Hazardous Materials and Waste Sites Summary
Technical Report
Kansas City Downtown Streetcar Project

September 19, 2012

Hazardous Materials and Waste Sites Summary Technical Report
Kansas City Downtown Streetcar Project

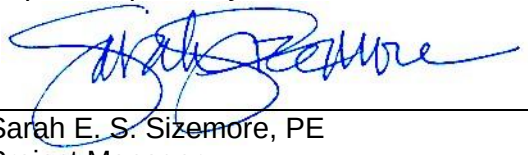
September 2012

Prepared For: Ralph Davis
City of Kansas City Missouri
KCMO Downtown Streetcar Project Manager
City of Kansas City, Missouri
Public Works Department
Kansas City, Missouri

Prepared By: Burns & McDonnell Engineering Company, Inc.
Environmental Division
9400 Ward Parkway
Kansas City, Missouri

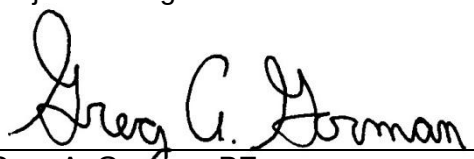
Burns & McDonnell Project No.: 66462

Report Prepared by:



Sarah E. S. Sizemore, PE
Project Manager

September 19, 2012
Date



Greg A. Gorman, PE
Quality Reviewer

September 19, 2012
Date

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

1. INTRODUCTION

Environmental desktop reviews were conducted for the Streetcar route and the candidate Vehicle Maintenance Facility (VMF) sites (Options C, D, and E) under consideration as part of the Kansas City Downtown Streetcar Project.[1] An Environmental Data Resources (EDR) Database search was conducted of state, tribal, and federal environmental databases and historical aerial photos, historical topographic maps, city street directories, and Sanborn Fire Insurance maps. Site visits and Phase I Environmental Site Assessments (ESAs) were not conducted as part of these environmental desktop reviews. The purpose of the reviews was to identify historical and current sites with the potential to have impacted the soil and/or groundwater within and adjacent to the anticipated construction footprint of the Streetcar Project. Note that although certain aspects of the American Society for Testing and Materials (ASTM) 1527-05 Standard for Phase I Environmental Site Assessments were conducted as part of this review, the results of this review do not fully meet the requirements of the 1527-05 Standard or the All Appropriate Inquiry (AAI) regulation as codified at 40 CFR 312. Furthermore, this desktop review did not include any inquiry with respect to controlled substances, corporate environmental compliance, radon, methane, asbestos, lead paint, mold, wetlands, or vapor intrusion.

This Technical Report summarizes the results of the environmental desktop reviews and provides an evaluation of the effects of the identified sites on the proposed Streetcar Alternative. Separate Environmental Desktop Review Technical Reports were prepared for the Streetcar Route[2] and the Candidate Vehicle Maintenance Facility Sites[3], as attached to this summary technical report.

2. METHODOLOGY

Government databases were searched in accordance with ASTM 1572-05 Sections 8.2.1 and 8.2.2 through EDR, a commercial provider of that service. The search distance provided to EDR for the database search included all three candidate VMF sites and the route for both revenue and non-revenue tracks along Main Street, Delaware Street, 2nd Street, 3rd Street, 5th Street, and Grand Boulevard. EDR provided a Radius Report containing U.S. Environmental Protection Agency (EPA), State, and Tribal environmental database information in accordance with ASTM defined search distances. EDR's Radius Report lists the Federal, State and Tribal databases searched, a description of the databases and the most recent release date of each database.

In addition to reviewing government database results, aerial photographs (1948-2008), Sanborn Fire Insurance Maps (1896-1969), historic topographic maps (1894-1996), and city directories (1920-2006)

---

1 The reviews were conducted under separate cover. Separate database searches were conducted, so the total number of sites listed by category in Table 1 may include the same sites for both the Streetcar Route and the candidate VMF Sites, depending on the overlap of the search areas.

2 *Environmental Desktop Review Technical Report – Streetcar Route, Kansas City Downtown Streetcar Project*; Burns & McDonnell Engineering Company, Inc., September 19, 2012.

3 *Environmental Desktop Review Technical Report – Vehicle Maintenance Facility Candidate Sites – Options C, D, and E, Kansas City Downtown Streetcar Project*; Burns & McDonnell Engineering Company, Inc., September 19, 2012.

were also reviewed to obtain information about the history of development along the Streetcar route and on and within close proximity to the candidate VMF sites.

Copies of the database reports, aerial photographs, fire insurance maps, topographic maps, and city directories reviewed are included in the attachments to both Environmental Desktop Review Technical Reports.

For the Streetcar Project, it was assumed construction of the majority of the improvements would be completed within existing rights-of-way, with ground disturbance occurring at depths no greater than approximately 18 inches below the existing pavement surface. Utility relocations, installation of catenary poles, and construction of the preferred VMF would involve excavations deeper than 18 inches.

Based on the collected information, sites were evaluated and the relative risk each could pose to the Streetcar Project was ranked either high, medium, or low based on the distance of the site from the right-of-way or candidate VMF property boundary, activities that were and/or are being conducted at the site, and the history of releases, spills, or violations for the site, as reported in the search documents. Sites were ranked with the following potential to affect the Streetcar Project:

High Potential	Sites ranked with a **high potential** to affect Streetcar Project construction are those located adjacent to the proposed route with either documented site activities that could have contaminated soil or groundwater on or in the vicinity of the site or that have a history of violations and/or known contaminated soil or groundwater that has not been remediated to the satisfaction of the responsible agency.
Medium Potential	Sites ranked with a **medium potential** to affect Streetcar Project construction are those located adjacent to the proposed route with documented current or historical activities that could have contaminated soil or groundwater; however documentation is unavailable regarding a specific release, violation, etc., or those located on adjacent land in proximity to the route with either documented site activities that could contaminate soil or groundwater or that have a history of violations and/or known contaminated soil or groundwater that has not been remediated to the satisfaction of the responsible agency.
Low Potential	Sites ranked with a **low potential** to affect Streetcar Project construction are those located adjacent to the proposed route or on land in the vicinity of the Streetcar route with no documented site activities that could have contaminated soil or groundwater and without a history of violations or releases.

3. RESULTS

EDR identified sites within or near the study area in State, Federal, or EDR Proprietary databases in addition to the ASTM required databases. Table 1 provides a summary of the ASTM Required Databases and the number of sites found by EDR in each database.

Table 1: ASTM Required Database Search Results

Database Name	Approximate Minimum Search Distance in Miles	Number of Sites*	
		Streetcar route	VMF Sites
Federal National Priorities List (NPL)	1.0	None	None
Federal Delisted NPL Site List	0.5	None	None
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List	0.5	**5**	**1**
Federal CERCLIS NPL NFRAP Site List	0.5	**12**	**2**
Federal Resource Conservation and Recovery Act Treatment, Storage, and Disposal Facilities Listed on the Corrective Action Tracking System (RCRA CORRACTS TSD) Facilities List	1.0	**2**	**1**
RCRA non-CORRACTS TSD Facilities List	0.5	**1**	None
Federal RCRA Generators List Large Quantity Generator (LQG) Small Quantity Generator (SQG) Conditionally Exempt Small Quantity Generator (CESQG) Non-Generators (Non-Gen)	Study Area and Adjoining	**204**	**13**
Federal Institutional Control/Engineering Control Registries	Study Area Only	None	None
Federal Emergency Response Notification System (ERNS)	Study Area Only	None	None
State and Tribal Equivalent NPL	1.0	NA	NA
State and Tribal Equivalent CERCLIS List	0.5	None	None
State and Tribal Solid Waste Landfills and/or Solid Waste Disposal Site Lists (SWF/LF)	0.5	None	None
State and Tribal Leaking Storage Tank Lists (LUST and LAST)	0.5	**76**	**12**
State and Tribal Registered Storage Tank Lists (UST and AST)	Study Area and Adjoining	**85**	**3**
State and Tribal Institutional Control/Engineering Control Registries	Study Area Only	**5**	None
State and Tribal Voluntary Cleanup Sites	0.5	**28**	**4**
State and Tribal Brownfield Sites State Brownfields US Brownfields (considered optional by ASTM Standard)	0.5	**32**	**24**
**A given site may be reported on both the Streetcar route count and the VMF site count.*			

Detailed listings of the sites identified by the search are included in the Environmental Desktop Review Technical Reports. Refer to Appendix B for the *Environmental Desktop Review Streetcar Route Technical Report* and Appendix C for the *Environmental Desktop Review Candidate Vehicle Maintenance Facility (VMF) Candidate Sites* – Options C, D, and E Report.

Groundwater flows in two distinct directions across the Streetcar study area. In the northern half of the study area, the overall flow direction of groundwater is generally northward toward the Missouri River

bluffs. In the southern half of the study area, groundwater flows generally southward into the alluvial valley occupied by Union Station. However locally, groundwater flow is diverted to topographic low points within the study area, particularly the narrow road cuts for I-70 in the north-central part of the study area and I-670 in the central part of the study area. The topography, which generally controls groundwater flow, varies considerably from north to south along the Streetcar route. The northern end of the Streetcar route, atop the northern edge of the downtown bluffs, is at an elevation of approximately 800 feet above mean sea level (msl), rising to the southward through downtown to an elevation of approximately 900 feet in the central portion of the route (around 12th Street). The I-70 road cut extends downward to a lowest approximate elevation of 820 feet,; while the I-670 cut extends downward to an approximate elevation of 830 feet. Groundwater from localized areas north of these cuts flows southward into the cut, and, conversely, groundwater flow from localized areas south of each cut flows northward into the cut. From the Streetcar route's topographical high point at approximately 12th Street, the topography drops off southward, such that the southern end of the Streetcar route is at approximately 800 feet above mean sea level. Groundwater flow in the southern area of the Streetcar route, south of the area influenced by the I-670 road cut, flows south toward the valley floor (at approximately 20th Street) at the southern end of the Streetcar route. Beneath the relatively flat valley floor, groundwater flow is likely generally eastward, downstream within the alluvium. No specific data is available on the depth to groundwater in the vicinity of the Streetcar route or candidate VMF sites. It is presumed that normal groundwater flow occurs well below the 18 inch maximum depth anticipated for construction of the Streetcar route.

In general, the study area was first developed prior to 1895. Initial development included dwellings, flats, stores, and municipal buildings. Over time, the area has been continuously redeveloped with streets, railroads, businesses, and industries that have produced, stored, sold, and/or transported a number of substances including chemicals and fuels. Because of the dense nature of the development and types of uses common to the study area, there is the potential that some of these historical activities may have affected the soils and groundwater through the release of hazardous materials or wastes. For most known contaminated properties, remediation has been completed or is currently underway.

The most commonly observed historical uses within the study area with the potential to affect Streetcar Project construction include filling stations, machine shops, printing shops, tin shops, and dry cleaners. These historical uses are considered to have a **medium potential** to affect the soil and/or groundwater along the Streetcar route and near the candidate VMF sites. Many of these businesses may have had underground storage tanks (USTs) that may still be present on property adjacent to the existing street right-of-way and that may or may not be registered in the Missouri Department of Natural Resources (MDNR) UST database. Some USTs may have been out of service for so long that their presence may not be known to current owners and/or occupants. Tanks at some sites may have been removed during redevelopment activities or at other times with or without appropriate cleanup activities. Even if a cleanup did occur, standards used for site cleanup have changed over the years and sites that had tanks removed more than 15 to 20 years ago may not meet current cleanup standards. If these former tanks were located immediately adjacent to the Streetcar route and/or candidate VMF sites, they could have potentially contaminated the soil and therefore would affect Streetcar Project construction.

- The ***Downtown Texaco Serv LUST site***, at 600 Main Street, is along the proposed Streetcar route. The Downtown Texaco Serv site is noted with a cleanup finished date of 10/28/1998 and the closed site notation. Based on the cleanup finished date provided, the site considered to have a **medium potential** to affect Streetcar Project construction**.**

The EDR reports identified four Voluntary Cleanup Sites (VCP) with the potential to impact soils and/or groundwater within the Streetcar route. These sites are either upgradient and/or immediately adjacent to the right-of-way proposed for construction of the Streetcar route. These sites include:

- The ***KC Live Entertainment VCP site*** is comprised of several addresses, including 1400 Main Street, which is along the proposed Streetcar route. The contaminants of concern at the site are not included in the EDR report; however, a certificate of completion has been issued by MDNR. The site is noted as having activity and use limitations (AULs) in place, specifically an Operations and Maintenance (O&M) Plan. Details of the O&M Plan are not known. There are no details available in the EDR report to indicate the contaminants of concern at the site, the remediation history of the site, or the exact physical location of the contamination on the site. For these reasons, this site is considered to have a **high potential** to affect Streetcar Project construction.

- The ***Frankel, Frank & Co VCP site*** is located to west of and within approximately one-eighth mile of the Streetcar route, reported at 807 Wyandotte. It applied to the VCP in June 2010 and is reportedly still under active remediation. The contaminants of concern are not included in the EDR report and there is no other information available regarding the site. There are no details available in the EDR report indicating the remediation history of the site, if any, or the exact physical location of the contamination on the site. Due to the lack of information, this site is considered to have a **high potential** to affect Streetcar Project construction.

- The ***Grand Boulevard Lofts VCP site*** is located east of and within approximately one-eighth mile of the Streetcar route, reported at 1006 Grand Boulevard. It applied to the VCP in July 2008 and is reported as inactive/withdrawn. The contaminants of concern are not included in the EDR report and there is no other information available regarding the site. There are no details available in the EDR report indicating the remediation history of the site, if any, or the exact physical location of the contamination on the site. Due to the lack of information, this site is considered to have a **high potential** to affect Streetcar Project construction.

- The ***McGrew Color Graphics VCP site*** is located east of and within approximately one-eighth mile of the Streetcar route, reported at 16th Street and Grand Boulevard. The date the site applied to the VCP is not included in the EDR report. The site status is given as inactive/application denied. Notes within the EDR report indicate that Phase I and Phase II investigations were conducted at the site. Notes indicate that although sample results indicated both total petroleum hydrocarbons (TPH) and Tetrachloroethylene (TCE) contamination in the soil and groundwater, the distribution and concentrations did not indicate that a release had occurred at the site. These previous investigation reports were not available for review as part of EDR search. There are no details available in the EDR report to indicate the remediation history of the site, if any, or the exact physical location of the contamination on the site. Although it appears that a release has not occurred at this specific site that could impact soils/groundwater within the vicinity of the site, there is the possibility that a release has occurred at an adjacent site, which has impacted this site as well as other surrounding land. This site is considered to have a **high potential** to affect Streetcar Project construction.

The MO The EDR reports identified 32 Brownfield sites within one-half mile of the candidate VMF sites and/or Streetcar route. Seventeen of the brownfield sites are unlikely to have impacted the candidate VMF sites and/or the Streetcar route due to their status and/or that the location of the sites are

downgradient or cross-gradient relative to the candidate VMF sites and/or the Streetcar route. These sites are considered to have a **low potential** to affect Streetcar Project construction.

One of the Brownfield sites is also identified as a VCP site (KC Live Entertainment site) which was previously discussed. Two of the Brownfield sites are located at the same address, but with different site names: Kemper Arena Garage and Heart Drive Inn are both reportedly located at 2 E. 9th Street. Cleanup is noted as required at these sites; however, no additional details are available. This address is on 9th Street but adjacent to the Main Street right-of-way where the streetcar route would be constructed. Because of the lack of information available regarding these sites, they are considered to have a **high potential** to affect the Streetcar Project construction.

The remaining twelve Brownfield sites are reported as having had Phase I ESAs conducted; however, no information is available through the search regarding the findings and conclusions of these reports. Based on the limited information available about these sites and their locations, these sites are considered to have a **medium potential** to affect Streetcar Project construction.

