

15.0 CONTAMINATION

This chapter presents information on the presence of contamination such as uncontrolled releases of hazardous waste in the vicinity of the proposed Norfolk LRT Project. To assess the potential for soil and groundwater contamination in the vicinity of the proposed station sites and along the proposed light rail corridor, federal and state environmental databases were reviewed. A field reconnaissance was also completed for the presence of hazardous materials and wastes for sites in the vicinity of the proposed Norfolk LRT Project. Section 15.1 summarizes the regulatory authority which oversees site contamination assessment and cleanup. Section 15.2 discusses the affected environment, the databases utilized in the FEIS and the sites with the potential to cause a recognized environmental condition at the subject corridor. Section 15.3 discusses the contaminated sites near the subject corridor. Section 15.4 provides a mitigation plan.

15.1 Applicable Legal Authority

The Comprehensive Environmental Response and Liability Act (CERCLA), passed by Congress in 1980, authorizes the US Environmental Protection Agency (USEPA) to:

- Directly respond to any threat of release of hazardous waste that may endanger public health or welfare.
- Provide for the cleanup and emergency response for hazardous substances released into the environment.
- Provide for the cleanup of inactive waste disposal sites.
- Assign liability for the costs of cleanup to potentially responsible parties, including the present property owner, site developer and lending institution, even if none of these parties had a direct or indirect involvement in the activities that contributed to the contamination.

The Resource Conservation and Recovery Act (RCRA), enacted in 1976, authorizes USEPA to govern the management of solid and hazardous waste and underground storage tanks.

The Virginia Waste Management Board promulgates Virginia's waste regulations, which include solid waste and hazardous waste, transport of hazardous materials, voluntary remediation, regulated medical waste, waste tires, coal combustion by-products and yard waste composting. The Virginia State Water Control Board promulgates Virginia's regulations, which include petroleum storage tanks.

15.2 Affected Environment

During preparation of this FEIS, an environmental screening analysis was conducted for the Norfolk LRT study area. The purpose of this assessment was to identify sites where contamination or hazardous materials might be present. Hazardous waste sites were identified through the following activities:

- Historical Research - Review of aerial photographs and use of federal and state databases of potential and known sources of contamination.
- Site Reconnaissance - Limited visual survey of the corridor.

Below are general descriptions of the federal and state databases that were searched for hazardous waste sites.

15.2.1 Federal Databases

USEPA: NPL

The National Priorities List (NPL) is the U.S. Environmental Protection Agency's (USEPA) database of uncontrolled or abandoned hazardous waste sites identified for priority remedial action under the Superfund Program. These sites must either meet or surpass a predetermined hazard ranking systems score, or be chosen as a state's top-priority site, or meet all three of the following criteria:

- 1) US Department of Health and Human Services issues a health advisory recommending that people be removed from the site to avoid exposure.
- 2) The USEPA determines that the site represents a significant threat.
- 3) The USEPA determines that remedial action is more cost-effective than removal action.

USEPA: CERCLIS/NFRAP

The Comprehensive Environmental Response, Compensation and Liability (CERCLIS) List is a compilation of USEPA sites which have been investigated or are currently being investigated for a release or threatened release of hazardous substances pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA, or Superfund Act). The No Further Remedial Action Planned (NFRAP) report contains information pertaining to sites, which have been removed from the CERCLIS Database. NFRAP sites may be sites where, following an initial investigation, either no contamination was found, contamination was removed quickly without 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.

USEPA: RCRA (RCRIS)

The USEPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The Resource Conservation and Recovery Information Systems (RCRIS) database contains facilities that generate, transport, treat, store or dispose of hazardous waste. The database includes Corrective Action facilities (CA), permitted treatment, storage, or disposal (TSD) facilities, Small Quantity Generators (RCRA SG) and Large Quantity Generators (RCRS LG) facilities.

USEPA: ERNS

ERNS is a national database system that is used to store information concerning the sudden and/or accidental release of hazardous substances, including petroleum, into the environment.

15.2.2 State Databases

STATE: HWS

The state of Virginia does not have a formal “State Superfund” Program, the federal CERCLIS database is considered to be the equivalent of a State Hazardous Waste Sites List (HWS). The HWS is a comprehensive listing of known or suspected uncontrolled or abandoned hazardous waste sites.

STATE: LRST

This is a database, maintained by state or local agencies, of known or suspected leaking underground storage tanks.

STATE: UST

This is a database, maintained by state or local agencies, of underground storage tanks.

