

5.18 Hazardous Materials

This section provides data on hazardous materials in the study area and explains why locating, identifying, and analyzing them is important to the project. The impacts of the project alternatives on sites that contain hazardous materials also are evaluated, then proposed mitigation measures are discussed to offset any potential adverse effects.

Since the Supplemental Draft EIS was published in August 2014, additional analyses and content review have been performed for many of the resources discussed in this document. These updates, along with changes resulting from the comments received on the Supplemental Draft EIS, have been incorporated into this Final EIS. In this section, the updates include the following items:

- Based on the revised construction limits, impacts were updated.
- Additional subsurface investigation reports were reviewed; this revealed additional impacts to soil and groundwater, which are discussed in detail.
- Subsurface investigations were conducted along I-70 between I-25 and I-270; this revealed additional impacts to groundwater, which are discussed in detail.
- CERCLIS NFRAP sites were evaluated, resulting in an additional three known hazardous materials sites in both the Revised Viaduct and Partial Cover Lowered Alternatives.
- The Fugitive Dust Control, Dewatering, and Asbestos-Containing Materials mitigation measures were revised.

5.18.1 What are hazardous materials and why are they important to this project?

Hazardous materials are solids, liquids, or gases that are harmful to human health and to the environment.

Hazardous materials are likely present along the I-70 East corridor because of current or past land uses. Identified known releases of hazardous materials are primarily from leaking underground storage tanks (LUST) that released gasoline, diesel, waste oil, or other vehicle maintenance/ fuel products into the ground or the groundwater. Other identified known releases are primarily from industrial uses in the area—from hazardous substances associated with past land uses and the use and storage of hazardous waste.

Hazardous materials may impact the health and safety of construction workers, environmental resources, and

Common contaminants

Common contaminants identified in soil and/or groundwater include:

- Petroleum products (i.e., fuels, waste oils)
- Chlorinated solvents
- Metals
- Asbestos

community residents located within the project corridor and surrounding area. Also, encountering hazardous materials during construction can impact the cost of construction, as contaminated media generated during construction must be managed in accordance with federal and state regulations.

5.18.2 What study area and process were used to analyze hazardous materials?

The hazardous materials analysis uses two different search areas. One is a larger area for an environmental records search to comply with the American Society for Testing and Materials (ASTM) standards (ASTM, n.d.); hereafter, this section refers to this as the data search area. The second area—the one shown throughout this chapter on exhibits—is smaller and accounts for project ground disturbance; hereafter, referred to the study area.

The data search area, which extends between one-quarter mile and one mile from the project construction limits, is in accordance with the requirements of ASTM Standard E 1527-05. The objective was to identify specific federal and state environmental sources and search distances for each record source to be included in a Standard Environmental Record Search. The data search was completed in October 2012. Attachment H, *Hazardous Materials Technical Report*, in the 2014 Supplemental Draft EIS fully details the results of the records search.

The study area corresponds to the greatest potential extent of the project construction limits and is used to assess potential encounters with hazardous materials by project alternatives, shown in **Exhibit 5.18-1**. This area has a long history of commercial and industrial activity associated with hazardous materials.

Exhibit 5.18-2 summarizes the database results from the search, together with the number of sites within each database the environmental records search identified within the study area.

Environmental records search

An environmental records search was conducted using ASTM Standard E 1527-05 search distances for environmental resources.

Databases were searched for the following resources:

- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- National Priorities List (NPL)
- Resource Conservation and Recovery Act (RCRA)
- Solid Waste Landfill (SWL)
- Voluntary Cleanup Program (VCUP)
- Underground Storage Tank (UST)
- Leaking Underground Storage Tank (LUST)