The EDR reports identified 10 drycleaner sites within one-quarter-mile of the candidate VMF sites and/or the Streetcar route. Four of the dry cleaner sites were determined to be cross-gradient from the candidate VMF sites and/or the Streetcar route and are therefore considered to have a **low potential** to affect Streetcar Project construction.

There is very limited information available for the remaining six drycleaner sites identified in the EDR reports. The Farhas Downtown Cleaners, at 709 Main Street, is located along the Streetcar route. It is noted to be a RCRA generator of hazardous waste, using the 'F002 spent halogenated solvents' waste code. Due to the location of this site, it is considered to have a **high potential** to affect Streetcar Project construction. Two sites, the Sta-Clean Cleaners and the Grand Cleaners sites, are both noted as "abandoned". The Royal Masters Cleaners site is noted as "active". There is no information available for the remaining sites: Dr. Jiang's Tradition and Prestige Cleaners. Dr. Jiang's Tradition and Grand Cleaners are both considered to have a **medium potential** to affect Streetcar Project construction based on their close proximity to the Streetcar route. The remaining sites (Sta-Clean Cleaners, Royal Masters Cleaners, and Prestige Cleaners) are considered to have a **low potential** to affect Streetcar Project construction based on their locations relative to the Streetcar route.

Historic activities on the candidate VMF sites Option C and E may have impacted soils and/or groundwater. The 1939 Sanborn map indicates that glue and painting activities were associated with the former Kansas City Show Case Works located on Option C. This former use of the parcel is considered to have a **medium potential** to affect construction of the VMF if Option C is selected as the preferred location. For Options E (720 E. 3rd Street), EDR identified the Allied Callaway site as a RCRA Non-generator. Several notices of violation are noted by EDR in relation to a Compliance Evaluation Inspection that was conducted for the property in 2009, all of which were brought into compliance shortly after being issued. The types of hazardous waste generated at the site are not noted in the EDR report. A history of hazardous waste generation on the Option E parcel has the potential to impact the site. The 1950 Sanborn map includes a structure identified as a motor freight station on the west half of the parcel and a smaller structure identified as an auto repair facility in the southeast corner of the parcel. These are likely the same structures that are still present today. These uses are considered to have a **high potential** to affect construction of the VMF if Option E is selected as the preferred location.

EDR also identified a LUST site at the intersection of Cherry and 4th Streets (south of Option D). The MO Highway & Transportation LUST site does not have a No Further Action (NFA) letter noted in the file;

however, a cleanup finished date of May 20, 1991 is noted. This site is located upgradient from Option D. Although the release and cleanup occurred more than twenty years ago, an NFA letter was never issued and cleanup standards have changed since the cleanup occurred. For these reasons, the site is considered to have a **high potential** to affect construction of the VMF if Option D is selected as the preferred location.

The 1939 and 1950 Sanborn maps show a motor freight station and auto repair facility with a gas tank at 611 E. 3rd Street, which is to the south and upgradient of Option C. The disposition of the gas tank is unknown and the site is considered to have a **medium potential** to affect construction of the VMF if Option C is selected as the preferred location.

4. EFFECTS OF THE ALTERNATIVES CONSIDERED

4.1 No Build Alternative

Under the No Build Alternative, no construction or excavation would occur within the right-of-way or on any of the VMF sites that would disturb any potentially impacted soils or groundwater. Any contaminants present would be left in place.

4.2 Streetcar Alternative

The EDR search identified multiple potentially contaminated sites in the study area and adjacent to the right-of-way within which construction is proposed, but did not specifically identify any known contamination within the right-of-way or candidate VMF sites where Streetcar improvements are planned to be constructed. Construction of the Streetcar trackway and stops would involve ground disturbance to a depth of approximately 18 inches. Construction of the power substations and the VMF, installation of catenary poles, and utility relocations could involve excavations to depths greater than 18 inches. During utility upgrade or relocation work, excavations deeper than 18 inches could increase the risk of encountering contaminated materials. , but the risk would still be low.

For the Streetcar route, the likelihood is low of encountering contamination within the majority of the rights-of-way where streetcar construction is proposed. There are 10 locations that were identified through review of the EDR search where additional site-specific information would be useful to confirm that there is limited potential for encountering contaminated soils within the right-of-way. According to the EDR search, these 10 locations along the Streetcar route are associated with sites adjacent to or in the vicinity of the Streetcar route where previous Phase I and Phase II ESAs or site investigations have been conducted and/or where corrective actions may have taken place by the respective property owners as the properties have undergone redevelopment. The type and extent of the potential contamination and/or clean-up that has occurred on these sites was not identified in the EDR search.

Within the right-of-way where the Streetcar improvements would be constructed, potential contamination is less likely to be encountered within the top 18 inches below the street surface than at depths greater than 18 inches, because potential sources of contamination from these sites is likely set back substantially from the edge of the right-of-way and proposed streetcar tracks such that past releases would be unlikely to have migrated that distance horizontally.

Because the following 10 sites are located adjacent to or within close proximity to the Streetcar route or candidate VMF sites, they may contain contamination that lies adjacent to or has migrated into the right-of-way; they have a medium to high potential affect construction of the Streetcar Alternative. On behalf of the City, additional data has been requested from MDNR and/or EPA for the these sites:

- Stan Campbell site, 101 W. 3rd Street – LUST site
- Downtown Texaco Service Station site, 600 Main Street – LUST site
- MO Highway & Transportation site, Cherry & 4th – LUST site
- Kansas City Cold Storage site, 500 E. 3rd Street – LUST site
- KC Live Entertainment Site, 1400 Main (1401 Baltimore, 1415 Baltimore) – VCP site, Institutional Controls site
- Frankel, Frank Co. site, 807 Wyandotte 8th and Main – VCP site
- Grand Boulevard Lofts site, 1006 Grand Boulevard – VCP site
- McGrew Color Graphics site, 16th and Grand Boulevard – VCP site
- Kemper Arena Garage/Heart Drive Inn sites, 2 E. 9th Street – Brownfield sites
- Farhas Downtown Cleaners, 709 Main Street – Drycleaners site

The additional data obtained would be reviewed and used by the City to determine whether additional Phase I and/or Phase II investigations need to occur in and/or adjacent to the right-of-way to determine the potential for soil contamination within the proposed construction area. Should these investigations reveal the presence of hazardous materials, mitigation and clean up measures would be defined and required prior to initiating construction of the Streetcar Project.

Further investigation of the selected VMF site is required and would be conducted prior to acquisition of the property as a part of the customary due diligence that takes place during property acquisition. It is expected that the City would perform a site-specific Phase 1 ESA on the selected VMF site, and if warranted, a Phase II (subsurface) ESA which would include soil and groundwater testing, as appropriate. Should the Phase I ESA (and Phase II ESA if conducted) reveal the presence of hazardous materials, mitigation and clean up measures would be defined and required as part of the property purchase agreement.

If unanticipated sources of hazardous or regulated materials are encountered during construction activities, the construction manager or designee would immediately notify the City's Environmental Compliance Division. Specific mitigation activities, which address the type, level, and quantity of contamination encountered, would be immediately implemented. The handling, treatment, and disposal of any hazardous materials would occur in full compliance with all federal, state, and local requirements. The discharge of any wastewater suspected of containing hazardous/regulated materials is prohibited without first obtaining a National Pollution Discharge Elimination System (NPDES) Permit through the MDNR covering the one-time discharge of wastewater containing known and specific hazardous constituents. Such a permit may be obtained from the MDNR providing the discharge is well characterized, meets discharge standards, and does not pose a threat to the ultimate surface water body receiving the discharge. If fill material is required in construction of the proposed Streetcar facilities, the construction contractor would be required to ensure that the sources of any fill material are free of contamination.

5. CONCLUSION

The environmental desktop review conducted for the Streetcar Project indicates that there are 10 sites with medium or high potential to affect construction of the Streetcar Project because they are located adjacent to or in close proximity to the right-of-way and/or candidate sites for the VMF. Past activities on these sites may have contaminated soil, and possibly groundwater, on the sites and may have also affected soils within existing rights-of-way.

Further investigation for the selected VMF site is required as part of the customary due diligence conducted as part of the property acquisition process. It is expected that the City would perform a site-specific Phase 1 ESA on the selected VMF site, and if warranted, a Phase II (subsurface) ESA which would include soil and groundwater testing, as appropriate. Should the Phase I ESA (and Phase II ESA if conducted) reveal the presence of hazardous materials, mitigation and clean up measures would be defined and required as part of the property purchase agreement.

Although the likelihood is low of encountering contamination within the majority of the rights-of-way where streetcar construction is proposed, 10 locations have been identified through the EDR search where additional site-specific information is needed to determine if there is an increased potential for encountering contaminated soils within the right-of-way than in other areas not adjacent to known contaminated properties. These 10 locations are sites adjacent to the Streetcar route where previous Phase I and Phase II ESAs or site investigations were conducted by private parties and/or where corrective actions may have taken place (as directed by MDNR or USEPA), but where the type and extent of the potential contamination and/or clean-up was not identified as part of the EDR search. For these locations, MDNR has been contacted to obtain copies of previously completed studies, permits, and monitoring plans. This information would be used by the City to determine whether additional Phase I and/or Phase II investigations need to occur in and/or adjacent to the right-of-way to determine the potential for soil contamination. Should these additional investigations reveal the presence of hazardous materials within the right-of-way, mitigation and clean up measures would be defined and required prior to initiating construction.

With the No Build Alternative, there would be no construction or ground disturbance within the right-of-way or on any of the candidate VMF sites, so there would be no risk of disturbing potentially contaminated soils or groundwater. Existing contaminants would be left in place.

Although certain aspects of this report meet the ASTM 1527-05 Standard for Phase I ESAs, the results of this review do not fully meet the requirements of the Standard or the AAI regulation. If additional clarification is desired by The City, additional information may be obtained for sites identified with a **medium** or **high potential** to affect the Streetcar Project by conducting specific file reviews for each site at MDNR and/or the EPA. If The City is seeking liability protection, a full Phase I ESA under ASTM 1527-05 should be conducted for the Streetcar route or for specific, smaller properties and the VMF sites with a higher probability for contamination.

Appendix A
Preparer Qualifications

Sarah E. S. Sizemore, PE

Environmental Engineer

Expertise

- Environmental Due Diligence
- Compliance Audits
- Environmental Permitting
- SPCC/SWPPP
- Hazardous Waste Management/ Remediation

Education

- B.S. Chemical Engineering, University of Kansas, 1996
- M.S. in Environmental Engineering, University of Wyoming, 1999

Organizations

- NSPE
- AWMA
- ASTM E1527 Task Group

Registration

- Professional Engineer – Kansas

Years Experience

13

As an environmental engineer, Ms. Sizemore provides environmental site assessment and compliance assistance to industrial and government clients. Ms. Sizemore has conducted Phase I ESA's under the currently accepted ASTM Standards (ASTM 1527-05 and ASTM 2247-08), which satisfy the All Appropriate Inquiry regulations at 40 CFR 312, as well as the previous ASTM standards. Her Phase I ESA experience includes both developed and undeveloped sites. In addition, she provides air permitting and remediation assistance to industrial clients. Ms. Sizemore also has experience in preparing Compliance Audits, Spill Prevention, Control and Countermeasures Plans, Storm Water Pollution Prevention Plans and Risk Management Plans.

PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)

Ms. Sizemore completed more than 90 Phase I ESAs. The following are recent examples of these projects:

Perpetual Energy Systems

Hollister, California, 2011

Ms. Sizemore conducted Phase I ESAs for two Properties with solar array installations in the Hollister School District.

San Diego Gas & Electric

El Cajon, California, 2011

Ms. Sizemore conducted Phase I ESA update of a power generating station in El Cajon, California.

Tyr Energy, Inc.

Multiple Sites, California, 2011

Ms. Sizemore conducted Phase I ESA updates of four power generating stations owned by CalPeak Power, LLC in California.

Confidential Consumer Products Client

Connecticut and West Virginia, 2011

Ms. Sizemore managed the completion of Phase I ESAs for Properties in West Virginia and Connecticut for a Consumer Products Client. Properties in both states were utilized as a healthcare products distribution facility.

Confidential Consumer Products Client

Florida and Georgia, 2011

Ms. Sizemore completed Phase I ESAs for Properties in Florida and Georgia for a Consumer Products Client. The Florida Property was in use by a healthcare products manufacturing company. The Georgia Property was utilized as a truck trailer drop lot.

Perkins & Trotter, PLLC

Cushing, Oklahoma, 2011

Ms. Sizemore completed a Phase I ESA for property historically used as a petroleum storage tank farm in an area developed with petroleum refineries as early as the turn of the 20th century.

Kissel Properties, Inc.

Kansas City, Missouri, 2011

Ms. Sizemore completed a Phase I ESA for an approximately 3.1 acre property in an area of Kansas City, Missouri that was first developed in the late 1800s. Based on the results of the Phase I ESA, a Phase II investigation was conducted at the property.

Confidential Consumer Products Client
Houston, Texas, 2011
Ms. Sizemore completed a Phase I ESA for property historically used as a machine shop in an industrial area of Houston, Texas. Based on the results of the Phase I ESA, a Phase II investigation was conducted at the property.

Confidential Client
Crete, Nebraska, 2011
Ms. Sizemore completed a Phase I ESA for an approximately 18-acre property in Crete, Nebraska. The property was partially developed as a warehouse and was a former homestead site. The City of Crete's former landfill was immediately adjacent to the property. Based on the results of the Phase I ESA, a Phase II investigation was conducted at the property.

Renewable Energy Group
Ellenwood, Georgia, 2011
Ms. Sizemore completed a Phase I ESA for an operational biodiesel facility in the Atlanta, Georgia area.

Kuhn North America, Inc.
Hutchinson, Kansas, 2010
Ms. Sizemore conducted a Phase I ESA on 30 acres of property used for manufacturing of farm equipment. The property was initially developed in the early decades of the 20th century and included a foundry.

Confidential Client
Multiple Sites in Iowa, Nebraska, Kansas, Missouri, Oklahoma, 2010
Ms. Sizemore managed the completion of 22 Phase I ESAs for a Confidential Client, including fertilizer, grain and soybean crushing facilities in a five state area.

Confidential Client
Masontown, Pennsylvania, 2010
Ms. Sizemore completed a Phase I ESA at an approximately 320-acre, active power generating station in Fayette, Pennsylvania. The area was historically used for oil and gas production.

Confidential Client
Sussex, Virginia, 2010
Ms. Sizemore conducted a Phase I ESA on approximately 1,200 acres of property used for timber harvesting.

Confidential Client
Multiple Sites in Iowa, 2010
Ms. Sizemore completed several Phase I ESAs for a Confidential Client, including fertilizer, grain and soybean crushing facilities.

Sedgwick County, Kansas
Wichita, Kansas 2010
Ms. Sizemore completed a Phase I ESA for the former Coleman Plant A Property in Wichita, KS. Coleman previously manufactured camping goods at the Property for the majority of the 1900's.

Confidential Client
Lyons, Kansas, 2009
Ms. Sizemore completed a Phase I ESA on 160-acres of agricultural land within the boundary of a salt mining company.

Confidential Client
Hutchinson, Kansas, 2009
Ms. Sizemore completed a Phase I ESA on approximately 3-acres of mixed residential and light industrial land.

Confidential Client
Chesapeake, Virginia, 2009
Ms. Sizemore completed a Phase I ESA for a fertilizer manufacturing facility located in Chesapeake, Virginia.

Confidential Client
Illinois, 2009
Ms. Sizemore managed a Phase I ESA update for a 10,000-acre wind farm project spread across approximately 26 square miles.

Confidential Client
Atlanta, Georgia 2009
Ms. Sizemore completed a Phase I ESA for an undeveloped, approximately 14.98-acre Property within an industrial park.