STATE: SWF

This is a database, maintained by state or local agencies, of Solid Waste Landfills, Incinerators, and transfer stations (SWF).

Table 15-1 lists the databases searched, the description of the databases, and the number of sites within 1,000 feet of the proposed corridor listed under each database searched.

**Table 15-1
Environmental Database Report Summary**

Database/Data	Description of Database/Effective Date	Sites Identified
NPL	The National Priorities List identifies uncontrolled or abandoned hazardous waste sites. To appear on the NPL, sites must have met or surpassed a predetermined hazard ranking system score, been chosen as a state's top priority site, pose a significant health or environmental threat or be a site where the EPA has determined that remedial action is more cost-effective than removal action. Effective Date – 9/15/02	0
CERCLIS	The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database identifies hazardous waste sites that currently or formerly require investigation and possible remedial action to mitigate potential negative impacts on human health or the environment. Effective Date – 9/15/02	0
NFRAP	The No Further Remedial Action Planned Report (NFRAP) contains information pertaining to sites which have been removed from the CERCLIS database Effective Date – 9/15/02	2
RCRIS CA	Resource Conservation and Recovery Information System Corrective Action list of sites that are currently conducting or have conducted corrective actions. Effective Date – 9/9/02	0

Database/Data	Description of Database/Effective Date	Sites Identified
RCRIS TSD	Resource Conservation and Recovery Information System list of permitted treatment, storage, or disposal (TSD) sites. Effective Date 9/9/02	2
RCRIS SG	Resource Conservation and Recovery Information System Small Quantity Generators of hazardous waste (between 100 kilograms and 1,000 kilograms per month). Effective Date – 9/9/02	69
RCRIS LG	Resource Conservation and Recovery Information System Large Quantity Generators of hazardous waste (> 1,000 kilograms per month). Effective Date – 9/9/02	0
ERNS	EPA's Emergency Response Notification System (ERNS) list contains reported spill records of oil and hazardous substances. Effective Date - 12/31/01	59
LRST	State of Virginia list of leaking underground storage tanks. Effective date – 9/9/02	102
UST	State of Virginia list of registered underground storage tanks. Effective date – 9/9/02	182
SWF	State of Virginia inventory of solid waste landfills and processing facilities. Effective Date - 4/16/01	3

Source: URS Corp., October 2003

Tables 15-2 and 15-3, compiled from the US EPA and State of Virginia databases, lists the locations of all sources of potential contamination in the vicinity of the proposed LRT alignment that may create a recognized environmental condition to the corridor. For the identification of potential contaminated sites, the project vicinity includes all sites within 1000 feet of the proposed alignment. Table 15-2 includes only known contaminated sites, including reported spill records of oil and hazardous substances (ERNS), Registered Leaking Underground Storage Tanks (LRST), and solid waste landfills and processing facilities (SFW).

**Table 15-2
Known Contaminated Sites**

NAME	DATABASE REFERENCE			
	ADDRESS*	ERNS	LRST	SFW
Harold & Williams LF	2306 Westminster Ave.			X
Sewells Point Yard	Hampton and Belt Line Tracks	X		
	3425 Westminster Ave.	X		
Hague Towers	Brambleton Avenue	X		
Lamberts Point Terminal	2200 Red Gate Ave.	X		
	300 Monticello Ave.	X		
Lamberts Point Terminal	2200 Red Gate Ave.	X		
	I-264 EB at Military Hwy. On-ramp	X		
Nauticus	Brambleton Ave. Between I-264 and RR Tracks, near NSU	X		
		X		