Exhibit 5.18-1 Hazardous Materials Study Area

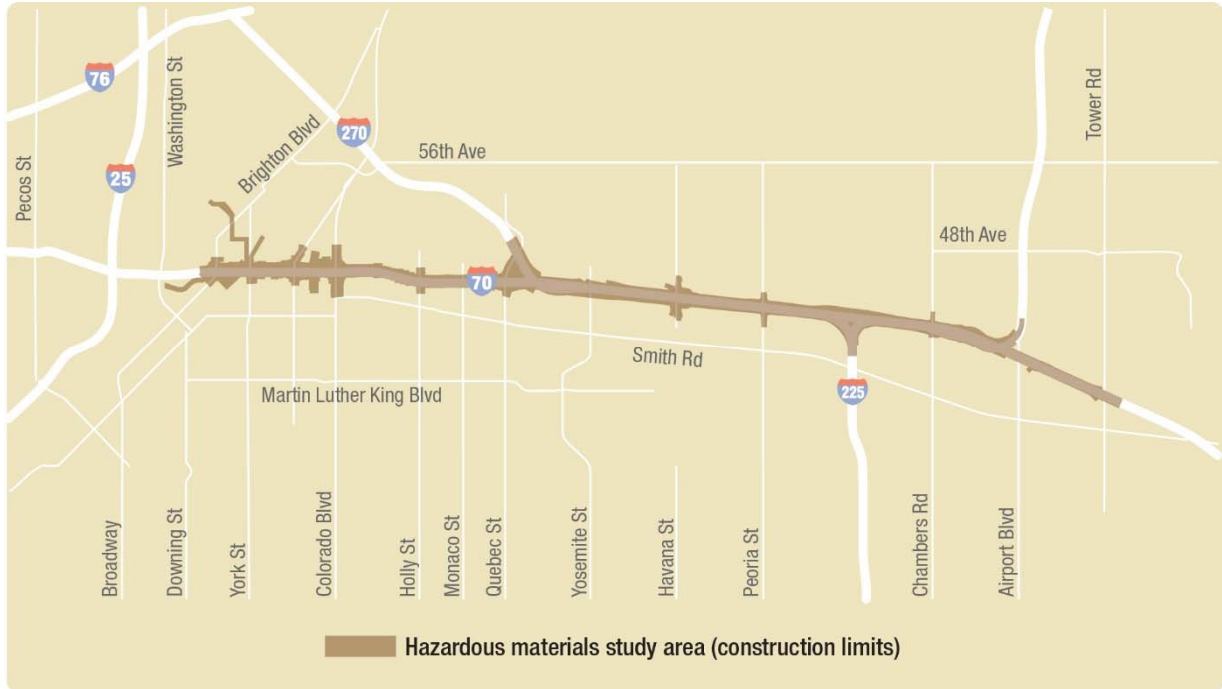


Exhibit 5.18-2 Environmental Records Search Results

Hazardous Material Database	Number of Sites
CERCLIS	0
CERCLIS, No Further Remedial Action Planned	3
NPL	1
RCRA, Generators (Large, Small, and Transporter)	8
RCRA, Corrective Action (CORRACTS)	1
RCRA, Treatment, Storage, and Disposal Facilities	1
SWL	4
VCUP	1
UST	28
LUST	26

Sources: Satisfi, Inc., 2012

Two previous subsurface investigations were performed within the study area. A preliminary subsurface investigation was performed in October 2012 at the western portion of the study area, along I-70 between Brighton Boulevard and Colorado Boulevard. A subsurface investigation also was performed between March 2014 and February 2015 along I-70 between Colorado Boulevard and I-270. Soil and groundwater samples were collected and

analyzed for common contaminants, including petroleum hydrocarbons, chlorinated solvents, heavy metals, volatile organic compounds, semi-volatile organic compounds, and pesticides.

Results of the 2012 preliminary subsurface investigation are included in the 2014 Supplemental Draft EIS in Attachment H, *Hazardous Materials Technical Report*. The Supplemental Draft EIS is available for review on the I-70 East project website at www.i-70east.com. Results of the 2015 subsurface investigation report are included in Attachment H, *Hazardous Materials Technical Report Addendum*, in this document.

5.18.3 What are the areas of interest for hazardous materials that are being analyzed and what are their existing conditions?

The environmental records search, conducted in 2012, presented in the *Environmental FirstSearch Database Report* identified more than 1,300 sites in the data search area, of which 132 sites were located within the study area. The more significant hazardous materials sites identified in the environmental records search include Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), RCRA, Colorado VCUP, SWL, and UST/LUST sites, of which 73 sites were identified within the study area. **Exhibit 5.18-3** through **Exhibit 5.18-10** include sites within and outside of the study area identified within the data search area.

CERCLA Assessment and Response Program

The CERCLA Assessment and Response Program, as described in the National Contingency Plan (40 CFR Part 300), commonly known as the Superfund Program, provides a framework for identifying, evaluating, and cleaning up sites with uncontrolled hazardous substance releases from past industrial activities that pose a threat to human health and the environment. CERCLIS is the comprehensive system used to track sites under assessment or needing to be addressed, and sites where releases are currently being addressed or have been addressed. The environmental data search identified the following sites listed in CERCLIS:

- Three CERCLIS sites, as shown on **Exhibit 5.18-3** (CERCLIS sites are actively undergoing initial evaluation for contamination)

- Twenty-six CERCLIS, No Further Remedial Action Planned (NFRAP) sites, as shown on **Exhibit 5.18-4** (sites have been evaluated and no further action is planned; the EPA or CDPHE could reopen these sites at any time in the future if new information or data are made available)
- One proposed NPL site (Asarco Globe Plant) and two active NPL sites (Chemical Sales Site and Vasquez Boulevard at I-70 Site), as shown on **Exhibit 5.18-5**

CERCLIS and NPL sites are discussed in further detail in Appendices A and B of Attachment H, *Hazardous Materials Technical Report* of the Supplemental Draft EIS.