Confidential Client
Denver, Colorado 2009
Ms. Sizemore completed a Phase I ESA and a Phase II ESA for an approximately 4.5-acre Property owned by Union Pacific Railroad with multiple lease tenants.

Confidential Client
Lyons, Kansas, 2009
Ms. Sizemore completed a Phase I ESA on 160-acres of agricultural land within the boundary of a salt mining company.

Confidential Client
Sheridan, New York 2009
Ms. Sizemore completed a Phase I ESA for an undeveloped tract in an industrial park.

Confidential Client
Oklahoma, 2008-09
Ms. Sizemore completed Phase I ESAs for three sites in Oklahoma. All three sites were agricultural and/or farmstead sites with sizes ranging from 160 acres to 640 acres.

Confidential Client
Illinois, 2008
Ms. Sizemore managed a Phase I ESA for a 10,000-acre wind farm project spread across approximately 26 square miles.

Confidential Client
Ft. Dodge, Iowa, 2008
Ms. Sizemore completed a Phase I ESA on a property formerly used as a laundromat.

Confidential Client
Garner, North Carolina, 2008
Ms. Sizemore conducted a Phase I ESA on an approximately 56.6 acres of property used for timber harvesting.

Starwood Energy Global Group, LLC
Firebaugh, California, 2008
Ms. Sizemore conducted a Phase I ESA on a property used as an equipment laydown yard.

Confidential Client
Meadows of Dan, Virginia, 2007
Ms. Sizemore completed a Phase I ESA on approximately 36.4 acres of property used for die manufacturing. Based on the results of the Phase I ESA, a Phase II investigation was conducted at the property.

Confidential Client
Danville, Illinois, 2007
Ms. Sizemore conducted a Phase I ESA on property being developed as a biodiesel refining facility.

Confidential Client
Dendron, Virginia, 2007 and 2010
Ms. Sizemore conducted a Phase I ESA on approximately 1,600 acres of property used for timber harvesting and agricultural purposes.

Confidential Client
Cairo, Illinois, 2007
Ms. Sizemore conducted a Phase I ESA on vacant property previously used for industrial purposes in Cairo, Illinois.

Confidential Client
Sedalia, Missouri, 2007
Ms. Sizemore conducted a Phase I ESA on an approximately 156 acre agricultural property used for biosolids application.

Confidential Client
Hiawatha, Kansas, 2007
Ms. Sizemore conducted a Phase I ESA on an approximately 450 acres agricultural property, including a house and associated outbuildings.

Confidential Client
Summer Shade, Kentucky, 2007
Ms. Sizemore conducted a Phase I ESA on property used as a liquid smoke manufacturing facility.

Coffeyville Valve Company
Coffeyville, Kansas, 2006
Ms. Sizemore conducted a Phase I ESA on property used by a valve refurbishing and repair company.

Confidential Consumer Products Client
Vernon, California, 2006
Ms. Sizemore conducted a Phase I ESA on property used as a truck trailer staging area.

City of Macon
Macon, Missouri, 2006
Ms. Sizemore conducted a Phase I ESA on property being acquired for the airport's runway protection zone.

Confidential Client
Denver, Colorado, 2006
Ms. Sizemore completed a Phase I ESA on property historically used as an auto body shop and for construction equipment storage.

Fuchs Lubricants
Detroit, Michigan, 2006
Ms. Sizemore conducted a Phase I ESA on a property historically used for lubricant manufacturing and warehousing.

City of Mountain View
Mountain View, Missouri, 2006
Ms. Sizemore conducted a Phase I ESA on property being acquired for the airport's runway protection zone.

Tyr Energy, Inc.
California, 2006
Ms. Sizemore conducted Phase I ESA updates of five power generating stations owned by CalPeak Power, LLC in California.

Greg A. Gorman, PE

Associate Engineer

Expertise

- Phase I and II Environmental Site Assessments
- Hazardous Waste Management
- Solid Waste Management
- Remedial Investigation
- Industrial Wastewater
- Process Development
- RI/FS
- Multimedia Compliance Audits
- SPCC Plans
- Facility Response Plans
- Waste Minimization/ Pollution Prevention
- PCBs

Education

- B.S. in Chemical Engineering, Kansas State University, 1983
- M.S. in Environmental Health Engineering, University of Kansas, 1993

Organizations

- American Institute of Chemical Engineers
- Kansas Engineering Society

Registration

- Professional Engineer – ; Kansas, 1987;

Years Experience

26

Years With Other Firms

3

Mr. Gorman specializes in hazardous waste, industrial wastewater management activities, and the preparation of SPCC plans for industrial and utility clients. He has assisted in the remedial investigations and feasibility studies at various clean-up sites in the Midwest. He has served as the principle investigator for numerous compliance and environmental audits at manufacturing facilities.

PHASE I & II ENVIRONEMTAL SITE ASSESMENTS

Mr. Gorman specializes in due diligence and environmental compliance assistance for industrial and utility clients. His Phase I environmental site assessment experience includes investigations of single undeveloped sites to multi site nationwide acquisitions. He has also performed numerous multimedia environmental compliance audits. His site assessment experience includes:

Phase I Environmental Site Assessments, Redevelopment Site Clearing

Kansas City, Missouri, 2006

Mr. Gorman served as the Phase I Environmental Site Assessment Manager for the City of Kansas City's Sports Arena project in the city's downtown business district. The project included approximately 28 parcels located from Grand to Oak Streets and from 13th to 15th Streets. The results of the Phase I assessment was used to identify Phase II sampling locations which aided in determining the environmental issues associated with demolition and removal of the blighted commercial and industrial properties.

Phase I and II Environmental Site Assessments, National Pet Foods Manufacturer

Nationwide, 2000 to present

Manages the Phase I and II assessment program for the company's pet food manufacturing plants located throughout the United States. Over the years Mr. Gorman has completed more than 20 Phase I and II site assessments on properties ranging from open fields to manufacturing plants.

Phase I Environmental Site Assessments, Bunge Corporation

Nationwide and Canada, 2002 through 2006

Mr. Gorman has managed the Phase I and II environmental site assessments for several company acquisitions. Included were the acquisitions of seven soybean processing facilities located in the United States and Canada, five grain elevators, and five food additive plants. The acquisition of soybean processing facilities included preparing cost estimates to address identified recognized environmental conditions to aid the in the company's negotiations with the seller.

Phase I Environmental Site Assessments, Universal Environmental Services

Southwest United States, 2004

Managed Phase I and II environmental site assessments associated with the company's acquisition of eight used oil recycling facilities located throughout the southwest United States. After completing the Phase I Environmental Assessments SPCC Plans and SWPPPs were prepared for the facilities as were used oil handling procedures.

Phase I Environmental Site Assessments, NN Inc.

Four Locations, Nationwide, 2006

Managed Phase I environmental site assessments associated with the company's acquisition of four metal fabrication shops located in Ohio and Arizona.

Greg A. Gorman, PE
(continued)

Start Date
September 1986

Phase I Environmental Site Assessments, Confidential Natural Gas Client
Kansas City, Missouri, 2000

Mr. Gorman served as Project Engineer/Manager for a Phase I real estate transfer assessment of two 50 mile long sections of pipeline passing through Kansas City, Missouri. The Phase I assessment was completed at the request of the buyer's attorney and met ASTM standards. During the Phase I investigation, four past spill sites were identified and recommendations were made to conduct Phase II investigations in the areas which were also conducted by Mr. Gorman. The Phase II investigations identified contamination at each of the spill areas and determined the extent of the contamination. This information was then used to develop clean up cost estimates which were used by the buyer during the transaction negotiations.

Phase I Environmental Site Assessment, Coffeyville Valve Company
Coffeyville, Kansas, 2006

Mr. Gorman served as Project Manager for a Phase I ESA on property used by a valve refurbishing and repair company.

Phase I Real Estate Transfer Assessment, Missouri Public Service Company
Eastern and South Eastern, Missouri, 1997

Project Engineer on a Phase I Real Estate Transfer Assessment of a 200 mile interstate natural gas pipeline. The assessment was performed for an attorney representing the buyer. The assessment met ASTM standards and included reconnaissance of the pipeline from an airplane.

Phase I Environmental Site Assessments, DeBruce Agricultural Services
Texas and Iowa, 2007

Managed Phase I environmental site assessments associated with the company's refinancing of seven grain elevators/fertilizer dealers located in Iowa and Texas.

Phase I and II Environmental Site Assessment & Compliance Audit, Trans World Airlines Overhaul Base
Kansas City, Missouri, 2002

Project Manger for an extensive two week environmental phase I site assessment and compliance audit the 400 acre TWA aircraft overhaul base located in Kansas City, Missouri. The assessment was performed to meet Kansas City Missouri requirements for lease holders and resulted in a Phase II investigation of eight areas of concern identified during the Phase I Site Assessment.

Phase I Environmental Assessment and Compliance Audit, Hoosier Energy
Terre Haute, Indiana, 2002

Mr. Gorman as project manager and lead auditor for a compliance audit and Phase I Environmental Site Assessment associated with the refinancing of a coal fired power plant. The Phase I Environmental Assessment met ASTM requirements and the lending institutions requirements

Appendix B
Environmental Desktop Review Technical Report - Streetcar Route
Kansas City Downtown Streetcar Project

Environmental Desktop Review
Streetcar Route
Technical Report
Kansas City Downtown Streetcar Project

September 19, 2012

ENVIRONMENTAL DESKTOP REVIEW
STREETCAR ROUTE
KANSAS CITY DOWNTOWN STREETCAR PROJECT

PREPARED FOR
THE CITY OF KANSAS CITY MISSOURI

SEPTEMBER 2012
PROJECT NO.: 66462

Burns & McDonnell Engineering Company, Inc.
Engineers-Architects-Consultants
Kansas City, Missouri

Environmental Desktop Review
Streetcar Route
Kansas City Downtown Streetcar Project

September 2012

Prepared For: Ralph Davis
City of Kansas City Missouri
KCMO Downtown Streetcar Project Manager
City of Kansas City, Missouri
Public Works Department
Kansas City, Missouri

Prepared By: Burns & McDonnell Engineering Company, Inc.
Environmental Division
9400 Ward Parkway
Kansas City, Missouri

Burns & McDonnell Project No.: 66462

Report Prepared by:

Sarah E. S. Sizemore, PE — September 19, 2012
Project Manager — Date

Greg A. Gorman, PE — September 19, 2012
Quality Reviewer — Date

TABLE OF CONTENTS

List of Tables

Page

Attachments

Attachment 1 – Streetcar Corridor Location Map

Attachment 2 – EDR Database Reports

Attachment 3 – Historical Aerial Photographs

Attachment 4 – Sanborn Map Searches

Attachment 5 – Historical Topographic Maps

Attachment 6 – City Directory Searches

September 19, 2012

Mr. Ralph Davis, P.E.
Capital Projects Division
Public Works Department
City of Kansas City
414 East 12th Street
Kansas City, Missouri 64106

Environmental Desktop Review for
Kansas City Downtown Streetcar Project – Streetcar Corridor
Kansas City, Missouri
Project No.: 66462

Mr. Davis:

At the request of the City of Kansas City, Missouri (The City), an environmental desktop review was conducted of the route being considered as part of the Kansas City Downtown Streetcar Project. The Streetcar study area includes several square blocks around the Kansas City River Market area and then follows Main Street south from the River Market to Pershing Road, which is immediately south of Union Station. The actual proposed Streetcar route would be located along Main Street, 2nd Street, 3rd Street, 5th Street, Delaware Street, and Grand Boulevard and is referred to as "Streetcar route" within this report. A map of the Streetcar route is included as Attachment 1. Resources reviewed include an Environmental Data Resources (EDR) Database search, which contained a review of State, Tribal, and Federal environmental databases, historical aerial photos, historical topographic maps, city street directories, and Sanborn Fire Insurance maps. The purpose of this review was to identify historical and current sites with the potential to have impacted the soil and/or groundwater within the Streetcar route. Neither a site visit nor a Phase I Environmental Site Assessment (ESA) was conducted in conjunction with review of the database and historical information.

For the Streetcar Project, it was assumed construction of the majority of the improvements would be completed within existing rights-of-way, with ground disturbance occurring at depths no greater than approximately 18 inches below the existing pavement surface.

Based on the collected information, sites were evaluated and the relative risk each could pose to the Streetcar Project was ranked either high, medium, or low based on the distance of the site from the right-of-way, activities that were and/or are being conducted at the site, and the history of releases, spills, or violations for the site, as reported in the search documents. Sites were ranked with the following potential to affect the Streetcar Project:

High Potential	Sites ranked with a **high potential** to affect Streetcar Project construction are those located adjacent to the proposed route with either documented site activities that could have contaminated soil or groundwater on or in the vicinity of the site or that have a history of violations and/or known contaminated soil or groundwater that has not been remediated to the satisfaction of the responsible agency.
Medium Potential	Sites ranked with a **medium potential** to affect Streetcar Project construction are those located adjacent to the proposed route with documented current or historical activities that could have contaminated soil or groundwater; however documentation is unavailable regarding a specific release, violation, etc., or those located on adjacent land in proximity to the route with either documented site activities that could contaminate soil or groundwater or that have a history of violations and/or known contaminated soil or groundwater that has not been remediated to the satisfaction of the responsible agency.
Low Potential	Sites ranked with a **low potential** to affect Streetcar Project construction are those located adjacent to the proposed route or on land in the vicinity of the Streetcar route with no documented site activities that could have contaminated soil or groundwater and without a history of violations or releases.

This report is an instrument of service prepared by Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) for the exclusive use of The City. In order to create a report on which this entity could rely, Burns & McDonnell worked closely with The City in development of the scope of services upon which all subsequent tasks have been based. Note that although certain aspects of the American Society for Testing and Materials (ASTM) 1527-05 Standard for Phase I Environmental Site Assessments are included in this scope, the results of this review do not meet the requirements of the 1527-05 Standard or the All Appropriate Inquiry (AAI) regulation as codified at 40 CFR 312. Furthermore, this desktop review did not include any inquiry with respect to controlled substances, corporate environmental compliance, radon, methane, asbestos, lead paint, mold, wetlands or vapor intrusion. No party other than The City is permitted by Burns & McDonnell to rely on this instrument of Burns & McDonnell's service.

Groundwater flows in two distinct directions across the Streetcar study area. In the northern half of the study area, the overall flow direction of groundwater is generally northward toward the Missouri River bluffs. In the southern half of the study area, groundwater flows generally southward into the alluvial valley occupied by Union Station. However locally, groundwater flow is diverted to topographic low points within the study area, particularly the narrow road cuts for I-70 in the north-central part of the study area and I-670 in the central part of the study area. The topography, which generally controls groundwater flow, varies considerably from north to south along the Streetcar route. The northern end of the Streetcar route, atop the northern edge of the downtown bluffs, is at an elevation of approximately 800 feet above mean sea level (msl), rising to the southward through downtown to an elevation of approximately 900 feet in the central portion of the route (around 12th Street). The I-70 road cut extends downward to a lowest approximate elevation of 820 feet; while the I-670 cut extends downward to an approximate elevation of 830 feet. Groundwater from localized areas north of these

cuts flows southward into the cut, and, conversely, groundwater flow from localized areas south of each cut flows northward into the cut. From the Streetcar route's topographical high point at approximately 12th Street, the topography drops off southward, such that the southern end of the Streetcar route is at approximately 800 feet above mean sea level. Groundwater flow in the southern area of the Streetcar route, south of the area influenced by the I-670 road cut, flows south toward the valley floor (at approximately 20th Street) at the southern end of the Streetcar route. Beneath the relatively flat valley floor, groundwater flow is likely generally eastward, downstream within the alluvium. No specific data is available on the depth to groundwater in the vicinity of the Streetcar route. It is presumed that normal groundwater flow occurs well below the 18 inch maximum depth anticipated for construction of the Streetcar route.