NAME	DATABASE REFERENCE			
	ADDRESS*	ERNS	LRST	SFW
	513 Pembroke Ave.	X		
Police Dept. 1 st Patrol Division	811 E. City Hall		X	
City of Norfolk, Public Safety Bldg.	811 E. City Hall		X	
Campostella Ready-Mixed Plant	2125 Kimball Terrace		X	
Modami Stewart Foods Inc.	5732 Curlew Drive		X	
Newtown Imports Used Auto Sales	129 Kempsville Road		X	
Old Sanford and Charles Bulk Plant	5870 Curlew Drive		X	
MPB, Inc.	844 Kempsville Road		X	
Exxon S/S #2-6907	132 Kempsville Rd.		X	
Norfolk Pumping Station #65	359 Kempsville Rd.		X	
Jaeger Residence	5360 Orion Avenue		X	
Terpay John Residence	5939 Sellger Drive		X	
Bayview Building Site	744 Maltby Avenue		X	
Chesapeake Steel Inc	3468 Westminster Avenue		X	
Chesapeake Heights Pumping Station	Merrimac & Stanhope Avenue		X	
Norfolk State University	700 Park Avenue		X	
Ruffner Middle School	489 Tidewater Drive		X	
Lawrence Thomas - Duplex Apt. Bldg.	744 Maltby Avenue		X	
Chrysler Museum	245 West Olney Road		X	
EVMS Vehicle Maintenance Facility	Children's Lane		X	
Amoco	18 St. Pauls Blvd.		X	
Carolina Trailways	120 E. Main Street		X	
City Hall Parking Garage	112 W. City Hall Ave		X	
City of Norfolk Development Dept.	E. City Hall Ave. / Court Street		X	
First Virginia Bank Tower	555 E. Main St.		X	
Maritime Tower	234 Monticello Ave.		X	
Nations Bank	1 Commercial Place		X	
Norfolk City Hall	E. City Hall Ave. / Court Street		X	
Upton Storage Co.	1125 E. Water St.		X	
VDOT Wayside Area HQ	120 S. Military Highway		X	
Clinic Science Bldg. Hofheimer Hall	Childrens Lane		X	
Norfolk Fire Station #3	714 Pembroke Avenue		X	
Former City of Norfolk Health Dept. Bldg.	401 Colley Avenue		X	
Sovran Bank, Jenkins Estate	531 Warren Crescent		X	
Youngs Park Elementary School	543 Olney East Road		X	
Eagletons	430 Boush Street		X	

Source: URS Corp., September 2003

Notes: * All addresses are in Norfolk, VA

Table 15-3 identifies all other sources of hazardous waste. This includes sites which have been removed from the CERCLIS database (NFRAP), companies that produce or generate hazardous waste (RCRA), and underground storage tanks (UST).

**Table 15-3
Other Sources of Hazardous Waste**

NAME	DATABASE REFERENCE			
	ADDRESS	NFRAP	RCRA	UST
Lamberts Point Terminal	2200 Redgate Ave.	X		
Norfolk Town Gas	Monticello Ave. / Virginia Beach Blvd.	X		
Sentara Norfolk General Hospital	600 Gresham Drive		X	
Lyon Shipyard	1818 Brown St.		X	
Marine RP & Construction Corp.	207 Granby St.		X	
Norfolk City Schools Administration	800 E. City Hall Ave		X	
Reprographics & Distribution	920 E. Main Street		X	
Sentara Leigh Hospital	830 Kempsville Road		X	
Star Enterprise	500 Military Highway		X	
Ruffner Middle School	489 Tidewater Drive		X	
Texaco	500 Military Highway		X	
Eastern Virginia Medical School	700 Olney Ave.		X	
Tidewater Regional Forensic Lab	401-A Colley Ave.		X	
Campostella Ready-Mix Plant	2125 Kimball Terrace		X	
MP Industries	3478 Westminster Ave.		X	
Norfolk State University	700 Park Avenue		X	
Albano Cleaners	300 St. Pauls Blvd.		X	
Amoco #2033	300 St. Pauls Blvd.		X	
Tidewater Community College-Norfolk	300 Granby Street		X	
Police Dept. 1 st Patrol Division	811 E. City Hall Ave			X
Metro Machine Corp. (Mid-Atlantic)	1107 W. Olney Road			X
EVMS – Vehicle Maintenance Facility	154 Colley Ave.			X
Medical College of Hampton Roads	358 Mowbray Arch			X
Petrochem Recovery Service	635 Maltby Ave.			X
City Hall Parking Garage	112 W. City Hall Ave.			X
MPB, Inc	844 Kempsville Road			X
Newtown Imports Used Auto Sales	129 Kempsville Road			X
Tidewater Psychiatric Institute	860 Kempsville Road			X
Sentara Leigh Hospital	830 Kempsville Road			X
Modami Stewart Foods Co. Inc	5732 Curlew Drive			X
Security Storage & Llow CO	5786 Sellger Drive			X
James Barry Robinson Institute	443 Kempsville Road			X
Mobil Curlew Station	5888 Curlew Drive			X
Exxon #2-6907	132 Kempsville Road			X
Crossroads Fuel Service Inc.	150 S. Military Highway			X
J W Burress Inc.	5734 Sellger Drive			X
Pumping Station #65	359 Kempsville Road			X
Campostella Ready-Mix Plant	2125 Kimball Terrace			X
Norfolk Shipbuilding and Dry dock	2401 Kimball Terrace			X
Norfolk State University	Various Buildings			X
Medical Towers Associates	400 Gresham Drive			X
Children’s Hospital of King’s Daughters	601 Children’s Lane			X
Children’s Hospital of King’s Daughters	800 W. Olney Road			X
Fire Station #3	714 Pembroke Ave.			X