Exhibit 5.18-3 CERCLIS Sites



Exhibit 5.18-4 CERCLIS, NFRAP Sites

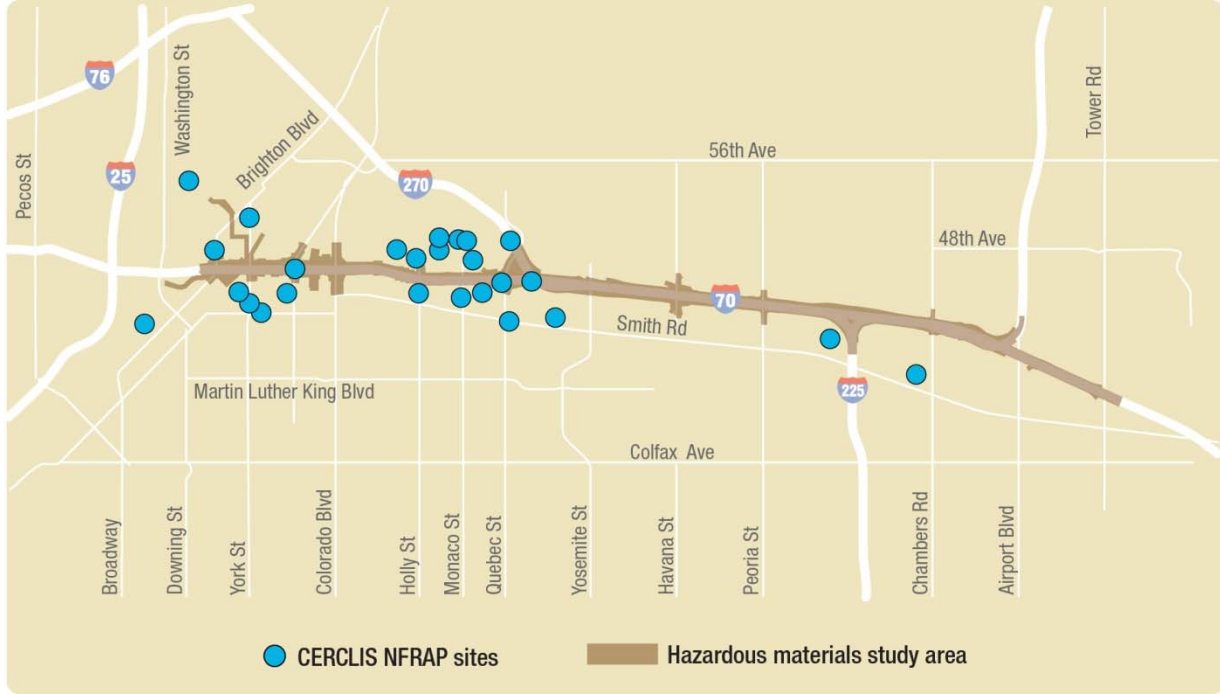


Exhibit 5.18-5 NPL Sites

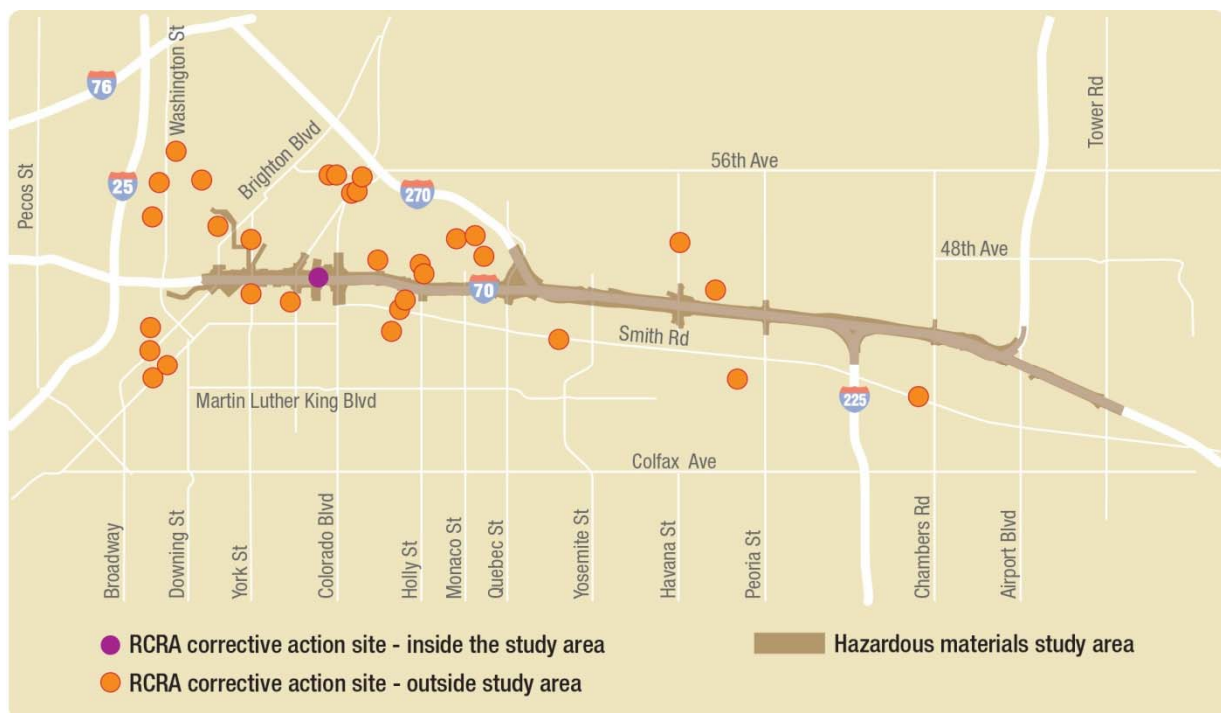


RCRA Corrective Action Program

The RCRA Corrective Action Program, administered in Colorado by CDPHE, provides the framework for the identification, evaluation, and cleanup of sites contaminated by the release of RCRA hazardous waste and waste constituents that pose a threat to human health and the environment. RCRA sites in the data search area include 32 sites, as shown on **Exhibit 5.18-6**.