1. GOVERNMENT DATABASE SEARCH

Government databases were searched in accordance with ASTM 1572-05 Sections 8.2.1 and 8.2.2. Burns & McDonnell obtained environmental database information from EDR, a commercial provider of that service. Burns & McDonnell provided EDR the approximate Streetcar route and asked EDR to use the Streetcar route as the basis of its search radius. Accordingly, the search distances shown on the radius maps may not be actual distances from the Streetcar route. EDR provided a Radius Report containing United States Environmental Protection Agency (EPA), State, and Tribal environmental database information in accordance with ASTM defined search distances. EDR's Radius Report lists the Federal, State, and Tribal databases searched, a description of the databases and the most recent release date of each database. Two databases were ordered for the Streetcar route; one covering the northern portion of the route (north of 10th Street) and one covering the southern portion of the route (south of 10th Street). The results from these database searches were combined and are discussed below as a single set of information. Copies of the database reports are included as Attachment 2 to this letter. Table 1 is a summary of the ASTM Required Databases and the number of sites found by EDR in each database.

Table 1: ASTM Required Database Search Results

Database Name	Approximate Minimum Search Distance in Miles	Number of Sites
Federal National Priorities List (NPL)	1.0	None
Federal Delisted NPL Site List	0.5	None
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List	0.5	**5**
Federal CERCLIS NPL NFRAP Site List	0.5	**12**
Federal Resource Conservation and Recovery Act Treatment, Storage, and Disposal Facilities Listed on the Corrective Action Tracking System (RCRA CORRACTS TSD) Facilities List	1.0	**2**
RCRA non-CORRACTS TSD Facilities List	0.5	**1**
Federal RCRA Generators List Large Quantity Generator (LQG) Small Quantity Generator (SQG) Conditionally Exempt Small Quantity Generator (CESQG) Non-Generators (Non-Gen)	Streetcar Corridor and Adjoining	**204**
Federal Institutional Control/Engineering Control Registries	Streetcar Corridor Only	None
Federal Emergency Response Notification System (ERNS)	Streetcar Corridor Only	None
State and Tribal Equivalent NPL	1.0	NA
State and Tribal Equivalent CERCLIS List	0.5	None
State and Tribal Solid Waste Landfills and/or Solid Waste Disposal Site Lists (SWF/LF)	0.5	None
State and Tribal Leaking Storage Tank Lists (LUST and LAST)	0.5	**76**
State and Tribal Registered Storage Tank Lists (UST and AST)	Streetcar Corridor and Adjoining	**85**
State and Tribal Institutional Control/Engineering Control Registries	Streetcar Corridor Only	**5**
State and Tribal Voluntary Cleanup Sites	0.5	**28**
State and Tribal Brownfield Sites State Brownfields US Brownfields (considered optional by ASTM Standard)	0.5	**32**

EDR identified sites within or near the Streetcar route in State, Federal, or EDR Proprietary databases in addition to the ASTM required databases. These databases and the associated sites identified by EDR are discussed in the following sections.

1.1 CERCLIS Sites

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List contains data on potentially hazardous waste sites that have been reported to the EPA by states, municipalities, private companies, and private persons, pursuant to Section 103 of the CERCLA. CERCLIS contains sites that are either proposed to be or are on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. There were five CERCLIS sites identified on or within one-half mile of the Streetcar route. All five sites were determined to be cross-gradient from the Streetcar route and therefore considered to have a **low potential** to affect Streetcar Project construction.

1.2 CERCLIS NFRAP Sites

The CERCLIS sites designated No Further Remedial Action Planned (NFRAP) have been removed from the CERCLIS database. The CERCLIS NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. There are 12 CERCLIS NFRAP sites noted in the EDR report. Burns & McDonnell determined that 10 of these sites are located cross-gradient to the Streetcar route and are therefore considered to have a **low potential** to affect Streetcar Project construction. The remaining two sites are described below:

Table 2: Summary of CERCLIS NFRAP Database

Facility Name	Location Relative to Study Area	Additional Information
Bulk Distribution Ce 151 Wyandotte	Within Streetcar study area	Discovery: 07/01/1980 Preliminary Assessment: 06/01/1984 NFRAP Status granted in 1984.
Hanna Rubber Co 1512 Main St	Along Streetcar route	Discovery: 08/06/1987 Preliminary Assessment: 02/29/1988 NFRAP Status granted in 1988

The Bulk Distribution site is located on the northwest corner of the Streetcar study area. This site is also identified as a Resource Conservation and Recovery Act (RCRA)-non generator, which means they have generated hazardous waste in the past; however, they are not currently generating any such waste. They were previously registered as a small quantity generator and no violations are identified. Due to the NFRAP status of the site and because it is not listed in any other databases related to contaminated sites, it is considered to have a **low potential** to affect Streetcar Project construction.

The Hanna Rubber Co is located along the Streetcar route. This site is also identified as a RCRA-non generator, which means they have generated hazardous waste in the past; however, they are not currently generating any hazardous waste. There are no RCRA violations identified in conjunction with the site. Due to the NFRAP status of the site and because it is not listed in any other databases related to contaminated sites, it is considered to have a **low potential** to affect Streetcar Project construction .

1.3 Federal Resource Conservation and Recovery Act (RCRA) Site Lists; RCRA Corrective Action Activity (RCRA CORRACTS) Facilities Lists

The RCRA CORRACTS list identifies hazardous waste handlers with RCRA corrective action activity. EDR identified two RCRA CORRACTS sites within one-mile of the Streetcar route. One of these sites was also identified as a RCRA non-CORRACTS site. Burns & McDonnell determined that both sites are located cross-gradient from the Streetcar route at distances greater than one-half mile. For these reasons, the sites are considered to have a **low potential** to affect Streetcar Project construction.

1.4 Federal RCRA Generators List

The RCRA Generator's List provides information on facilities reporting that they generate hazardous waste and are classified as hazardous waste generators pursuant to the RCRA regulations. Conditionally exempt small quantity generators (CESQGs) generate less than 100 kilograms (kg) of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate

over 1,000 kilograms (kg) of hazardous waste per month. Non-Generators were previously registered as a CESQG, SQG and/or LQG; however, they are not currently generating hazardous waste. There were 204 RCRA generator sites identified within one-quarter mile of the Streetcar route. This includes four RCRA-LQG sites, 16 RCRA-SQG sites, 14 RCRA-CESQG sites and 170 RCRA Non-generator sites. RCRA generators are not allowed to treat or dispose of hazardous wastes on-site. There are no violations reported for any of these 204 sites. None of these sites are identified as RCRA Corrective Action sites. For these reasons, the sites are considered to have a **low potential** to affect Streetcar Project construction based on their RCRA generator status.

1.5 State and Tribal Leaking Storage Tank (LUST) Lists

The Missouri Department of Natural Resources (MDNR) maintains the LUST list, which contains an inventory or reported leaking underground storage tank incidents and the Leaking Aboveground Storage Tank (LAST) list, which contains an inventory of reported leaking aboveground storage tank incidents. EDR identified 76 LUST sites on or within one-half mile of the Streetcar route. Twenty-one of these sites have been issued NFA letters by MDNR indicating that no additional work is necessary at the site. Of the remaining 55 sites, only 19 are within one-eighth mile of the Streetcar route, which is approximately equivalent of two city blocks in distance. These sites are listed in Table 3.

Table 3: Summary of LUST Database

Facility Name	Location Relative to Study Area	Additional Information
Stan Campbell 101 W 3rd	0 - ⅛-mile	Date Cleanup Finished: 03/16/1990
Downtown Texaco Serv 600 Main Street	**Along Streetcar route**	**Date Cleanup Finished: 10/28/1998**
Missouri Valley Elec 1620 Baltimore	0 - ⅛-mile, WNW	Date Cleanup Finished: 11/15/1990
Color Works Company 100 E. 7th Street	0 - ⅛-mile	Date Cleanup Finished: 08/28/1990
MRP Properties Comp 1704 Grand	0 - ⅛-mile, E	Date Cleanup Finished: 07/28/1995
Nico Investment Comp 801 Wyandotte	0 - ⅛-mile, SSW	Date Cleanup Finished: 10/18/1994
R. Dennis Fowler-EST 601 McGee	0 - ⅛-mile, SE	Date Cleanup Finished: 02/01/1996
Roto-Rooter Sewer Dr. 214 W 18th Street	0 - ⅛-mile, WSW	Date Cleanup Finished: 09/18/1991
Hyatt Regency Hotel 2345 McGee	0 - ⅛-mile, SSE	Date Cleanup Finished: 10/03/1991
United Metro Inc. 301 Grand	0 - ⅛-mile	Date Cleanup Finished:09/21/1995
City Wide Maintenance 100 E 20th Street	0 - ⅛-mile	Date Cleanup Finished: 02/10/1992
Baltimore Building 1911 Baltimore	0 - ⅛-mile, SSW	Date Cleanup Finished: 05/05/1995
MO Highway & Trans Cherry & 4th	0 - ⅛-mile	Date Cleanup Finished: 05/20/1991
Gorge H Wayer Inc 1819 Baltimore	0 - ⅛-mile, SSW	Date Cleanup Finished: 08/14/1996
Kansas City Cold Sto 500 E 3rd St	0 - ⅛-mile	Date Cleanup Finished: 01/18/1996
Former Rail Station 100 W 22nd Street	0 - ⅛-mile, SSW	Date Cleanup Finished: 12/22/1995
Firestone Store #412 2001 Grand	0 - ⅛-mile, SSE	Date Cleanup Finished: 09/28/1994
Associated Bearings 2029 Wyandotte St	0 - ⅛-mile, SSW	Date Cleanup Finished: 10/16/1998
Autobahn Motorworks 216 SW Blvd	0 - ⅛-mile, SW	Date Cleanup Finished: No date noted; Remarks indicate “site closed” with a date of 03/06/95 (release date noted as 09/03/1994)

Eighteen of these 19 sites have cleanup finished dates noted in their files (twelve of these are further noted as closed sites in the general comments section) or have a “site closed” note in their files. At these sites, the release and cleanup occurred between 14 and 22 years ago, an NFA letter was never issued, and cleanup standards have changed since the cleanup occurred. For these reasons, it is possible that some of these sites may have impacted the Streetcar route; however, due to their locations they are considered to have a **low potential** to affect Streetcar Project construction.

One LUST site identified by EDR on Main Street - the Downtown Texaco Serv site, at 600 Main Street – is located along the Streetcar route. The Downtown Texaco Serv site is noted with a cleanup finished date of October 28, 1998 and the closed site notation. Based on the cleanup finished date provided, the site is considered to have a **medium potential** to affect Streetcar Project construction.

It should be noted that the LUST database only includes USTs that are known to have leaked. Other USTs may be present along the Streetcar route that do not appear on the LUST list or the registered UST list. These unlisted USTs may have been out of service since prior to USTs becoming formally regulated and their presence may be unknown to current property owners and/or occupants.

1.6 State and Tribal Registered Storage Tank Lists

MDNR maintains the UST list, which contains an inventory of UST's regulated under Subtitle I of RCRA and that must be registered with MDNR; and the Aboveground Storage Tank (AST) list, which contains an inventory of aboveground storage tanks. EDR identified 82 UST and 3 AST sites on or within one-quarter mile of the Streetcar route. Burns & McDonnell determined that only seven of these sites, all UST sites, are located on land within or immediately adjacent to the Streetcar route. These sites are included in Table 4.

Table 4: Summary of UST Database

Facility Name	Location Relative to Study Area	Additional Information
Commerce Parking Garage 18 E. 9th Street	Along Streetcar route	All tanks reported as removed.
Downtown Texaco Serv 600 Main Street	Along Streetcar route	All tanks reported as removed. Also discussed in LUST section.
Packaging Corporation 136 Main St.	Along Streetcar route	All tanks reported as removed.
Block 139 Kansas City 1441 Main Street	Along Streetcar route	All tanks reported as removed.
Former Parking Garage 1310 Main St.	Along Streetcar route	All tanks reported as removed.
Goodyear Asc 1501 Main	Along Streetcar route	All tanks reported as removed.
Boatmen's Office Cent 920 Main St	Along Streetcar route	All tanks reported as permanently closed in place.

According to the EDR report, six of the seven UST sites immediately along the proposed route previously had USTs; however, those USTs were removed. One of the seven sites has USTs that were permanently closed in place. The former presence of these USTs is considered to have a **low potential** to affect Streetcar Project construction.

1.7 State and Tribal Institutional Control

This registry is maintained by MDNR. It includes sites that have activity and use limitations (AULs), which can include either engineering controls or institutional controls or both, registered with MDNR. EDR identified five sites with AULs within one-half mile of the Streetcar route; however, Burns & McDonnell determined that only one of these sites is along the Streetcar route EDR identifies the site as the KC Live Entertainment District – Block 138. There are three addresses listed in conjunction with the site: 1400 Main Street, 1401 Baltimore, and 1415 Baltimore. The EDR report notes that a Certificate of Completion was issued, with AULs, for the site in March 2010. The Activity Use is described as an Operations and

Maintenance (O&M) Plan; however, no details are given. The site is considered to have a **high potential** to affect Streetcar Project construction.

1.8 State and Tribal Voluntary Cleanup Lists

The state Voluntary Cleanup Program (VCP) database include sites in Missouri that are in the VCP program which establishes a voluntary, risk-based system of remediation based on protection of human health and the environment relative to current and future uses of a particular site. EDR identified 28 VCP sites within on-half mile of the Streetcar route. Burns & McDonnell determined that 17 of these sites are located cross-gradient to the Streetcar route and are therefore unlikely to have impacted the Streetcar route. The remaining 11 sites are listed in Table 5 and discussed in the following paragraphs:

Table 5: Summary of VCP Databases

Facility Name	Location Relative to Study Area	Additional Information
Wyandotte 300 Project 300 Wyandotte Street	Adjacent to northwest corner of Streetcar route	Certificate of Completion: 12/30/2004 (petroleum – misc, TCE)
Boatmen's Center 920 Main Street	Along Streetcar route	Certificate of Completion: 12/29/1997 (petroleum – misc)
Library Lofts 117 and 127 West 10th St	Adjacent to west side of Streetcar route	Inactive/terminated by VCP. Asbestos, Lead-based paint
Frankel, Frank & Co 807 Wyandotte St	**West of Streetcar route**	**Certificate of Completion: none Application to VCP: 6/23/2010 Active Remediation; Contaminants of Concern not reported**
Grand Boulevard Lofts 1006 Grand Boulevard	**East of Streetcar route**	**Inactive/Withdrew; Application to VCP: 07/28/2008; Contaminants of Concern not reported**
Gate City Bank Building 1111 Grand Boulevard	East of Streetcar route	Certificate of Completion: none Application to VCP: 03/18/2011 Active Remediation; Asbestos, Lead-based paint
Argyle Building 306 E. 12th	East of Streetcar route	Inactive/Withdrew; Application to VCP: 07/12/2006; Asbestos, Lead-based paint
President Hotel 1329 Baltimore	Adjacent to and west of Streetcar route	Certificate of Completion: 01/24/2003 with AULs (O&M Plan) (asbestos, heating oil, lead-based paint, PCBs)
KC Live Entertainment 1400 Main, 1401 Baltimore and 1415 Baltimore	**Along and west of Streetcar route**	**Certificate of Completion: 03/15/2010 with AULs (O&M Plan) Contaminants of Concern not reported**
McGrew Color Graphics 16th and Grand	**East of Streetcar route**	**Inactive/Application Denied Phase I/II conducted. Sample results showed TPH and TCE contamination in soil and groundwater; however, distribution and concentrations indicated release had not occurred at site.**
Grant at 18th Devco 1801 Walnut Street	Adjacent to and east of Streetcar route	Certificate of Completion: 12/19/2007 with AULs (monitoring contract, restrictive covenant) (BTEX, diesel, gasoline, petroleum – misc)

Sites that have been granted Certificates of Completion with no AULs attached are considered to have a **low potential** to affect Streetcar Project construction. This includes the Wyandotte 300 Project site and the Boatmen's Center site.

