, 2010  
Contract C-10010

**VIA CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

Mr. Charles Scott  
U.S. Fish and Wildlife Service  
Columbia Ecological Services Office  
101 Park DeVille Drive, Suite A  
Columbia, MO 65203

**RE: Request for Information  
863 Westgate Avenue  
University City, MO 63130  
Latitude 38.6615, Longitude -90.3037**

Mr. Scott:

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MISSOURI DEPARTMENT OF NATURAL RESOURCES  
STATE HISTORIC PRESERVATION OFFICE  
**SECTION 106 PROJECT INFORMATION FORM**

Submission of a completed Project Information Form with adequate information and attachments constitutes a request for review pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended). We reserve the right to request more information. **Please refer to the CHECKLIST on Page 2 to ensure that all basic information relevant to the project has been included.** For further information, refer to our Web site at: <http://www.dnr.state.mo.us/shpo> and follow the links to Section 106 Review.

**NOTE:** Section 106 regulations provide for a 30-day response time by the Missouri State Historic Preservation Office from the date of receipt.

PROJECT NAME

FEDERAL AGENCY PROVIDING FUNDS, LICENSE, OR PERMIT

APPLICANT

TELEPHONE

CONTACT PERSON

TELEPHONE

ADDRESS FOR RESPONSE

**LOCATION OF PROJECT**

COUNTY: \_\_\_\_\_

STREET ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_

GIVE LEGAL DESCRIPTION OF PROJECT AREA (TOWNSHIP, RANGE, SECTION, ¼ SECTION, ETC.)

\*USGS TOPOGRAPHIC MAP QUADRANGLE NAME \_\_\_\_\_

YEAR: \_\_\_\_\_ TOWNSHIP: \_\_\_\_\_ RANGE: \_\_\_\_\_ SECTION: \_\_\_\_\_

\*SEE MAP REQUIREMENTS ON PAGE 2

**PROJECT DESCRIPTION**

- Describe the overall project in detail. If it involves excavation, indicate how wide, how deep, etc. If the project involves demolition of existing buildings, make that clear. If the project involves rehabilitation, describe the proposed work in detail. Use additional pages if necessary.

### ARCHAEOLOGY (Earthmoving Activities)

Has the ground involved been graded, built on, borrowed, or otherwise disturbed?

- Please describe in detail: (Use additional pages, if necessary.) Photographs are helpful.

Will the project require fill material?  Yes  No

- Indicate proposed borrow areas (source of fill material) on topographic map.

Are you aware of archaeological sites on or adjacent to project area?  Yes  No

- If yes, identify them on the topographic map.

### STRUCTURES (Rehabilitation, Demolition, Additions to, or Construction near existing structures)

To the best of your knowledge, is the structure located in any of the following?

An Area Previously Surveyed for Historic Properties  A National Register District  A Local Historic District  
If yes, please provide the name of the survey or district:

- Please provide photographs of all structures, see photography requirements.
- **NOTE:** All photographs should be labeled and keyed to one map of the project area.
- Please provide a brief history of the building(s), including construction dates and building uses. (Use additional pages, if necessary.)

### ADDITIONAL REQUIREMENTS

**Map Requirements:** Attach a copy of the relevant portion (8½ x 11) of the current USGS 7.5 min. topographic map **and**, if necessary, a large scale project map. Please do not send an individual map with each structure or site. While an original map is preferable, a good copy is acceptable. USGS 7.5 min. topographic maps may be ordered from Geological Survey and Resource Assessment Division, Department of Natural Resources, 111 Fairground, Rolla, MO 65402, Telephone: (573) 368-2125, or printed from the website <http://www.topozone.com>.

**Photography Requirements:** Clear black & white or color photographs on photographic paper (minimum 3" x 5") are acceptable. Polaroids, photocopies, emailed, or faxed photographs are not acceptable. **Good quality photographs are important for expeditious project review.** Photographs of neighboring or nearby buildings are also helpful. All photographs should be labeled and keyed to one map of the project area.

**CHECKLIST:** Did you provide the following information?

- |  |  |
|--|--|
| <input type="checkbox"/> Topographic map 7.5 min. (per project, not structure) | <input type="checkbox"/> Other supporting documents (If necessary to explain the project)                          |
| <input type="checkbox"/> Thorough description (all projects)                   | <input type="checkbox"/> For new construction, rehabilitations, etc., attach work write-ups, plans, drawings, etc. |
| <input type="checkbox"/> Photographs (all structures)                          | <input type="checkbox"/> Is topographic map identified by quadrangle and year?                                     |

Return this Form and Attachments to:

**MISSOURI DEPARTMENT OF NATURAL RESOURCES  
STATE HISTORIC PRESERVATION OFFICE  
Attn: Section 106 Review  
P.O. BOX 176  
JEFFERSON CITY, MISSOURI 65102-0176**

**CULTURAL RESOURCE ASSESSMENT**  
**Section 106 Review**

---

**CONTACT PERSON/ADDRESS:**

Ruth Mannebach  
NPN Environmental Engineers  
1631 Headland Drive  
St. Louis, MO 63026

**C:**

Ken Sessa, FEMA

**PROJECT:**

Fire Station, Vernon Avenue and Westgate Avenue, University City

**FEDERAL AGENCY**

HUD

**COUNTY:**

ST. LOUIS

The State Historic Preservation Office has reviewed the information submitted on the above referenced project. Based on this review, we have made the following determination:

After review of initial submission, the project area has a low potential for the occurrence of cultural resources. A cultural resource survey, therefore, is not warranted.

Adequate documentation has been provided (36 CFR Section 800.11). There will be "no historic properties affected" by the current project.

An adequate cultural resource survey of the project area has been previously conducted. It has been determined that for the proposed undertaking there will be "no historic properties affected".

For the above checked reason, the State Historic Preservation Office has no objection to the initiation of project activities. PLEASE BE ADVISED THAT, IF THE CURRENT PROJECT AREA OR SCOPE OF WORK ARE CHANGED, A BORROW AREA IS INCLUDED IN THE PROJECT, OR CULTURAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, APPROPRIATE INFORMATION MUST BE PROVIDED TO THIS OFFICE FOR FURTHER REVIEW AND COMMENT. Please retain this documentation as evidence of compliance with Section 106 of the National Historic Preservation Act, as amended.

By:



Mark A. Miles, Director and Deputy State Historic Preservation Officer

February 10, 2010

Date

MISSOURI DEPARTMENT OF NATURAL RESOURCES  
STATE HISTORIC PRESERVATION OFFICE  
P.O. Box 176, Jefferson City, Missouri 65102  
For additional information, please contact Rebecca Prater, 573-751-7958.  
Please be sure to refer to the project number: 135-SL-10