

4.17 HAZARDOUS MATERIALS

Summary

This section describes hazardous material sites identified along the United States Highway 36 (US 36) corridor that could impact the project during construction and the acquisition of right-of-way (ROW). The presence of these sites could also result in project delays and increased cost, particularly if they are not identified before construction. The sites were initially identified during a Modified Phase I Environmental Site Assessment (ESA) in October of 2004 and updated in a Modified Phase I ESA Addendum in April 2009, and were then ranked based on such factors as proximity to the corridor, known or suspected contamination, and other factors.

Hazardous material sites are those that have been impacted due to current or previous use or by a release of hazardous substances or petroleum products. These materials could include pesticides, volatile and semi-volatile organic compounds, heavy metals, and petroleum products (e.g., gasoline, diesel fuel, lubricants, etc.). In general, hazardous material contamination should be avoided wherever possible, or steps should be taken to ensure that adequate protective measures are taken before, during, and after construction. For properties that are potentially contaminated and would be acquired for construction and/or ROW purposes, due diligence should be completed to provide the Colorado Department of Transportation (CDOT) and Regional Transportation District (RTD) with all available purchaser protection under the Comprehensive Environmental Response, Compensation, and Liability Act, the Brownfields Act, and other state programs.

During final design, additional information will be known about required ROW and acquisitions. At that time, further investigation will be made to characterize the extent and quantity of hazardous material sites impacted by the project. The hazardous material investigations will address acquisition costs, property values, owner liability and cleanup options prior to acquisitions, and both short- and long-term remediation planning.

The following construction concerns are associated with areas of soil and/or groundwater contamination and/or building/structure demolition:

- Asbestos.
- Lead-based paint.
- Health and safety of workers encountering contaminated material.
- Special handling and disposal requirements for contaminated material and a corresponding cost increase.
- Inability to reuse contaminated soil as fill in other areas of the project.

At this stage in the process, there are no known hazardous material sites that present sufficient risk such that an alignment would be changed. The Combined Alternative Package (Preferred Alternative) footprint has fewer high ranking hazardous material sites within the proposed footprint locations than Package 2 or Package 4.

At this time, there are no known hazardous material sites that present sufficient risk such that an alignment would be changed.

Affected Environment

All Segments

The affected environment for hazardous materials is largely restricted to the area immediately adjacent to the US 36 corridor. However, the search area for hazardous material sites extended out as much as 1 mile from the centerline of US 36. There are numerous hazardous material sites along the corridor that were initially identified during the Modified Phase I ESA process in October 2004. The hazardous material sites within 0.5 mile of the Combined Alternative Package (Preferred Alternative) corridor were evaluated in the April 2009 Modified Phase I ESA Addendum.

The majority of the high or moderately ranked sites were located in the vicinity of existing interchanges.

The majority of the high or moderately ranked sites were located in the vicinity of existing interchanges, primarily within the Adams Segment, followed by the Boulder Segment. The highest concentration of sites occurred along Pecos Street, Federal Boulevard, Sheridan Boulevard, Wadsworth Boulevard, and Baseline Road, as well as along Industrial Lane, which parallels the highway in Broomfield.

Impact Evaluation

Methodology

In accordance with Federal Highway Administration, RTD, and CDOT guidance, the potential for highway projects to impact hazardous material sites must be evaluated, as well as the potential for a hazardous material site to impact the highway project. A Modified Phase I ESA was prepared for the US 36 corridor to evaluate whether hazardous substances and/or petroleum products could be encountered within the project limits (see the *Phase I Environmental Site Assessment of Highway US 36 Corridor ROW, 1-25 to Foothills Parkway, Denver to Boulder, Colorado* [Pinyon Environmental Engineering Resources, Inc. 2004] prepared for the Draft Environmental Impact Statement).

The Modified Phase I ESA report included:

- A field visit along the US 36 corridor to evaluate current property uses and/or conditions, with respect to the likely presence of hazardous materials.
- Coordination with federal, state, and local regulatory agencies to identify known releases or uses of hazardous substances and/or petroleum products.
- A record search of historic land use to identify facilities that may have previously used, stored, or disposed of hazardous substances or petroleum products.

Sites ranked as high had either an existing release, historic release, or a high potential for release of contaminants to soil, groundwater, or surface water, and/or the potential for large-scale migration off site.

During development of the Modified Phase I ESAs, sites identified during the data collection process were ranked as high, moderate, low, or negligible, based on the following criteria: distance from the centerline of the highway, use of hazardous substances, and data obtained in agency file reviews, including the direction of groundwater flow.

Sites ranked as high had either an existing release, historic release, or a high potential for release of contaminants to soil, groundwater, or surface water, and/or the potential for large-scale migration off site. These sites were generally located within 500 feet of the US 36 corridor (or 0.1 mile [528 feet] for the 2009 Addendum). At the time of the development of the Modified Phase I ESA and the 2009 Addendum, potential property acquisitions could only be estimated. Therefore, the liability associated with purchasing one of these sites could not be specifically used as a criterion in identifying risk.