Sites that have not been issued a Certificate of Completion or that have been inactive due to termination or withdrawal from the program but that only have asbestos and/or lead-based paint listed as contaminants of concern are considered to have a **low potential** to affect Streetcar Project construction. This includes the Library Lofts site, the Gate City Bank Building site, and the Argyle Building site.

There are three VCP sites on or near the Streetcar route that have been issued Certificates of Completion with AULs attached. This includes the President Hotel site, the KC Live Entertainment site, and the Grant at 18th Devco site. The President Hotel and KC Live Entertainment sites are noted has having Operation & Maintenance (O&M) Plans in place. The Grant at 18th Devco site is noted as having a monitoring contract and restrictive covenant. The President Hotel and the Grant at 18th Devco sites are both not adjacent to the Streetcar route. For this reason, these sites are considered to have a **low potential** to affect Streetcar Project construction. The KC Live Entertainment site is comprised of several addresses, including 1400 Main Street, which is along the Streetcar route. There are no details available in the EDR report to indicate the contaminants of concern at the site, the remediation history of the site, or the exact physical location of the contamination on the site. Details of the O&M Plan in place at the site are unknown. As previously discussed in the State and Tribal Institutional Controls section, this site is considered to have a **high potential** to affect Streetcar Project construction.

The Frankel, Frank & Co site is located west of and within approximately one-eighth mile of the Streetcar route (reported at 807 Wyandotte). It applied to the VCP in June 2010 and is reportedly still being actively remediated. The contaminants of concern are not included in the EDR report and there is no other information available from EDR regarding the site. There are no details available in the EDR report indicating the remediation history of the site, if any, or the exact physical location of the contamination on the site. Due to the lack of information, this site is considered to have a **high potential** to affect Streetcar Project construction.

The Grand Boulevard Lofts site is located east of and within approximately one-eighth mile of the Streetcar route (reported at 1006 Grand Boulevard). It applied to the VCP in July 2008 and is reported as inactive/withdrawn. The contaminants of concern are not included in the EDR report and there is no other information available from EDR regarding the site. There are no details available in the EDR report indicating the remediation history of the site, if any, or the exact physical location of the contamination on the site. Due to the lack of information, this site is considered to have a **high potential** to affect Streetcar Project construction.

The McGrew Color Graphics site is located east of and within approximately one-eighth mile of the Streetcar route at 16th and Grand. The date the site applied to the VCP is not included in the EDR report. The site status is given as inactive/application denied. Notes within the EDR report indicate that Phase I and Phase II investigations were conducted at the site. Although sample results indicated both total petroleum hydrocarbons (TPH) and trichloroethylene (TCE) contamination in the soil and groundwater, the distribution and concentrations did not indicate that a release had occurred at the site. These previous reports were not available for review by Burns & McDonnell. There are no details available in the EDR report to indicate the remediation history of the site, if any, or the exact physical location of the contamination on the site. Although it appears that a release has not occurred at this specific site that could impact the Streetcar route, there is the possibility that a release has occurred at an adjacent site,

which has impacted this site as well as other surrounding land. The potential exists for a source in this area to impact the Streetcar route; therefore, this site is considered to have a **high potential** to affect Streetcar Project construction.

1.9 State, Tribal and Federal Brownfield Sites

MDNR maintains a list of Brownfield sites where redevelopment and reuse is hampered by known or suspected contamination with hazardous substances. While many brownfield sites are minimally contaminated, potential environmental liability can be a problem for owners, operators, prospective buyers, and financial institutions. Because of the large number of these sites, their economic impact especially in heavily industrial areas is substantial. The EPA maintains a separate list of Brownfield sties. Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfield properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfield properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

There were 32 Brownfield sites identified by EDR, including both the State and Federal Brownfield databases. Twenty-two of these sites were determined to be upgradient from the Streetcar route and are therefore considered to have a **low potential** to affect Streetcar Project construction. Five of the 22 sites note that no cleanup was required and are therefore considered to have a **low potential** to affect Streetcar Project construction**.** The records for the remaining 17 sites indicate that it is unknown if cleanup is required. These sites are listed in Table 6.

Table 6: Summary of Brownfield Databases

Facility Name	Location Relative to Study Area	Additional Information
Gate City Bank Building 1111 Grand Boulevard	East of Streetcar route	Discussed as a VCP site.
President Hotel 1329 Baltimore	Adjacent to and west of Streetcar route	Discussed as a VCP site.
KC Live Entertainment 1400 Main, 1401 Baltimore and 1415 Baltimore	Adjacent to and west of Streetcar route	Discussed as a VCP site.
Kemper Arena Garage 2 E. 9th Street	Along Streetcar route	Cleanup is noted as required; however, no additional details are available. June 2002 is date noted for startup and completion.
Heart Drive Inn 2 E. 9th Street	Along Streetcar route	Cleanup is noted as required; however, no additional details are available. June 2002 is date noted for startup and completion.
MDOT 401 Cherry	East of Streetcar route	None available.
MDOT – 401 Holmes 401 Holmes	East of Streetcar route	None available.
MDOT – 407 Holmes 407 Holmes	East of Streetcar route	None available.
Vehicle Storage Lot 400 Charlotte	East of Streetcar route	None available.
Comedy City 300 Charlotte	East of Streetcar route	None available.
Fabulous Fish Company 311 Charlotte	East of Streetcar route	None available.
Vacant Lot 301 Charlotte	East of Streetcar route	None available.
Arrow Stage Lines 401 Charlotte	East of Streetcar route	None available.
KD Sheet Metal 810 E 4th Street	East of Streetcar route	None available.
KC Route Services 300 Holmes	East of Streetcar route	None available.
701 E 3rd Street 701 E 3rd Street	East of Streetcar route	None available.
KC Custom Metal 601 E. 3rd Street	East of Streetcar route	None available.

The Gate City Bank Building, President Hotel, and KC Live Entertainment sites were discussed in the VCP Section of this letter report. Refer to that section for information related to these sites.

The Kemper Arena Garage and Heart Drive Inn sites are both reportedly located at the same address. There is little specific information included in the EDR report about these sites; however, cleanup is noted as required. The address associated with these sites is along the Streetcar route; however, Kemper Arena is located significantly west of the Streetcar route within the West Bottoms area. It is unclear if the VCP sites identified with this address are actually located at the address or if this is simply an office location or mailing address associated with the ownership of site(s). Based on the limited

information available about these sites, they are considered to have a **high potential** to affect Streetcar Project construction**.**

The remaining sites in Table 6 are noted by EDR as having had Phase I ESA conducted at each of these sites; however, no information is available regarding the findings and conclusions of these investigations. Based on the limited information available about these sites and their locations, these sites are considered to have a **medium potential** to affect Streetcar Project construction.

1.10 Drycleaners

MDNR maintains a list of drycleaner facilities that are potentially eligible for reimbursement of department approved cleanup costs under the Drycleaning Environmental Response Trust Fund. EDR identified nine sites within one-quarter mile of the Streetcar route. Burns & McDonnell determined that three of these sites are located cross-gradient relative to the route and are therefore considered to have a **low potential** to affect Streetcar Project construction. The six remaining sites are included in Table 7; however, there is limited information available related to these sites.

Table 7: Summary of EDR's Drycleaners Database

Facility Name	Location Relative to Study Area	Additional Information
Dr. Jiang's Tradition 104 E. 5th	Within Streetcar route	No information.
Farhas Downtown Cleaners 709 Main St	**Along Streetcar route**	**No information; however, noted as RCRA generator of F002 wastes.**
Prestige Cleaners 305 W. Tenth St.	West of Streetcar route	No information.
Sta-Clean Cleaners 1120 McGee	East of Streetcar route	Noted as "abandoned".
Grand Cleaners 106 E. 14th Street	East of Streetcar route	Noted as "abandoned".
Royal Masters Cleaners 1505 Grand Ave	East of Streetcar route	Noted as "active".

The Farhas Downtown Cleaners, at 709 Main Street, is located on the Streetcar route. It is noted to be a RCRA generator of hazardous waste, using the 'F002 spent halogenated solvents' waste code. Due to the location of this site, it is considered to have a **high potential** to affect Streetcar Project construction.

Two sites, the Sta-Clean Cleaners and the Grand Cleaners sites are both noted as "abandoned". The Royal Masters Cleaners site is noted as "active". There is no information available for the remaining sites: Dr. Jiang's Traditional and Prestige Cleaners. Dr. Jiang's Tradition and Grand Cleaners are both considered to have a **medium potential** to affect Streetcar Project construction based on their close proximity to the Streetcar route. The remaining sites (Sta-Clean Cleaners, Royal Masters Cleaners and Prestige Cleaners) are considered to have a **low potential** to affect Streetcar Project construction based on their locations relative to the route.

1.11 Manufactured Gas Plants

EDR also searched their proprietary Manufactured Gas Plants database for sites on or near the Streetcar route. EDR identified three sites on or within one-quarter mile of the route. All three sites are identified

as Kansas City Coal Gas. These sites are located cross-gradient from the Streetcar route and are therefore considered to have a **low potential** to affect Streetcar Project construction.

2. SUMMARY OF PAST USES OF THE STUDY AREA

Burns & McDonnell obtained information from records reviewed in order to identify uses along the Streetcar route. The following sections summarize the previous uses along the Streetcar route.

2.1 Aerial Photographs

Burns & McDonnell obtained and reviewed historic aerial photographs from EDR. Burns & McDonnell reviewed these aerial photographs to obtain information about the history of development along and in the vicinity of the Streetcar route. Copies of aerial photographs are included in Attachment 3.

1948	The quality of the aerial photograph is poor; however, the Streetcar route has been fully developed and structures are visible on all portions of the Streetcar route.
1952	Only the southern portion of the Streetcar route is included. Individual structures can be distinguished on the aerial photograph throughout the Streetcar route.
1955	Only the northern portion of the Streetcar route is included. Individual structures can be distinguished on the aerial photograph throughout the Streetcar route. Road construction is taking place along what is now the north side of the downtown loop (Interstate 70).
1957	The Streetcar route appears generally unchanged from the 1952 and 1955 aerial photograph. Details are clearer due to the scale and resolution of the photograph.
1963	The Streetcar route appears generally unchanged from the 1957 aerial photograph. Road construction is taking place along what is now the south side of the downtown loop (Interstate 70).
1969	The Streetcar route appears generally unchanged from the 1963 aerial photograph.
1970	Only the northern portion of the Streetcar route is included. The Streetcar route appears generally unchanged from the 1969 aerial photograph.
1975	Only the southern portion of the Streetcar route is included. The Streetcar route appears generally unchanged from the 1969 aerial photograph.
1979	The Streetcar route appears generally unchanged from the 1970 aerial photograph.
1982	The aerial photograph is of poor quality. The Streetcar route appears generally unchanged from the 1979 aerial photograph; however, the aerial containing the southern portion of the Streetcar route is extremely difficult to read.
1986	The Streetcar route appears generally unchanged from the 1979 and 1982 aerial photographs.
1991	The Streetcar router appears generally unchanged from the 1986 aerial photograph.
1996	The Streetcar route appears generally unchanged from the 1991 aerial photograph.
2002	Only the northern portion of the Streetcar route is included. The Streetcar route appears generally unchanged from the 1996 aerial photograph.

2005 – 2008 Only the northern portion of the Streetcar route is included. The Streetcar route appears generally unchanged from the 2002 aerial photograph.

Changes have occurred over time including the removal or addition of structures on individual parcels; however, the Streetcar route has been fully developed as part of downtown Kansas City, Missouri since the oldest aerial photograph available for review. There are no past uses evident in the aerial photos that appear to have impacted the Streetcar route.

2.2 Fire Insurance Maps

Burns & McDonnell obtained fire insurance maps for the Streetcar route from EDR. Burns & McDonnell reviewed fire insurance maps between the years 1896 and 1969 to obtain information about the history of development at and adjoining the Streetcar route. Only those past uses that are most likely to have the potential to have impacted the soil or groundwater along the proposed route or past uses involving tanks noted within a block of the proposed route are included in the following table. Copies of the fire insurance maps reviewed are included in Attachment 4.

Year	Addresses	Description
1895		
	23 W. Front St	Globe Foundry Co.
	216 Delaware	Townley Metal Co
	504-506 Delaware	Printing
	544 Delaware	Printing
	1000 Main	Photo
	1010 Main	Photo
	12 or 14 W. 12th St.	Homeopathic Pharmacy
	1406 Main	Vinegar factory
1896		
	202 Walnut	Townley Metal Co.
	208 Oak	Junk yard
	24 E. 3rd St	Chinese laundry
	572 Grand	Machine shop
	611 Walnut	Steam laundry
	1621-23 Main	Silver Towel and KC Towel Co. Laundry
	2000 Main	Central Coal & Coke Co
1909		
	23 W. Front St	Pugh Foundry Co.
	E. 1st Ave and Grand	Metropolitan Street Railway Co. power house
	130 Walnut	Coal shed
	210 E. 3rd St.	Junk yards
	221 Main	Machine shop and brass factory
	222 Grand	Junk yard
	210 E. 3rd St.	Junk yard
	406 Wyandotte	Electric plating
	506 Grand	Junk yard
	556-558 Walnut	Steam Laundry
	601 Main St.	Printing factory
	604 Delaware	Printing machinery
	605 Main St.	Paint shop
	926 Main	Paint shop

Year	Addresses	Description
	10 E. 11th St.	Printing shop
	1312 Main	Printing/Tin shop
	1315 Main	Tin shop
	1316 Main	Dye works
	8 W. 14th St.	Queen City Printing Ink
	1406 Main	Tin shop
	1417 Main	Printing shop
	1430 Main	Machine shop
	1701 Main	Auto painting and repair shop
	1715 Main	Paint shop
	1727 Main	Paints
	2009-2011 Baltimore	Oil Warehouse
1939		
	E. 1st Ave and Grand	Kansas City Power & Light Co Power Plant
	131 Delaware	Kansas City Power & Light Co. fuel oil station – 1 fuel oil tank noted
	201 Delaware	Printing
	202 Oak	Johnson Coal Co. – 5 gasoline tanks noted plus 2 coal piles
	209 Main	Tin shop
	217 Main	Crate storage – 1 gasoline tank noted
	221 Main	Machine shop and plating
	219 Walnut	Filling station – 2 gasoline tanks noted
	301 Grand	Filling station – 3 gasoline tanks noted
	400 Wyandotte	Paints
	415 Delaware	Medicine factory
	510 Grand	Auto repair – 3 gasoline tanks noted
	511 Delaware	Machine shop
	118 E. 5th St	Hotel – 1 gasoline tank noted adjacent to street
	213 E. 5th St	Junk yard
	124 E. 6th St	Filling station – 2 gasoline tanks noted
	200 E. 6th St	Filling station – 3 gasoline tanks noted
	216 E. 6th St.	Filling station – 2 gasoline tanks noted
	300 E. 6th St	Filling station – 3 gasoline tanks noted
	401 Locust	Filling station – 3 gasoline tanks noted
	419 Locust	Filling station – 2 gasoline tanks noted
	513 Delaware	Tin shop
	518 Delaware	Chemical testing lab
	528 Locust	Filling station – 3 gasoline tanks noted
	603 Delaware	Tin shop
	610 Delaware	Printing plate and material manufacturing
	628 Delaware	Filling station – 2 gasoline tanks noted
	706 Walnut	Filling station – 2 gasoline tanks noted
	701 Grand	Filling station – 3 gasoline tanks noted
	718 Grand	Garage – 2 gasoline tanks noted
	724 Grand	Auto parking – 2 gasoline tanks noted
	903 Main	Garage – 2 gasoline tanks noted
	1019 Baltimore	Auto parking – 1 gasoline tank noted
	1224 Baltimore	Filling station – 2 gasoline tanks noted
	1308 Main	Spray painting