RCRA Corrective Action sites are discussed in further detail in the Supplemental Draft EIS in Appendix C of Attachment H, *Hazardous Materials Technical Report*.

Exhibit 5.18-6 RCRA Corrective Action Sites



Solid Waste Landfill and Voluntary Cleanup Program

The Solid Waste and Materials Management Program, which is administered by CDPHE's Hazardous Materials and Waste Management Division, regulates SWLs. SWL locations in the data search area include six sites and 40 areas, as shown on **Exhibit 5.18-7**.

CDPHE's Hazardous Materials and Waste Management Division, VCUP, provides a framework for the evaluation and cleanup of contaminated sites that do not fall under other regulatory programs. There are three VCUP sites located within the data search area, as show on **Exhibit 5.18-8**.

SWL and VCUP sites are discussed in further detail in Appendices D and E of Attachment H, *Hazardous Materials Technical Report* of the Supplemental Draft EIS.

Exhibit 5.18-7 Solid Waste Landfill Sites



Exhibit 5.18-8 Voluntary Cleanup Program Sites



AST, UST, and LUST Sites

The Colorado Department of Labor and Employment, Division of Oil and Public Safety, regulates petroleum products and chemical USTs and certain petroleum-containing above-ground storage tanks (ASTs). Releases must be reported to the Division of Oil and Public Safety, and investigation and cleanup must be implemented, as required. Most USTs have had a spill or leak at some point in their life cycle. Small leaks may not be identified until the UST is taken out of service and formally closed. AST, UST, and LUST sites within the data search area include 289 registered AST/UST sites and 343 LUST sites, as shown on **Exhibit 5.18-9** and **Exhibit 5.18-10**.

LUST sites are discussed in further detail in Appendix F of Attachment H, *Hazardous Materials Technical Report* of the Supplemental Draft EIS.

Exhibit 5.18-9 Petroleum Storage Tank Locations

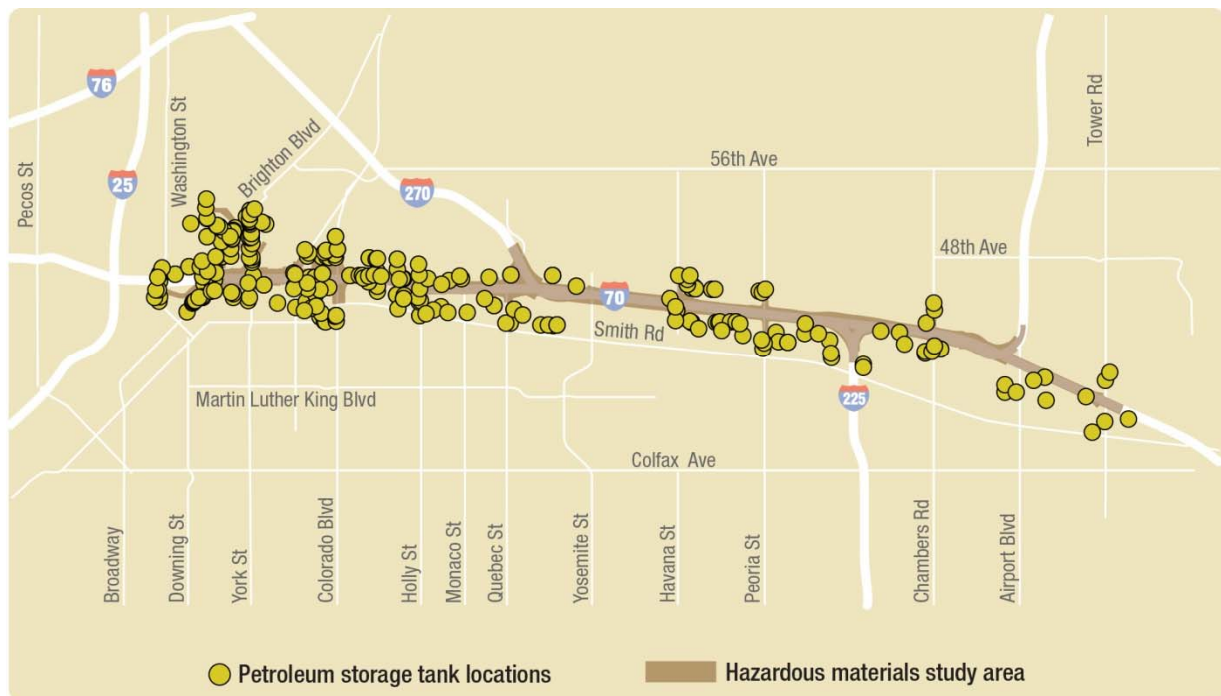
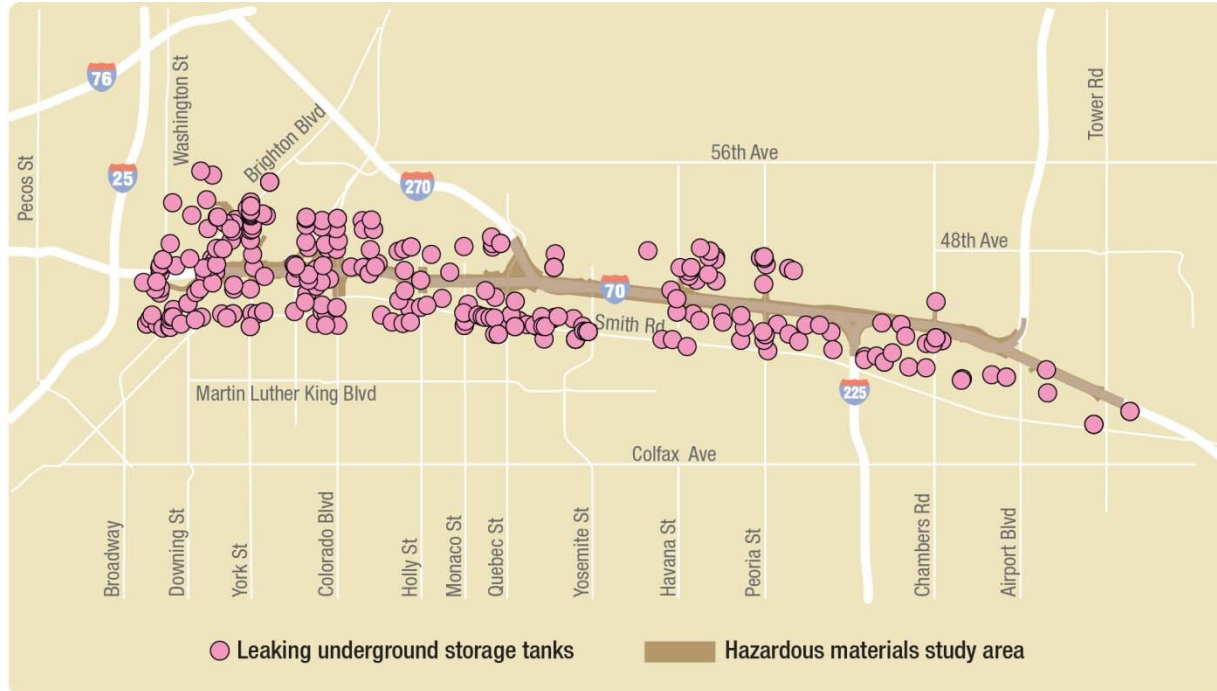