NAME	DATABASE REFERENCE			
	ADDRESS	NFRAP	RCRA	UST
Pembroke Towers	601 Pembroke Ave.			X
Sentara Norfolk General Hospital	600 Gresham Dr.			X
Norfolk Public Health Center	401 Colley Ave.			X
Amoco Oil Co.	1025 E. Water St.			X
Amoco Oil Co. S/S #2033	300 St. Pauls Blvd.			X
Carolina Trailways	120 E. Main Street			X
City Hall Boiler Room	920 E. Main Street			X
City of Norfolk Development Dept.	E. City Hall Ave. / Court Street			X
City of Norfolk Utilities Dept.	310 Cumberland Street			X
Federal Building	200 Granby Street			X
Fire Station #1	540 E. City Hall Ave.			X
First Virginia Bank Tower	555 E. Main Street / St. Pauls Blvd.			X
Former S/S #1645	Randolph St. / W. Main Street			X
Hampton Area Shore Patrol HQ	140 East Street			X
Maritime Tower	234 Monticello Avenue			X
Nations Bank	1 Commercial Place			X
Nations Bank	2 Commercial Place			X
NFK	201 Granby Street			X
Plaza One Building	550 E. Main Street			X
Rogerson N Benjamin	5320 Pine Grove Ave.			X
School Admin. Bldg. Boiler Room	800 E. City Hall Ave.			X
St. Mary's Infant Home	317 Chapel Street			X
US Custom's House	101 E. Main Street			X
Upton Storage Company	1125 E. Water Street			X
VDOT- Wayside Area HQ	120 S. Military Highway			X
World Trade Center Assoc.	Boush & Main Street			X

Source: URS Corp., September 2003

15.3 Environmental Impacts

A review of Tables 15-2 and Table 15-3 shows a total of 116 sites within the Norfolk LRT study area. Of these, 46 sites are known contaminated sources including ten ERNS sites, 35 leaking underground storage tanks (LRST), and one SFW site. Other sources of hazardous waste include 2 NFRAP sites, 17 RCRA Small Generator sites, and 51 registered underground storage tanks (RST).

15.3.1 No-Build Alternative

The No-Build Alternative would not impact any identified hazardous waste sites.

15.3.2 TSM Alternative

The TSM Alternative would not impact any identified hazardous waste sites.

15.3.3 Preferred Alternative

There exists a potential to impact sources of contamination in the downtown Norfolk area because of its heavy development since the turn of the century. The downtown area has a high potential for contaminated sites. However, much of the alignment for the proposed route is in roadway and railroad rights-of-way, which reduces the potential for impact from industry and commercial business.

The potential concern for the vicinity of the LRT corridor includes the possible contamination of soil and/or ground water at or surrounding the identified sites. Table 15-4 and Figure 15-1 identify the known contaminated sites that may be impacted by the construction of the Preferred Alternative. The underground storage tanks (UST) that may be impacted by the construction of the Preferred Alternative are also identified.

**Table 15-4
Potentially Impacted Hazardous Waste Sites**

NAME	DATABASE REFERENCE			
	ADDRESS	ERNS	LRST	UST
City of Norfolk Health Dept. Bldg.	401 Colley Avenue		X	X
Maritime Tower	234 Monticello Ave.		X	X
ERNS Site # 1	300 Monticello Ave.	X		
Police Dept. 1 st Patrol Division	811 E. City Hall		X	
City of Norfolk, Public Safety Bldg.	811 E. City Hall		X	
Newtown Imports Used Auto Sales	129 Kempsville Rd.		X	
ERNS Site # 2	Brambleton Ave. Between I-264 and RR Tracks, near NSU	X		

Source: URS Corp., June 2001

Additional areas of concern include the sites that would be acquired for the construction of the Preferred Alternative. Table 15-5 lists the property acquisitions required for the project.