Year	Addresses	Description
	1300 Baltimore	Filling station – 3 gasoline tanks noted
	101 W. 14th St	Filling station – 2 gasoline tanks noted
	1401 Walnut	Filling station – 3 gasoline tanks noted
	1417 Main	Filling station – 3 gasoline tanks noted
	1430 Main	Machine shop
	1431 Main	Filling station – 2 gasoline tanks noted
	1435 Walnut	Auto parking – 2 gasoline tanks noted
	1432 Baltimore	Filling station – 2 gasoline tanks noted
	1514 Baltimore	Filling station – 3 gasoline tanks noted
	1535 Baltimore	Filling station – 3 gasoline tanks noted
	1600 Main	Filling station - 2 gasoline tanks noted
	1616 Main	Auto repair
	1832 Baltimore	Filling station – 3 gasoline tanks noted
	106 Southwest Blvd	Filling station – 2 gasoline tanks noted
	101 Southwest Blvd	Filling station – 3 gasoline tanks noted
	1916 Baltimore	Auto repair – 1 gasoline tank noted
	1929 Baltimore	Filling station – 4 gasoline tanks noted
	2000-2012 Main	Auto body repair and painting
	2009-2011 Baltimore	Oil warehouse
1950		
	E. 1st Ave and Grand	Power & Light Co Power Plant
	201 Delaware	Printing
	209 Main	Tin shop
	217 Main	Crate storage – 1 gasoline tank noted
	221 Main	Machine shop and plating
	219 Walnut	Filling station – 2 gasoline tanks noted
	301 Grand	Filling station – 3 gasoline tanks noted
	308 Delaware	Chemical storage
	401 Locust	Filling station – 3 gasoline tanks noted
	419 Locust	Filling station – 2 gasoline tanks noted
	413 Wyandotte	Auto repair
	510 Main	Engraving
	510 Grand	Auto repair – 3 gasoline tanks noted
	511 Delaware	Machine shop
	528 Locust	Filling station – 3 gasoline tanks noted
	213 E. 5th St	Junk yard
	200 E. 6th St	Filling station – 3 gasoline tanks noted
	216 E. 6th St.	Filling station – 2 gasoline tanks noted
	300 E. 6th St	Filling station – 3 gasoline tanks noted
	628 Delaware	Filling station – 2 gasoline tanks noted
	706 Walnut	Filling station – 2 gasoline tanks noted
	718 Grand	Garage – 2 gasoline tanks noted
	724 Grand	Auto parking – 2 gasoline tanks noted
	903 Main	Garage – 2 gasoline tanks noted
	1230 Main	Photo
	1329 Main	Printing
	1418 Baltimore	Auto parking – 2 gasoline tanks noted
	1508 Main	Paints
	1616 Main	Auto repair

Year	Addresses	Description
	1822 Baltimore	Filling station – 3 gasoline tanks noted
	101 Southwest Blvd.	Filling station – 3 gasoline tanks noted
	1920 Main	Filling station – 3 gasoline tanks noted
	2000-2012 Main	Auto body repair and painting
	2009-2011 Baltimore	Oil warehouse
1951		
	1501 Main	Auto repair
	1519 Main	Machine shop
	1600 Walnut	Filling station – 3 gasoline tanks noted
	1719 Main	Machine Shop
	1738 Grand	Filling station – 5 gasoline tanks noted
	1800 Walnut	Filling station – 2 gasoline tanks noted
	1801 Walnut	Filling station – 2 gasoline tanks noted
	1825 Main	Auto wrecking
	1909 Main	Machine shop
	2305-2307 Grand	Laundry
1963		
	1501 Main	Auto repair
	1519 Main	Machine shop
	1719 Main	Machine Shop
	1739 Main	Machine Shop
	1801 Walnut	Filling station and auto repair – 2 gasoline tanks noted
	101 Southwest Blvd.	Filling station – 3 gasoline tanks noted
	1909 Main	Machine Shop
	2305-2307 Grand	Laundry
	2424 Walnut	Dry cleaning machinery sales and service
1969		
	E. 1st Ave and Grand	Power & Light Co Power Plant
	16 W. 3rd St	Printing ink factory
	219 Walnut	Filling station – 2 gasoline tanks noted
	221 Main	Machine shop and plating
	301 Grand	Filling station – 3 gasoline tanks noted
	308-310 Delaware	Chemical storage
	401 Wyandotte	Engraving and machine shop
	413 Wyandotte	Color printing
	120 W 5th St	Sign printing
	606 Grand	Filling station – no tanks noted
	507 Delaware	Engravers
	511 Delaware	Machine shop
	510 Grand	Auto repair – 3 gasoline tanks noted
	708 Walnut	Filling station – 2 gasoline tanks noted
	718 Grand	Garage – 2 gasoline tanks noted
	724 Grand	Auto parking – 2 gasoline tanks noted

The historical uses identified above are considered to have a **medium potential** to affect the soil and/or groundwater along the Streetcar route. Sites within the Streetcar route with tanks may be noted on the Sanborn maps but may not have been required to register their USTs with MDNR depending on when the tanks were last used relative to when tank registration became mandatory. Therefore, there may be

sites with tanks listed in the above table that do not have corresponding registrations in the MDNR UST database. Those USTs may have been out of service for so long that their presence may not be known to current owners and/or occupants. It should be noted that Sanborn maps are completed over irregular intervals of time. Businesses may come and go in the time in between the completion of two maps; therefore, there may be additional land uses with the potential to have impacted the soil and or groundwater of the Streetcar route that would not be indicated on an existing map. Additionally, the area of the Streetcar route has been redeveloped multiple times over the past 100 plus years, so there is the potential that the tanks at some of these sites have been removed as they were encountered during redevelopment activities. Even so, standards used for cleanup have changed over the years and sites that had tanks removed more than 15 to 20 years ago may not meet current cleanup standards.

2.3 Historic Topographic Maps

Burns & McDonnell reviewed historic topographic maps obtained from EDR. Copies of topographic maps are included in Attachment 5. The following paragraphs provide a summary of Burns & McDonnell's review of the historic topographic maps for the Streetcar route.

1894 *1:125,000*	Due to the scale of the topographic map, individual details in the Streetcar route cannot be discerned; however, streets are visible along the entire Streetcar route.
1940 *1:31,680*	The vicinity of the Streetcar route is shaded to indicate heavy development; individual structures are generally not indicated, with the exception of Union Station.
1948	The topographic map appears generally unchanged from the 1940 topographic map.
1957	The topographic map appears generally unchanged from the 1948 topographic map.
1964	The topographic map appears generally unchanged from the 1957 topographic map.
1970	The topographic map appears generally unchanged from the 1964 topographic map.
1975	The topographic map appears generally unchanged from the 1970 topographic map.
1991	The topographic map appears generally unchanged from the 1975 topographic map; however, Union Station is no longer indicated on the map.
1996	The topographic map appears generally unchanged from the 1991 topographic map.

Due to the level of detail visible on the topographic maps, there are no past uses evident in the topographic maps that appear to have impacted the Streetcar route.

2.4 Local Street Directories

Burns & McDonnell obtained local street directories from EDR in an effort to identify prior occupants of the Streetcar router. EDR often searches adjacent addresses within the same block or on a nearby intersecting street. A copy of the local street directory search is included in Attachment 6. City Directories were searched for the following years: 1920, 1925, 1930, 1935, 1940, 1945, 1951, 1956, 1961, 1970, 1975, 1980, and 1990. The EDR summary report was reviewed for the presence of filling and/or service stations as well as drycleaners. In addition, the scanned city directory images were searched for similar entities along Main Street. The results are included in the following table, by address:

Addresses	Year(s)	Use/Occupant
217 Walnut Street	1935-1975	Service station/filling station
308 Delaware	1956	Cleaners
316 Main	1930; 1940	Filling station
320 Main	1935	Filling station
109 5th Street	1945-1956	Cleaners
111 5th Street	1956	Cleaners
101 E. 18th	1930-1935	Filling station
1501 Main	1940	Filling station
1506 Main	1930	Filling station
1519 Main	1940-56	Oil burners
1600 Main	1920-1940	Filling station
1605 Main	1925	Cleaner
1615 Main	1930	Filling station (potential)
1834 Main	1940	Cleaners
1916 Main	1940	Filling station
1600 Walnut	1930-1940	Filling station
1742 Walnut	1935	Filling station
1744 Walnut	1930	Filling station
1800 Walnut	1940	Filling station
1801 Walnut	1940-1970	Filling station
1806 Walnut	1940	Filling station

The historical uses identified above are considered to have a **medium potential** to affect the soil and/or groundwater along the Streetcar route. Petroleum products and/or solvents were likely associated with these uses. As noted in the Sanborn map discussion, tanks associated with these uses may not have been registered due to the span of time they were present at the address (prior to registration requirements). The area of the Streetcar route has been redeveloped multiple times over the past 100 plus years, so there is the potential that the tanks at some of these sites have been removed as they were encountered during redevelopment activities. Even so, standards used for cleanup have changed over the years and sites that had tanks removed more than 15 to 20 years ago may not meet current cleanup standards

3. SUMMARY

Based on a review of historical documents, the Streetcar route was first developed for use prior to 1895. Initial development included dwellings, flats, stores and municipal buildings. The area has been continuously redeveloped since that time. There is the potential that some historical activities within the area may have impacted the Streetcar route.

A multitude of former land uses within the Streetcar route were identified using Sanborn fire insurance maps and city street directories. The most commonly observed historical uses with the potential to have impacted the Streetcar route include filling stations, machine shops, printing shops, tin shops, and cleaners. These historical uses are considered to have a **medium potential** to affect the soil and/or groundwater along the Streetcar route. It should be noted that Sanborn maps are completed over irregular intervals of time. Businesses may come and go in the time in between the completion of two maps; therefore, there may have been additional land uses with the potential to have affected the soil and or groundwater adjacent to and/or within the right-of-way where the Streetcar Project would be constructed that would not be indicated on an existing map. City directories were not searched for every available year; therefore, the list of land uses with the potential to impact the soil and/or groundwater is not all-inclusive.

Tanks at some sites may have been removed during redevelopment activities or at other times with or without appropriate cleanup activities. Even if a cleanup did occur, standards used for cleanup have changed over the years and sites that had tanks removed more than 15 to 20 years ago may not meet current cleanup standards. If these former tanks were located immediately adjacent to the Streetcar route, they have the potential to affect Streetcar Project construction.

The following sites were identified by EDR and determined by Burns & McDonnell to have a **medium** or **high** potential to affect the Streetcar route:

- The ***Downtown Texaco Serv LUST site***, at 600 Main Street, is along the proposed route. The Downtown Texaco Serv site is noted with a cleanup finished date of 10/28/1998 and the closed site notation. Based on the cleanup finished date provided, the site considered to have a **medium potential** to affect Streetcar Project construction**.**

- The ***KC Live Entertainment VCP site*** is comprised of several addresses, including 1400 Main Street, which is along the expected Streetcar route. The contaminants of concern at the site are not included in the EDR report; however, a certificate of completion has been issued. The site is noted as having AULs in place, specifically an O&M Plan. The site is considered to have a **high potential** to affect Streetcar Project construction.

- The ***Frankel, Frank & Co VCP site*** is located west of and within approximately one-eighth mile west of the Streetcar route. It applied to the VCP in June 2010 and is reportedly still being actively remediated. The contaminants of concern are not included in the EDR report and there is no other information available regarding the site. Due to lack of information, this site is considered to have a **high potential** to affect Streetcar Project construction.

- The ***Grand Boulevard Lofts VCP site*** is located east of and within approximately one-eighth mile east of the Streetcar route. It applied to the VCP in July 2008 and is reported as inactive/withdrawn. The contaminants of concern are not included in the EDR report and there

is no other information available regarding the site. The site is considered to have a **high potential** to affect Streetcar Project construction.

- The ***McGrew Color Graphics VCP site*** is located east of and within approximately one-eighth mile east of the Streetcar route. The date the site applied to the VCP is not included in the EDR report. The site status is given as inactive/application denied. Notes within the EDR report indicate that a Phase I and Phase II investigations were conducted at the site. Notes indicate that although sample results indicated both TPH and TCE contamination in the soil and groundwater, the distribution and concentrations did not indicate that a release had occurred at the site. These previous investigation reports were not available for review by Burns & McDonnell. Although it appears that a release has not occurred at this specific site that could impact the Streetcar route, there is the possibility that a release has occurred at an adjacent site, which has impacted this site as well as other surrounding land. The site is considered to have a **high potential** to affect Streetcar Project construction.

- The ***Kemper Arena Garage and Heart Drive Inn Brownfield sites*** are both reportedly located at the same address. There is little specific information included in the EDR report about these sites; however, cleanup is noted as required. The address associated with these sites is within the proposed Streetcar route; however, Kemper Arena is located significantly west of the Streetcar route within the West Bottoms area. It is unclear if the VCP sites identified with this address are actually located at the address or if this is simply an office location or mailing address associated with the ownership of the site(s). Based on the limited information available about these sites and their potential physical location, they are considered to have a **high potential** to affect Streetcar Project construction**.**

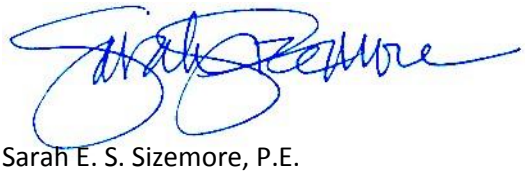
The EDR report identified twelve additional Brownfield sites as having had Phase I ESAs conducted at each of these sites; however, no information was available from EDR regarding the findings and conclusions of these reports. Based on the limited information available about these sites and their locations, these sites are considered to have a **medium potential** to affect Streetcar Project construction.

- The ***Farhas Downtown Cleaners***, at 709 Main Street is along the proposed route. It is noted to be a RCRA generator of hazardous waste, using the F002 spent halogenated solvents waste code. Due to the location of this site, it is considered to have a **high potential** to affect Streetcar Project construction.

- The ***Grand Cleaners site***, 106 E. 14th Street, is noted as "abandoned". There is no information available for ***Dr. Jiang's Tradition site***, at 104 E. 5th Street. Dr. Jiang's Tradition and Grand Cleaners are both considered to have a **medium potential** to affect Streetcar Project construction based on their close proximity to the proposed Streetcar route.

If additional clarification is desired by The City, additional information may be obtained for sites identified with **medium** or **high** potential to affect the Streetcar Project by conducting specific file reviews for each site at the MDNR and/or the EPA. If The City is seeking liability protection, a full Phase I ESA meeting the requirements of ASTM 1527-05 should be conducted for the Streetcar route or for specific, smaller sites along the Streetcar route that have been determined to have a **medium** or **high** potential to affect Streetcar Project construction.