Exhibit 5.18-10 Leaking Underground Storage Tank Locations

5.18.4 Are there other hazardous material regulations the project will follow?

CDPHE's Hazardous Materials and Waste Management Division regulates asbestos in soil. Regulations require awareness of the possibility of asbestos-containing building materials found in soil. If asbestos is encountered during soil disturbance activities, such as construction, the regulations require that material to be removed and disposed of in accordance with regulatory requirements. Some of the main indicators that there may be asbestos in soil include, but are not limited to:

- Any remnants of an old building (i.e., visible footings, old foundations, partial structure components, construction debris, etc.)
- Indication of historical land-filling activities
- Evidence of old utility pipelines

In addition to the many types of hazardous materials and waste sites that have been identified in the data search area, the potential exists for currently unknown contamination. This may be due to the following factors:

- Contaminated areas associated with known sites that are not accurately identified because of factors such as contaminant migration, or limitations in the ability to determine the extent of contamination
- New contamination sites that have occurred because of recent activities
- Old contamination sites for which records do not exist, or which were not identified previously

5.18.5 How do the project alternatives potentially encounter hazardous materials?

Construction of the proposed alternatives will likely encounter sites contaminated by hazardous materials. Construction activities associated with the alternatives have the potential to release hazardous materials at these locations into soil or groundwater. They could also lead to exposure of workers or the public to these materials if proper health, safety protocols are not followed and remediation efforts are not applied.

The likelihood of impacting hazardous materials is dependent on the number of hazardous materials sites encountered during construction. In addition, the location and amount of contamination remaining at the site also will dictate impacts.

Encounters with hazardous materials are proportional to the amount of ground disturbance. For example, a larger area of land disturbed is likely to increase encounters with hazardous material sites, leading to a greater impact. Alternatives that incorporate subsurface improvements versus at-grade improvements also have a higher potential to encounter hazardous materials, soils, and/or groundwater at greater depths.

The No-Action Alternative will potentially disturb approximately 41 acres of land and encounter seven known hazardous materials sites.

The Revised Viaduct Alternative, North Option (General-Purpose Lane Option) will potentially encounter 25 known hazardous materials sites, while the Revised Viaduct Alternative, South Option (General-Purpose Lane Option) will potentially encounter 24 sites. Both North and South Options disturb approximately 575 acres of land. This is a larger potential impact to hazardous materials than the No-Action Alternative. Replacing the General-Purpose

Summary of encounters with hazardous materials sites by alternative

No-Action Alternative:

- 7 hazardous materials sites affected

Revised Viaduct Alternative:

- North—25 hazardous materials sites affected
- South—24 hazardous materials sites affected

Partial Cover Lowered Alternative (General-Purpose and Managed Lanes Options):

- 28 hazardous materials sites affected

Lanes Option with the Managed Lanes Option would increase land disturbance by an additional 83 acres. No additional known hazardous materials sites would be encountered with the Managed Lanes Option.

The Partial Cover Lowered Alternative (General-Purpose and Managed Lanes Options) will potentially encounter 28 hazardous materials sites, an approximate 19-percent increase in sites compared to the Revised Viaduct Alternative. The Partial Cover Lowered Alternative, General-Purpose Lanes Option will potentially disturb approximately 620 acres of land, an approximate 7-percent increase in land area impact compared to the Revised Viaduct Alternative, General-Purpose Lanes Option.