**Table 15-5
Property Acquisitions**

Street Address	Use
York Street	Multi-Misc. Properties LLC (Business)
No Address (Located along NSRR ROW at the VSMF)	Titan America (Vacant Industrial)
6206 Curlew Drive	Residential
6212 Curlew Drive	Residential
6220 Curlew Drive	Residential
100 Bangor Avenue	Residential
112 Bangor Avenue	Residential
120 Bangor Avenue	Residential
128 Bangor Avenue	Residential
129 Kempsville Road	Business – Auto related
133 Kempsville Road	Fraternal Organization

Source: URS Corp, August 2005

A. Preliminary Assessment

A Preliminary Assessment Report was developed in accordance with VA DEQ requirements and the ASTM standards to further evaluate the extent of potential contamination at the sites identified in Tables 15-4 and 15-5 as well as at station locations, the vehicle storage and maintenance facility site, and the proposed LRT alignment. The Preliminary Assessment contained the following tasks:

Agency Data Review – The Agency Data Review includes a review of available site records and files related to environmental or health and safety compliance issues to identify any potential past situations on these sites which may indicate contamination. Any areas of potential contamination identified during the records review are described on drawings of the properties. The review also includes the operating and ownership history of each site and federal and state database information within a quarter mile of the sites.

Review of Historical Data – Historical land use information on the properties was also reviewed. This search includes one or more of the following sources: Sanborn Fire Insurance Maps, property tax files, recorded land title records, local building department records, zoning/land use records, prior assessment usage, and aerial photographs available from the City of Norfolk and commercial database services. Data obtained from these sources were reviewed to construct the site's operational history. This includes past industrial/commercial usage of the site by each owner and operator, hazardous substances used on the property, remedial actions previously conducted, raw materials and finished products, past production processes, and the location of wells on the property and in the immediate area.

Site Inspection - A site inspection of each property was conducted. The visual inspections included: areas of past operations; waste generation and handling areas; fuel, oil, and chemical management systems; wastewater discharge areas; solid waste handling/disposal practices; underground storage tanks (USTs); transformers; stained soil; dry wells/drainage systems; and other areas of potential environmental concern.

Based on the Preliminary Assessment Report, the 13 sites listed in Table 15-5 were identified for further review in addition to the proposed LRT alignment and station areas.

B. Site Investigation Report

Based on the Preliminary Assessment Report, a site investigation was conducted at each of the properties for which additional information is needed. The Site Investigation field investigations are based on the information obtained in the Preliminary Assessment and include the sampling of soils in accordance with the ASTM suggested practices and all applicable VA DEQ requirements. The specific Site Investigation field investigations included completing soil borings as required on the property lots drilled to the depth that the water table is encountered. In each boring, soil was collected from continuous split spoon samples and the sample showing the most evidence, either from readings on the field Photoionization Detection meter (PID) or from visual indications, was collected and submitted to a Virginia Certified laboratory for analysis of Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), pesticides and PCBs, and metals.

In addition to the properties identified in Table 15-5, soil samples and testing were conducted at each proposed station site (3 soil samples per acre) and along the LRT alignment (1 soil sample per 1000 feet).

Based on the Site Investigation Report, no significant contamination has been identified. Therefore, the potential for encountering hazardous materials is low and hazardous material impacts are not expected to be significant.

15.4 Mitigation Plan

Further hazardous waste analysis of the LRT corridor will be conducted through the Final Design phase of the project to identify areas of contamination along the Norfolk Southern Railroad right-of-way. If significant contaminated material is encountered at properties to be acquired, a Phase II Environmental Site Assessment would be completed. The Phase II Environmental Site Assessment would define more precisely the areas which have hazardous wastes, the contamination and flow of ground water, the remedial procedures to be followed, and the cost of such remediation. The Phase II work would be planned and executed in accordance with the technical requirements and ASTM standards of USEPA regulations and the Virginia Department of Environmental Quality. It should include a test boring program for sampling, ground water observation wells, and a testing program.

Remediation could involve the removal and disposal of contaminated soils, avoidance of contaminated areas through the modification of alignment, structural design modification, containment, or on-site treatment of contaminants. Prior to construction of corridor improvements, a contingency plan will be developed and implemented that addresses hazardous substance identification, notification, management, and disposal in the unlikely event that hazardous substances are encountered during construction and operation. In addition, during construction, a health and safety plan will be developed that will detail proper personal protective equipment that will be worn by crews working near any identified contaminants.

Another factor that may affect remediation could be the demolition of buildings encroaching on the right-of-way. An Asbestos Containing Material (ACM) and Lead-Based Paint (LBP) investigation would be required prior to the demolition of any existing buildings.