Sincerely,



Sarah E. S. Sizemore, P.E.
Environmental Engineer

Appendix C

Environmental Desktop Review Technical Report - Vehicle Maintenance Facility Candidate Sites – Options C, D, and E

Kansas City Downtown Streetcar Project

Environmental Desktop Review
Vehicle Maintenance Facility Candidate Sites
Options C, D, and E
Technical Report
Kansas City Downtown Streetcar Project

September 19, 2012

ENVIRONMENTAL DESKTOP REVIEW
VEHICLE MAINTENANCE FACILITY CANDIDATE SITES
OPTIONS C, D, AND E
KANSAS CITY DOWNTOWN STREETCAR PROJECT

PREPARED FOR
THE CITY OF KANSAS CITY MISSOURI

SEPTEMBER 2012
PROJECT NO.: 66462

Burns & McDonnell Engineering Company, Inc.
Engineers-Architects-Consultants
Kansas City, Missouri

Environmental Desktop Review
Vehicle Maintenance Facility Candidate Sites – Options C, D, and E
Kansas City Downtown Streetcar Project

September 2012

Prepared For: Ralph Davis
City of Kansas City Missouri
KCMO Downtown Streetcar Project Manager
City of Kansas City, Missouri
Public Works Department
Kansas City, Missouri

Prepared By: Burns & McDonnell Engineering Company, Inc.
Environmental Division
9400 Ward Parkway
Kansas City, Missouri

Burns & McDonnell Project No.: 66462

Report Prepared by:

Sarah E. S. Sizemore, PE — September 19, 2012
Project Manager — Date

Greg A. Gorman, PE — September 19, 2012
Quality Reviewer — Date

TABLE OF CONTENTS

List of Tables

Attachments

September 19, 2012

Mr. Ralph Davis, P.E.
Capital Projects Division
Public Works Department
City of Kansas City
414 East 12th Street
Kansas City, Missouri 64106

Environmental Desktop Review for
Kansas City Downtown Streetcar Project – Vehicle Maintenance Facility Candidate Sites - Options C, D, E
Kansas City, Missouri
Project No.: 66462

Mr. Davis:

At the request of the City of Kansas City, Missouri (The City) an environmental desktop review was conducted for the sites being considered for the vehicle maintenance facility (VMF) associated with the Kansas City Downtown Streetcar Project. There are three candidate sites for construction of the VMF, known as Options C, D and E (referred to collectively as the Study Area in this report). All three sites (or parcels) are located between East First and Third Streets and Cherry and Campbell Streets in Kansas City, Missouri. Each option contains multiple addresses, with the exception of Option E. A site boundary map indicating the specific site boundaries for each Option is included as Attachment 1. Resources reviewed included an Environmental Data Resources (EDR) Database search, which contained a review of State, Tribal, and Federal environmental databases, historical aerial photos, historical topographic maps, city street directories and Sanborn Fire Insurance maps. The purpose of this review is to identify historical and current sites with the potential to have impacted the soil and/or groundwater within the Study Area. Neither a site visit nor a Phase I Environmental Site Assessment (ESA) was conducted in conjunction with review of the database and historical information.

Based on the collected information, sites were evaluated and the relative risk each could pose to the Streetcar Project was ranked either high, medium, or low based on the distance of the site from the candidate VMF property boundary, activities that were and/or are being conducted at the site, and the history of releases, spills, or violations for the site, as reported in the search documents. Sites were ranked with the following potential to affect the Streetcar Project:

High Potential	Sites ranked with a **high potential** to affect VMF construction are those located on or adjacent to the candidate VMF sites with either documented site activities that could have contaminated soil or groundwater on or in the vicinity of the site or that have a history of violations and/or known contaminated soil or groundwater that has not been remediated to the satisfaction of the responsible agency.

Medium Potential	Sites ranked with a **medium potential** to affect VMF construction are those located on or adjacent to the candidate VMF sites with documented current or historical activities that could have contaminated soil or groundwater; however documentation is unavailable regarding a specific release, violation, etc., or those located on adjacent land in proximity to the route with either documented site activities that could contaminate soil or groundwater or that have a history of violations and/or known contaminated soil or groundwater that has not been remediated to the satisfaction of the responsible agency.
Low Potential	Sites ranked with a **low potential** to affect VMF construction are those located on or adjacent to the candidate VMF sites or on land in the vicinity of the candidate VMF sites with no documented site activities that could have contaminated soil or groundwater and without a history of violations or releases.

This report is an instrument of service prepared by Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) for the exclusive use of The City. In order to create a report on which this entity could rely, Burns & McDonnell worked closely with The City in development of the scope of services upon which all subsequent tasks have been based. Note that although certain aspects of the American Society for Testing and Materials (ASTM) 1527-05 Standard for Phase I Environmental Site Assessments are included in this scope, the results of this review do not fully meet the requirements of the 1527-05 Standard or the All Appropriate Inquiry (AAI) regulation as codified at 40 CFR 312. Furthermore, this desktop review did not include any inquiry with respect to controlled substances, corporate environmental compliance, radon, methane, asbestos, lead paint, mold, wetlands or vapor intrusion. No party other than The City is permitted by Burns & McDonnell to rely on this instrument of Burns & McDonnell's service.

Review of the topography surrounding the Study Area indicates that the south side of the Study Area is the topographic high point. The Study Area generally slopes down to the north, towards the Missouri River. It is assumed that the groundwater flow in the vicinity of the Study Area follows the topography of the land. Therefore, groundwater is assumed to flow generally north. No specific data is available on the depth to groundwater in the vicinity of the candidate VMF sites.

1. GOVERNMENT DATABASE SEARCH

Government databases were searched in accordance with ASTM 1572-05 Sections 8.2.1 and 8.2.2. Burns & McDonnell obtained environmental database information from EDR, a commercial provider of that service. Burns & McDonnell provided EDR the approximate Study Area boundary, which included all three, candidate VMF sites, and asked EDR to use the Study Area boundary as the basis of its search radius. Accordingly, the search distances shown on the radius maps may not be actual distances from the Study Area. EDR provided a Radius Report containing United States Environmental Protection Agency (EPA), State and Tribal environmental database information in accordance with ASTM defined search distances. EDR's Radius Report lists the Federal, State, and Tribal databases searched, a description of the databases and the most recent release date of each database. A copy of the database report is included as Attachment 2 to this letter. Table 1 is a summary of the ASTM Required Databases and the number of sites found by EDR in each database.

Table 1: ASTM Required Database Search Results

Database Name	Approximate Minimum Search Distance in Miles	Number of Sites
Federal National Priorities List (NPL)	1.0	None
Federal Delisted NPL Site List	0.5	None
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List	0.5	**1**
Federal CERCLIS NPL NFRAP Site List	0.5	**2**
Federal Resource Conservation and Recovery Act Treatment, Storage, and Disposal Facilities Listed on the Corrective Action Tracking System (RCRA CORRACTS TSD) Facilities List	1.0	**1**
RCRA non-CORRACTS TSD Facilities List	0.5	None
Federal RCRA Generators List Large Quantity Generator (LQG) Small Quantity Generator (SQG) Conditionally Exempt Small Quantity Generator (CESQG) Non-Generators (Non-Gen)	Study Area and Adjoining	**13**
Federal Institutional Control/Engineering Control Registries	Study Area Only	None
Federal Emergency Response Notification System (ERNS)	Study Area Only	None
State and Tribal Equivalent NPL	1.0	NA
State and Tribal Equivalent CERCLIS List	0.5	None
State and Tribal Solid Waste Landfills and/or Solid Waste Disposal Site Lists (SWF/LF)	0.5	None
State and Tribal Leaking Storage Tank Lists (LUST and LAST)	0.5	**12**
State and Tribal Registered Storage Tank Lists (UST and AST)	Study Area and Adjoining	**3**
State and Tribal Institutional Control/Engineering Control Registries	Study Area Only	None
State and Tribal Voluntary Cleanup Sites	0.5	**4**
State and Tribal Brownfield Sites State Brownfields US Brownfields (considered optional by ASTM Standard)	0.5	**24**

EDR identified sites within or near the Study Area in State, Federal, or EDR Proprietary databases in addition to the ASTM required databases. These databases and the associated sites identified by EDR are discussed in the following sections.

1.1 CERCLIS Sites

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List contains data on potentially hazardous waste sites that have been reported to the EPA by states, municipalities, private companies, and private persons, pursuant to Section 103 of the CERCLA. CERCLIS contains sites that are either proposed to be or are on the NPL and sites which are in the screening and assessment phase for possible inclusion on the National Priorities List (NPL). There was one CERCLIS site identified on or within one-half mile of the Study Area. The Kansas City Coal Gas site is located at East First and Campbell Streets. This is approximately one-eighth mile northeast and downgradient of the Study Area. Because this site is located downgradient from the Study Area, it is considered to have a **low potential** to affect VMF construction.

1.2 CERCLIS NFRAP Sites

The CERCLIS sites designated No Further Remedial Action Planned (NFRAP) have been removed from the CERCLIS database. The CERCLIS NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. There are two CERCLIS NFRAP sites noted in the EDR report.

Table 2: Summary of CERCLIS NFRAP Database

Facility Name	Location Relative to Study Area	Topographic Position Relative to Study Area	Additional Information
Bulk Distribution 151 Wyandotte St.	West southwest of Study Area	Cross-gradient	Discovery: 07/01/1980 Preliminary Assessment: 06/01/1984 NFRAP Status granted in 1984.
Central Feed & Grain 616 E. First St.	North of Study Area	Downgradient from Study Area	Discovery: 05/01/1982 Preliminary Assessment: 03/01/1984 NFRAP Status granted in 1984.

The Bulk Distribution site is located cross-gradient from the Study Area. This site is also identified as a RCRA-non generator, which means they have generated hazardous waste in the past; however, they are not currently generating any such waste. They were previously registered as a small quantity generator and no violations are identified. Due to the cross-gradient location of the site, it is considered to have a **low potential** to affect VMF construction.

The Central Feed & Grain site is located downgradient from the Study Area. This site is not listed in any other databases searched by EDR. Although it is in very close proximity to the Study Area, it is considered to have a **low potential** to affect VMF construction due to its downgradient location.

1.3 Federal Resource Conservation and Recovery Act (RCRA) Site Lists; RCRA Corrective Action Activity (RCRA CORRACTS) Facilities Lists

The RCRA CORRACTS list identifies hazardous waste handlers with RCRA corrective action activity. EDR identified one RCRA CORRACTS site within one-mile of the Study Area.

The City Environmental CORRACTS site is located approximately one mile west southwest of the Study Area. Due to the distance between this site and the Study Area and because the site is located cross-gradient relative to the Study Area, it is considered to have a **low potential** to affect VMF construction.

1.4 Federal RCRA Generators List

The RCRA Generator's List provides information on facilities reporting that they generate hazardous waste and are classified as hazardous waste generators pursuant to the RCRA regulations. Conditionally exempt small quantity generators (CESQGs) generate less than 100 kilograms (kg) of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kg of hazardous waste per month. Non-Generators were previously registered as a CESQG, SQG and/or LQG; however, they are not currently generating hazardous waste. There were 13 RCRA generator sites identified within ¼-mile of the Study Area. This includes one RCRA-SQG sites, one RCRA-

CESQG sites and 11 RCRA Non-generator sites. RCRA generators are not allowed to treat or dispose of hazardous wastes on-site. One of these 13 sites was determined to be on or adjacent to the Study Area.

The Allied Callaway site was identified as a RCRA Non-generator. This site is located at 720 E. Third Street and is the Option E site included with the Study Area. The site was previously considered an SQG. There are three notices of violation noted by EDR in relation to a Compliance Evaluation Inspection that was conducted in 2009. All three violations were brought into compliance within three weeks of the enforcement action by the State. Violations were identified in the following areas: "Generators – Manifest", "State Statute or Regulation" and "Generators – Pre-transport". The history of hazardous waste generation at the Option E site has a **high potential** to affect VMF construction.

1.5 State and Tribal Leaking Storage Tank (LUST) Lists

The Missouri Department of Natural Resources (MDNR) maintains the LUST list, which contains an inventory of reported leaking underground storage tank incidents, and the Leaking Aboveground Storage Tank (LAST) list, which contains an inventory of reported leaking aboveground storage tank incidents. EDR identified 12 LUST sites on or within one-half mile of the Study Area. Based on the assumed groundwater flow direction in the vicinity of the Study Area, two of these LUST sites are upgradient from the Study Area. A third site is on land immediately adjacent to the Study Area. These three sites are included in the following table:

Table 3: Summary of LUST Database

Facility Name	Location Relative to Study Area	Topographic Position Relative to Study Area	Additional Information
Ryder Truck Rental 401 Charlotte	South of Study Area	Upgradient from Study Area	Date of NFA Letter: 04/27/2006
MO Highway & Transportation Cherry & 4th Streets	**South of Study Area**	**Upgradient from Study Area**	**Release date: 04/27/1991. Date Cleanup Finished: 05/20/1991**
Sprint Kansas City Site 101 Holmes	North of Study Area – immediately adjacent	Downgradient from Study Area	Date of NFA letter: 02/25/2005

Because the Ryder Truck Rental site was issued an NFA letter in 2006, it is considered to have a **low potential** to affect VMF construction.

Because the Sprint Kansas City site was issued an NFA letter in 2004 and because it is downgradient from the Study Area, it is considered to have a **low potential** to affect VMF construction.

The MO Highway & Transportation LUST site, at Cherry and Fourth Streets, does not have an NFA letter noted in the file; however, a cleanup finished date of May 20, 1991 is noted. This site is located upgradient from the Study Area. Although the release and cleanup occurred more than twenty years ago, an NFA letter was never issued and cleanup standards have changed since the cleanup occurred. For these reasons, the site is considered to have a **high potential** to affect VMF construction.

1.6 State and Tribal Registered Storage Tank Lists

MDNR maintains the UST list, which contains an inventory of UST's regulated under Subtitle I of RCRA and that must be registered with the State, and the Aboveground Storage Tank (AST) list, which contains an inventory of aboveground storage tanks. EDR identified 10 UST sites on or within one-quarter mile of

the Study Area. Burns & McDonnell determined that only three of these sites are located on land adjacent to the Study Area.

Table 4: Summary of UST Database

Facility Name	Location Relative to Study Area	Topographic Position Relative to Study Area	Additional Information
Party Shop 801 E 3rd Street	South of Study Area	Upgradient from Study Area	All tanks reported as removed.
Commercial Property 720 E. 3rd Street	South of Study Area	Upgradient from Study Area	All tanks reported as removed.
Sprint Kansas City 101 Holmes	North of Study Area	Downgradient from Study Area	All tanks reported as removed or permanently closed in place.

The former presence of these USTs on adjacent land is considered to have a **low potential** to affect VMF construction.

1.7 State and Tribal Voluntary Cleanup Lists

The state Voluntary Cleanup Program (VCP) database include sites in Missouri that are in the VCP program which establishes a voluntary, risk-based system of remediation based on protection of human health and the environment relative to current and future uses of a particular site. EDR identified four VCP sites within one-half mile of the Study Area. All four VCP sites were determined to be cross-gradient from the Study Area and are considered to have a **low potential** to affect VMF construction.

1.8 State, Tribal and Federal Brownfield Sites

MDNR maintains a list of Brownfield sites where redevelopment and reuse is hampered by known or suspected contamination with hazardous substances. While many brownfield sites are minimally contaminated, potential environmental liability can be a problem for owners, operators, prospective buyers and financial institutions. Because of the large number of these sites, their economic impact especially in heavily industrial areas is substantial. The EPA maintains a separate list of Brownfield sties. Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

There were 24 Brownfield sites identified by EDR, including both the State and Federal Brownfield databases. Eighteen of these sites were determined to be upgradient to the Study Area. All 18 sites indicated that Phase I ESAs have been conducted. Six of the 18 sites note that no cleanup was required; the records for the remaining 12 indicate that it is unknown if cleanup is required. These 12 sites are listed in the following table:

Table 5: Summary of Brownfield Databases

Facility Name	Location Relative to Study Area	Topographic Position Relative to Study Area	Additional Information
Vacant Lot 301 Charlotte	South of Study Area	Upgradient to Study Area	None available.
Comedy City 300 Charlotte	South of Study Area	Upgradient to Study Area	None available.
KC Route Services 300 Holmes	South of Study Area	Upgradient to Study Area	None available.
701 E 3rd Street 701 E 3rd Street	South of Study Area	Upgradient to Study Area	None available.
KC Custom Metal 601 E. 3rd Street	South of Study Area	Upgradient to Study Area	None available.
Fabulous Fish Company 311 Charlotte	South of Study Area	Upgradient to Study Area	None available.
KD Sheet Metal 810 E 4th Street	South of Study Area	Upgradient to Study Area	None available.
Arrow Stage Lines 401 Charlotte	South of Study Area	Upgradient to Study Area	None available.
Vehicle Storage Lot 400 Charlotte	South of Study Area	Upgradient to Study Area	None available.
MDOT – 401 Holmes 401 Holmes	South of Study Area	Upgradient to Study Area	None available.
MDOT – 407 Holmes 407 Holmes	South of Study Area	Upgradient to Study Area	None available.
MDOT 401 Cherry	South of Study Area	Upgradient to Study Area	None available.