The Partial Cover Lowered Alternative, Managed Lanes Option will potentially disturb approximately 703 acres of land, an approximate 22-percent increase in land area impact compared to the Revised Viaduct Alternative, General-Purpose Lanes Option, and a 13-percent increase in land area impact compared to the Partial Cover Lowered Alternative, General-Purpose Lanes Option. Additionally, lowering the highway will impact soil and/or groundwater at greater depths than the No-Action Alternative and Revised Viaduct Alternative. Disturbing greater volumes of soil and/or groundwater increases the potential to encounter hazardous materials, both documented and undocumented.

The Managed Lanes Option for both the Revised Viaduct Alternative and the Partial Cover Lowered Alternative increases the ground disturbance by approximately 83 acres due to a large construction footprint; however, the number of known hazardous materials sites identified within the construction footprints will not increase. Additional ground disturbance may result in a greater likelihood to encounter hazardous materials. Since this area has been previously developed, undocumented contaminants may be disturbed during construction activities. Potential encounters with known hazardous materials sites and area of ground disturbance by alternative or option is summarized in **Exhibit 5.18-11**.

Exhibit 5.18-11 Summary of Potential Hazardous Materials Sites and Area of Ground Disturbance Impacted by Project Alternatives

Alternative/Option	Number of Known Hazardous Materials Sites	Area of Ground Disturbance (acres)
No-Action Alternative	7	41
Build Alternatives, General-Purpose Lanes Option		
Revised Viaduct Alternative, North Option	25	575
Revised Viaduct Alternative, South Option	24	575
Partial Cover Lowered Alternative	28	620
Build Alternatives, Managed Lanes Option		
Revised Viaduct Alternative, North Option	25	658
Revised Viaduct Alternative, South Option	24	658
Partial Cover Lowered Alternative	28	703

Specific facilities of concern likely to be encountered by alternatives

The I-70 and Vasquez Boulevard NPL site has been identified within all the proposed alternatives. NPL sites are likely to have a greater effect on the alternatives. The level of effect depends on the level of hazardous materials contamination remaining at the site, as well as the location of the contamination relative to the right of way/construction footprint.

The site was placed on the NPL because of metals contamination identified in soil and groundwater associated with historic smelter operations. Remediation activities have occurred at the site. Soil and groundwater contamination (lead and arsenic) at this site have not been fully characterized. Construction activities associated with the proposed alternatives will likely encounter the contaminants identified at the NPL site.

An NPL site (Chemical Sales Company) has been identified adjacent to and north of all the proposed alternatives. Chemical Sales Company was a wholesale distributor of commercial and industrial chemicals, detergents, and pool chemicals. Contaminants of concern in soil and groundwater include tetrachloroethylene (PCE), trichloroethylene (TCE), and benzene.

Extensive remediation has occurred at the site. However, a groundwater plume has been identified in the shallow alluvial aquifer south of Sand Creek, which is located approximately one mile north of the proposed alternatives. Groundwater flow generally moves north to northwest, away from the alternative footprints. Paleochannels in the alluvium influence regional flow, at times resulting in flow patterns that are different from the regional flow. Contaminants associated with the NPL site may be encountered during construction of the alternatives.

An NPL site (ASARCO, Inc.) is located northwest of the proposed alternatives. ASARCO, Inc. was a heavy-metal smelter and refining facility. Contaminants of concern in soil and groundwater at the facility include cadmium, arsenic, lead, and zinc. Groundwater flow generally moves north to northwest, away from the alternative footprints. However, similar to the Chemical Sales Company facility, paleochannels in the alluvium influence regional flow, at times resulting in flow patterns that are different from the regional flow. Therefore, contaminants associated with the NPL site may be encountered during construction of the alternatives. NPL sites are discussed in further detail in the Supplemental Draft EIS in Appendices A and B of Attachment H, *Hazardous Materials Technical Report*.

Multiple closed LUST sites have been identified within all highway alternatives. Since these facilities have been issued closure/No Further Action notices, they are expected to have minor effects during the construction phase. The hazardous materials contamination at these sites has been removed or remediated to meet state or federal action levels; however, low levels of residual contamination may remain in soil and groundwater at the sites. In some cases, unknown contamination not identified during the previous site investigations may be present. LUST sites are discussed in further detail in the Supplemental Draft EIS in Appendix F of Attachment H, *Hazardous Materials Technical Report*.

Historical landfills have been identified within the Revised Viaduct and Partial Cover Lowered Alternatives. Recent subsurface investigation at the Denver Coliseum—a historical landfill that overlaps the I-70 and Vasquez Boulevard NPL site—has identified chloroform, PCE, TCE, manganese, iron, arsenic, hexavalent chromium, and cadmium in groundwater that exceed standards. Hazardous materials also have been identified in soils in this area, including asbestos-containing materials (ACM), arsenic, and

landfill gas at levels that can result in a potential explosion hazard during construction. Construction activities associated with all of the proposed alternatives will likely encounter the contaminants at this site. The Partial Cover Lowered Alternative will likely encounter these contaminants to a greater extent based on the location of the Globeville outfall specific for this alternative.