Information noted in the EDR report indicates that Phase I ESAs were conducted at each of these sites; however, no information is available regarding the findings and conclusions of these reports. Based on the limited information available about these sites, these sites are considered to have a **medium potential** to affect VMF construction.

1.9 Drycleaners

MDNR maintains a list of drycleaner facilities that are potentially eligible for reimbursement of department approved cleanup costs under the Drycleaning Environmental Response Trust Fund. There was one site identified within one-quarter mile of the Study Area. The "Former Drycleaner" site is located at 1027 E. Fifth Street. This site is located cross-gradient from the Study Area and is therefore considered to have a **low potential** to affect VMF construction.

1.10 Manufactured Gas Plants

EDR also searched their proprietary Manufactured Gas Plants database for sites on or near the Study Area. EDR identified three sites on or within one-quarter mile of the Property. All three sites are identified as Kansas City Coal Gas. These sites are located downgradient and cross-gradient from the Study Area and are therefore considered to have a **low potential** to affect VMF construction.

2. SUMMARY OF PAST USES OF THE STUDY AREA

Burns & McDonnell obtained information from records reviewed in order to identify the uses of the Study Area. The following sections summarize the previous uses of the Study Area.

2.1 Aerial Photographs

Burns & McDonnell obtained and reviewed historic aerial photographs from EDR. Burns & McDonnell reviewed these aerial photographs to obtain information about the history of development on and in the vicinity of the Study Area. Copies of aerial photographs are included in Attachment 3.

1948 The aerial is of poor quality. The Study Area appears to be developed; however, individual details are not possible to discern.

1952 Option C: There is a structure visible in the southeast corner of the parcel. The northwest area appears to be used for parking.

Option D: The parcel is dark and it is not possible to discern if it is developed with structures.

Option E: There is a structure visible with trucks parked adjacent to it. Other details are not discernible.

1957 The parcels appear generally unchanged from the 1952 aerial photograph. Option D appears to be generally covered with vegetation; however, the northeast corner is cleared. A second structure is clearly visible on the Option E parcel, in the southeast corner.

1969 A structure is now present on the Option D parcel. The Option C parcel appears generally unchanged; however, the northeast corner appears disturbed/cleared. Option E appears generally unchanged.

1970 The aerial is of poor quality; however, the parcels appear generally unchanged from the 1969 aerial.

1979 The aerial is of poor quality; however, the parcels appear generally unchanged from the 1970 aerial; however, the structure previously on the Option C parcel may no longer be present.

1982 The aerial is of poor quality and details cannot be discerned on the aerial photograph.

1986 The parcels appear generally unchanged from the 1979 aerial photograph.

1991 The parcels appear generally unchanged from the 1986 aerial photograph.

1996 The parcels appear generally unchanged from the 1991 aerial photograph.

2002 The parcels appear generally unchanged from the 1996 aerial photograph.

There are no past uses evident in the aerial photos that appear to have impacted the Study Area.

2.2 Fire Insurance Maps

Burns & McDonnell obtained fire insurance maps for the Study Area from EDR. Burns & McDonnell reviewed fire insurance maps between the years 1896 and 1969 to obtain information about the history of development at and adjoining the Study Area. For ease of review, the maps are discussed by Option area. Copies of the fire insurance maps reviewed are included in Attachment 4.

Option	Year	Description
Option C	1896	The majority of the parcel is used for dwellings. The northeast and southwest quarters of the parcel are undeveloped. The southeast corner of the parcel is noted as the Kansas City Show Case Works, woodworking shop and lumber warehouse.
	1905	This map is a different format than the others – details regarding the types of structures present are not included.
	1909	Fewer dwellings are noted on the parcel. The southwest corner has been developed as an extension of the Kansas City Show Case Works, which is still present in the southeast corner. The northeast corner of the parcel remains undeveloped.
	1939	There are no longer dwellings present on the parcel. The Kansas City Show Case Works remains on the southern portion of the parcel – glue, painting and woodworking are all noted. Several rail spurs cut across the extreme northwestern corner of the parcel
	1950	The parcel is generally unchanged from the 1939 map; however, there are fewer structures associated with the Kansas City Show Case Works.
	1969	There are no structures on the parcel. The rail spurs are still present in the extreme northwestern corner.
Option D	1896	The west half of the parcel is part of the Henry Schrage Brick Yard and includes three kilns. The majority of the east half include structures for shops and several dwellings.
	1905	This map is a different format than the others – details regarding the types of structures present are not included.
	1909	There are no structures on the west half of the parcel. The east half of the parcel appears unchanged from the 1896 map.
	1939	There are fewer dwellings on the parcel and several structures are noted as flats.
	1950	The parcel is generally unchanged from the 1939 map.
	1969	The flats and dwellings previously present are gone. A new structure is present and is noted as a wholesale grocer's warehouse.
Option E	1896	The parcel is developed with multiple dwellings.
	1905	This map is a different format than the others – details regarding the types of structures present are not included.
	1909	There are fewer dwellings present on the parcel. The structures in the southeast corner are noted as flats; however, they were previously noted as dwellings on the 1896 map.
	1939	There are no structures present on the parcel.
	1950	A structure identified as a motor freight station is now present on the west half of the parcel. A smaller structure identified as auto repair is now present in the southeast corner of the parcel. These are likely the same structures that are still present in 2012.
	1969	The parcel appears unchanged from the 1950 map.

Adjacent Land	1896	The majority of land adjacent to the Study Area is developed with dwellings; however, there are a few stores and a church as well. Land to the north of Option D is a freight depot and associated railroad tracks. Land to the north of Option E includes the Kansas City Steam Cider Mills. Land to the northeast of Option E is part of the Kansas City gas works, including the gasometers.
	1905	This map is a different format than the others – details regarding the types of structures present are not included.
	1909	Adjacent land appears generally unchanged from the 1896 map; however, the cider mill is considerably smaller than in the 1896 map. The gasometers associated with the Kansas City gas works to the northeast are still present.
	1939	Locust Street Trafficway is now present to the west. There are fewer structures located on adjacent land. The majority of the dwellings are no longer present. Many parcels indicate no current development. Others indicate commercial or industrial development including bottling works and cold storage plant to the west, a motor freight station and auto repair facility with a gas tank noted to the south of Option C, and the Kansas City Power & Light converter station between Option C and E. The cider mill is no longer present to the north of Option E. The gasometers to the northeast are no longer indicated.
	1950	Adjacent land use appears similar to the1939 map; however, additional commercial development has occurred on some parcels that were vacant on the 1939 map. Motor freight stations are noted on land to the south of the Study Area.
	1969	Adjacent land continues to develop for commercial purposes. The United Parcel Service is to the southwest of Option C, a manufacturer of egg products is to the south of Option C, a feed mill including grain storage and grain tanks is to the northeast of Option D, a gas equipment distributor is to the north northeast of Option E.

Option C - The glue and painting activities associated with the former Kansas City Show Case Works as noted on the 1939 and 1950 maps are considered to have a **medium potential** to affect VMF construction is Option C is selected.

Option D - There were no obvious historical uses identified on the Option D parcel that would be likely to have impacted the parcel.

Option E – The 1950 and 1969 maps identify the structure on the west side of this parcel as a motor freight station and a smaller structure on the east side as an auto repair facility. These appear to be the same structures that are still present. These uses are considered to have a **high potential** to affect VMF construction if Option E is selected.

Adjacent Land – The Kansas City gas works' gasometers are noted to the northeast of the Study Area on the 1896 and 1909 maps. This area is located downgradient to cross-gradient from the Study Area and is therefore considered to have a **low potential** to affect VMF construction. A motor freight station and auto repair facility with a gas tank is noted to the south of Option C, at 611 E. Third Street, on the 1939 and 1950 maps. This is upgradient from the Study Area. The disposition of the gas tank is unknown and the site is considered to have a **medium potential** to affect VMF construction if Option C is selected.

2.3 Historic Topographic Maps

Burns & McDonnell reviewed historic topographic maps obtained from EDR. Copies of topographic maps are included in Attachment 5. The following paragraphs provide a summary of Burns & McDonnell's review of the historic topographic maps for the Study Area.

1894 *1:125,000*	Due to the scale of the topographic map, individual details in the Study Area cannot be discerned; however, streets are visible in this area.
1940	The vicinity of the Study Area is shaded to indicate heavy development; individual structures are generally not indicated. Railroad tracks are visible adjacent to the parcels in the Study Area.
1948	The topographic map appears generally unchanged from the 1940 topographic map.
1957	The topographic map appears generally unchanged from the 1948 topographic map; however, a small structure is visible in the northeast corner of the Option D parcel.
1964	The topographic map appears generally unchanged from the 1957 topographic map.
1970	The topographic map appears generally unchanged from the 1964 topographic map.
1975	The topographic map appears generally unchanged from the 1970 topographic map.
1991	The topographic map appears generally unchanged from the 1975 topographic map; however, the single structure previously visible on the Option D parcel is no longer indicated.
1996	The topographic map appears generally unchanged from the 1991 topographic map.

There are no past uses evident in the topographic maps that appear to have impacted the Study Area.

2.4 Local Street Directories

Burns & McDonnell obtained local street directories from EDR in an effort to identify prior occupants of the Study Area. EDR often searches adjacent addresses within the same block or on a nearby intersecting street. A copy of the local street directory search is included in Attachment 6. The following paragraphs provide a summary of the information contained in the local street directories for the addresses within the Option areas:

Addresses Requested	Year	Use/Occupant
Option C		
600 E. Third Street	1980	Holmes Drywall Supply Inc.
	1920	600 20 A R Jackson Kansas City
200 Holmes Street	2000	Hsptl mdcl svc pin A Protective Life Co
	1995	Humana Medicare; Humana Healthcare; Medplan Inc., Preferred Medical; Swingster Co; Universal Underwriter; Mt. Moriah Cemetery and Fn
	1990	Inc emp placement serv, accounts receivable overload
	1970	Roark 6 See Archts
212 Holmes Street	1990	Ely Mike
Option D		
603 E. First Street	--	Not listed for any year
110 Holmes Street	2006	Building; Olson Foundation Repair; Olson Quality Contractors llc; Skyline Roofing Inc.
	1990	Vacant; Penfold N Mrs
	1985	R & S Sales Co salvage
	1980	Mitchell Sales Co salvage
	1975	Roberts Sales Co salvage
	1970	Roberts Sales Co salvage
	1966	Roberts Sales Co Inc, Railroad Salvage V
114 Holmes Street	2006	ETD
	2000	ETD elec rpr; Robertson G
	1995	G Robertson
	1990	Vacant; Larkin Robert
	1985	Seep Stop of the Midwest foundation and structural repair
	1980	Silverleaf Plants; Farmer Asphalt Paving Co
	1975	Pottery Plus Co
	1966	Beacon Auto Radiator Co
	1961	Whitlow Sheet Metal Works
Option E		
720 E. Third Street	2006	Allied Callaway Equipment Co Inc.
	2000	Allied Callaway Equipment Company Incorporated industrial equipment
	1995	Patent Scaffolding
	1990	Patents Scaffolding
	1985	Patent Scaffolding Div of Harsco
	1980	Vacant
	1975	Eastern Express Inc.

Addresses Requested	Year	Use/Occupant
	1970	Eastern Express Inc.
	1966	Wheelock Brothers Inc. FRT Train Line
	1961	Wheelock Brow Inc. trans line
	1956	Wheelock Bros Inc. trans
	1951	Wheelock Bros Inc. trans line
	1920	Elmer Hauser

There were no former occupants identified in the city directories that appear to have the potential to impact the Study Area.

3. SUMMARY

Based on a review of historical documents, the land within the Study Area was first developed for use prior to 1896. Initial development included predominantly dwellings with some small flats and stores. The earliest map available shows the Kansas City Show Case Works on Option C and the Henry Schrage brick yard on Option D. Over time, the dwellings and small stores and flats were replaced by larger structures including a single structure with various commercial uses over time (Option D) and a motor freight station and auto repair facility (Option E). There is the potential that several historical activities within the Study Area may have impacted the Study Area. They are summarized by area.

3.1 Option C

The 1939 Sanborn map indicates that glue and painting activities were associated with the former Kansas City Show Case Works, as noted on the 1939 and 1950 maps. The Show Case Works was also present on the 1909 and 1896 maps; however, the business was gone by 1969 (the most recent map available). This former use of the site is considered to have a **medium potential** to affect VMF construction on Option C.

3.2 Option D

There were no obvious historical uses identified on the Option D parcel that would be likely to have impacted the parcel.

3.3 Option E

EDR identified the Allied Callaway site as a RCRA Non-generator. This site is located at 720 E. Third Street and is the Option E site included with the Study Area. The site was previously considered an SQG. Several notices of violation are noted by EDR in relation to a Compliance Evaluation Inspection that was conducted in 2009, all of which were brought into compliance shortly after being issued. The types of hazardous waste generated at the site are not noted. A history of hazardous waste generation at the Option E site has a **high potential** to affect VMF construction on Option E.

The 1950 Sanborn map includes a structure identified as a motor freight station on the west half of the parcel and a smaller structure identified as an auto repair facility in the southeast corner of the parcel. These are likely the same structures that are still currently present. These uses are considered to have a **high potential** to affect VMF construction on Option E.

3.4 Adjacent Land

EDR identified a LUST site at the intersection of Cherry and Fourth streets. The MO Highway & Transportation LUST site does not have an NFA letter noted in the file; however, a cleanup finished date of May 20, 1991 is noted. This site is located upgradient from the Study Area. Although the release and cleanup occurred more than twenty years ago, an NFA letter was never issued and cleanup standards have changed since the cleanup occurred. For these reasons, the site is considered to have a **high potential** to affect VMF construction.

There were 24 Brownfield sites identified by EDR, including both the State and Federal Brownfield databases. Eighteen of these sites were determined to be upgradient relative to the Study Area. All 18 sites indicated that Phase I Environmental Site Assessments have been conducted. Six of the 18 sites note that no cleanup was required; the records for the remaining 12 indicate that it is unknown if cleanup is required. Although information noted in the EDR report indicates that Phase I Environmental Site Assessments were conducted at each of these sites; no information is available regarding the findings and conclusions of these reports. Based on the limited information available about these sites, these sites are considered to have a **medium potential** to affect VMF construction.

The 1939 and 1950 Sanborn maps show a motor freight station and auto repair facility with a gas tank at 611 E. Third Street, which is to the south of the Option C parcel. The auto repair facility is upgradient from the Study Area. The disposition of the gas tank is unknown and the site is considered to have a **medium potential** to affect VMF construction.

Note that although certain aspects of this report meet the ASTM 1527-05 Standard for Phase I ESAs, that the results of this review do not fully meet the requirements of the Standard or the AAI regulation. If The City is seeking liability protection, a full Phase I ESA under ASTM 1527-05 should be conducted for the Study Area or for specific, smaller sites within the Study Area. Please feel free to contact me at 816-822-3130 if you have any questions.

Sincerely,

Sarah E. S. Sizemore, P.E.
Environmental Engineer