Subsurface investigations conducted along I-70 between I-25 and I-270 identified contaminants, including metals, semi-volatile organic compounds (SVOCs), and VOCs in groundwater at levels that exceed permitted standards. Hydrocarbons and arsenic also were identified in soil at levels above regulatory standards. The subsurface investigations are discussed further in Attachment H, *Hazardous Materials Technical Report Addendum* of this document.

Effects of hazardous materials and waste also are associated with runoff of contaminants in stormwater. Contaminants likely to be in stormwater runoff include fuel and lubricants, metals, compounds from tires, and automobile engine coolants. Additional operational effects may include herbicide use for weed control and magnesium chloride for de-icing operations.

5.18.6 What are the impacts to hazardous materials during construction?

Construction activities at hazardous materials sites have the potential to spread soil or groundwater contamination. Standard construction measures for fugitive dust control and stormwater erosion and sediment controls minimize the spread of contaminated soil. Some sites, particularly NPL sites, may have onsite repositories for contaminated soil and debris, active soil vapor extraction systems, or active groundwater remediation systems, including groundwater-monitoring wells. Disturbance of these structural controls by construction activities can result in the release of hazardous materials contamination, as well as additional costs if the impacted controls must be replaced in kind.

Metals and VOCs that exceed regulatory standards (expected permit limits) have been identified in groundwater. Construction activities for any of the alternatives would require dewatering and associated permitting if contaminated groundwater is encountered during construction. Dewatering activities include treating and discharging water onsite or characterizing and removing

water offsite to a permitted disposal facility, resulting in increased construction costs. The dewatering activities would be more substantial for the Partial Cover Lowered Alternative because the excavation will reach below groundwater elevation. In addition, permanent dewatering may be required for this alternative since a portion of the below-grade section will be constructed below groundwater elevation, potentially resulting in additional post-construction costs for this alternative.

Construction at hazardous materials sites also may affect the construction budget and schedule. Construction activities may require the offsite disposal of contaminated soil and debris in permitted facilities, increasing costs. If previously unidentified contamination is found, costs and schedules both stand to be affected. The acquisition of contaminated properties may require additional site investigation and monitoring to evaluate site condition. Remediation at these sites may be necessary before and during the construction.

5.18.7 How are the negative effects from the project alternatives mitigated for hazardous materials?

Any contamination encountered during the construction of the project will be cleaned up in compliance with applicable state and federal regulations, which will benefit the area in the future. Implementation of several mitigation measures will avoid or minimize the effects of the alternatives on hazardous materials including:

- Before right-of-way acquisition, conduct a Phase I Environmental Site Assessment (Phase I) or initial site assessment for those properties identified for acquisition. Based on these assessments, additional subsurface investigation may be required depending on the recognized environmental conditions identified and potential risk to the project.
- The project will avoid contaminated sites whenever practical. However, where avoidance is not feasible, further site investigation will be required and will be coordinated with the affected property owner.
- Follow *CDOT Standard Specifications for Road and Bridge Construction*, Section 250, Environmental, Health and Safety Management.

- Follow Tri-County Health Department Health and Safety Practices during Construction on or Near Former Landfills.
- Conduct appropriate surveys for asbestos, lead-based paint, and universal wastes prior to demolition of any building structures and bridges or elevated structures; if these materials are encountered, remove them in accordance with applicable regulations and guidelines. If ACM is encountered, including buried utilities, follow CDOT Specification 250.07, Asbestos-Containing Material Management and CDOT Asbestos-Contaminated Soil Management Standard Operating Procedure. Additionally, depending on the type of ACM, clean up this material in accordance with either Section 5.5 of the Solid Waste Regulations, or Regulation No. 8 of the Air Quality Control Commission Regulations.
- Update contaminated sites search databases to reflect most recent records.

Additionally, the following construction mitigation measures will avoid or minimize the effects of the alternatives on hazardous materials including:

- Prepare and implement a project-specific Health and Safety Plan and Materials Management Plan to address potential hazardous materials that are encountered during construction; these plans will consist of specific measures to protect worker and public health and safety, as well as programs to manage contaminated materials during construction.
- In the event that unknown contaminated media is encountered during construction, stop working until the contamination is properly evaluated and measures are developed to protect worker health and safety in accordance with the project-specific Health and Safety Plan and Materials Management Plan.

- Implement standard construction measures for fugitive dust control, as well as stormwater erosion and sediment controls, to minimize the spread of contaminated soil. During the construction phase, require the contractor to file and abide by a dust management plan to minimize the effects of dust on surrounding communities. Additionally, conduct air monitoring to determine whether dust control efforts are successful in preventing violations of air quality standards.
- The contractor will obtain a CDPHE CDPS Construction Dewatering Permit, Remediation Activities Discharging to Surface Water Permit or Construction Activities Discharging to Ground Water Permit, as required, utilizing readily available data. The selected contractor will follow the permit requirements.
- The Partial Cover Lowered Alternative (both options) will require excavation below existing groundwater. If this alternative requires permanent dewatering, obtain and follow the necessary CDPS Dewatering Permits. Under the temporary construction and permanent feature dewatering permits, treat and discharge source water onsite in accordance with the permit or characterize and remove source water offsite to a permitted disposal facility.
- Properly abandon and close monitoring wells or septic systems disturbed during construction activities in accordance with applicable regulations and guidelines. If existing monitoring wells are impacted during construction, the project will replace them, as necessary.

Exhibit 5.18-12 lists the impacts and mitigations associated with hazardous materials.

Exhibit 5.18-12 Summary of Hazardous Materials Impacts and Mitigations

Alternative/ Option	Impacts and/or Benefits	Mitigation Measures Applicable to All Alternatives
No-Action Alternative	<ul style="list-style-type: none"> • 7 hazardous materials sites affected • 41 acres of land disturbed • Construction activities at hazardous materials sites have the potential to spread soil or groundwater contamination • Construction at hazardous materials sites also may affect the construction budget and schedule, particularly if previously unidentified contamination is found 	<ul style="list-style-type: none"> • Before right-of-way acquisition, conduct a Phase I Environmental Site Assessment (Phase I) or initial site assessment for those properties identified for acquisition; based on these assessments, additional subsurface investigation may be required depending on the recognized environmental conditions identified and potential risk to the project • Avoid contaminated sites wherever practical; where unavoidable, initiate further site investigation and coordination with affected property owners • Follow <i>CDOT Standard Specifications for Road and Bridge Construction</i>, Section 250, Environmental, Health and Safety Management
Revised Viaduct Alternative, General-Purpose Lanes Option	<ul style="list-style-type: none"> • 24 to 25 hazardous materials sites affected • 575 acres of land disturbed • Construction activities at hazardous materials sites have the potential to spread soil or groundwater contamination • Construction at hazardous materials sites also may affect the construction budget and schedule, particularly if previously unidentified contamination is found 	<ul style="list-style-type: none"> • Follow Tri-County Health Department <i>Health and Safety Practices during Construction on or Near Former Landfills</i> • Conduct appropriate surveys for asbestos, lead-based paint, and universal wastes prior to demolition of any building structures and bridges or elevated structures; if these materials are encountered, remove them in accordance with applicable regulations and guidelines; if ACM is encountered, including buried utilities, follow CDOT Specification 250.07, Asbestos-Containing Material Management and CDOT Asbestos-Contaminated Soil Management Standard Operating Procedure; additionally, depending on the type of ACM, clean up this material in accordance with either Section 5.5 of the Solid Waste Regulations, or Regulation No. 8 of the Air Quality Control Commission Regulations
Revised Viaduct Alternative, Managed Lanes Option	<ul style="list-style-type: none"> • 24 to 25 hazardous materials sites affected • 658 acres of land disturbed • Construction activities at hazardous materials sites have the potential to spread soil or groundwater contamination • Construction at hazardous materials sites also may affect the construction budget and schedule, particularly if previously unidentified contamination is found 	<ul style="list-style-type: none"> • Update contaminated sites search databases to reflect most recent records • Prepare and implement a project-specific Health and Safety Plan and Materials Management Plan to address potential hazardous materials that are encountered during construction; these plans will consist of specific measures to protect worker and public health and safety, as well as programs to manage contaminated materials during construction • In the event that unknown contaminated media is encountered during construction, stop working until the contamination is properly evaluated and measures are developed to protect worker health and safety in accordance with the project-specific Health and Safety Plan and Materials Management Plan

Exhibit 5.18-12 Summary of Hazardous Materials Impacts and Mitigations

Alternative/ Option	Impacts and/or Benefits	Mitigation Measures Applicable to All Alternatives
Partial Cover Lowered Alternative, General-Purpose Lanes Option	<ul style="list-style-type: none"> • 25 hazardous materials sites affected • 620 acres of land disturbed • Construction activities at hazardous materials sites have the potential to spread soil or groundwater contamination • Construction at hazardous materials sites also may affect the construction budget and schedule, particularly if previously unidentified contamination is found 	<ul style="list-style-type: none"> • Implement standard construction measures for fugitive dust control, as well as stormwater erosion and sediment controls, to minimize the spread of contaminated soil; during the construction phase, require the contractor to file and abide by a dust management plan to minimize the effects of dust on surrounding communities; additionally, conduct air monitoring to determine whether dust control efforts are successful in preventing violations of air quality standards • Obtain a CDPHE CDPS Construction Dewatering Permit, Remediation Activities Discharging to Surface Water Permit or Construction Activities Discharging to Ground Water Permit, as required, utilizing readily available data; the selected contractor will follow the permit requirements
Partial Cover Lowered Alternative, Managed Lanes Option	<ul style="list-style-type: none"> • 28 hazardous materials sites affected • 703 acres of land disturbed • Extensive excavation through a known landfill that contains contaminants • Construction activities at hazardous materials sites have the potential to spread soil or groundwater contamination • Construction at hazardous materials sites also may affect the construction budget and schedule, particularly if previously unidentified contamination is found 	<ul style="list-style-type: none"> • Obtain and follow the necessary CDPS Dewatering Permits if this alternative requires permanent dewatering; under the temporary construction and permanent feature dewatering permits, treat and discharge source water onsite in accordance with the permit or characterize and remove source water offsite to a permitted disposal facility • Properly abandon and close monitoring wells or septic systems disturbed during construction activities in accordance with applicable regulations and guidelines; if existing monitoring wells are impacted during construction, the project will replace them, as necessary