Sites ranked as moderate were generally located within 2,000 feet of the US 36 corridor, and had either known environmental releases and/or moderate potential for a release to the environment. There is less likelihood of an impact because of distance from the corridor. Sites ranked as low or negligible would not likely affect the project, and therefore were not considered in the impact evaluation. They were, however, discussed in the *Modified Phase I ESA Report* (Pinyon Environmental Engineering Resources, Inc. 2004) and identified in the 2009 Addendum.

The 2009 Addendum involved an update and review of the federal, state, and local regulatory databases for current and historic known releases or uses of hazardous substances and/or petroleum products. Historic land uses identified in the 2004 Phase I and ranked as having a potential moderate or high impact were included in the analysis conducted for the 2009 Addendum. Sites within 0.5 mile of the corridor were classified according to the above methodology, with a minor deviation.

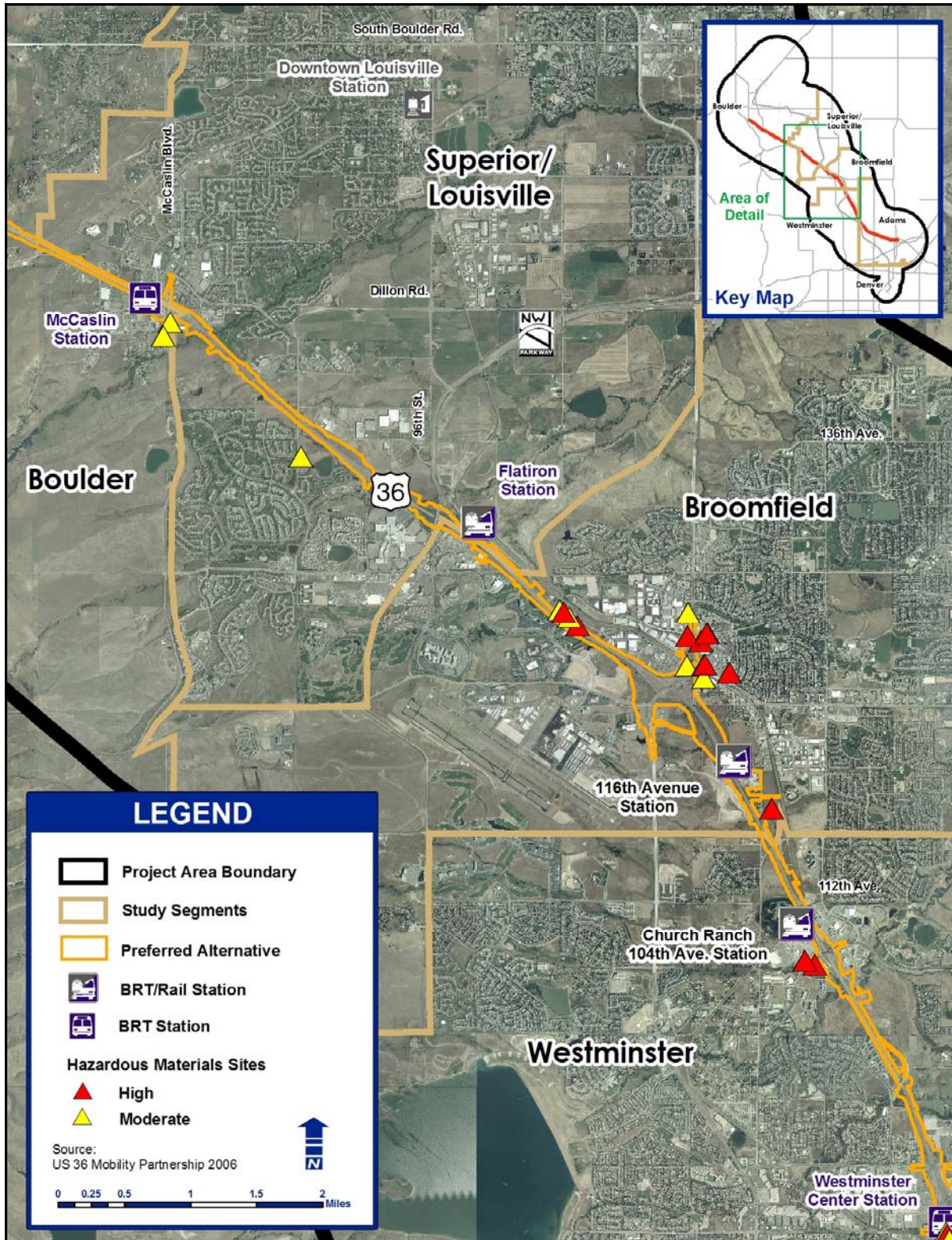
Resource Conservation and Recovery Act (RCRA) requires generators to fully document that the hazardous waste they produce is properly identified, managed, and treated prior to recycling or disposal. As a result, there is a high number of registered generators in the project area. For the 2009 Addendum, all RCRA generators (Conditionally Exempt Small Quantity, Small Quantity, and Large Quantity) and registered tanks that had no documented releases or violations were ranked as having a low potential to impact the project. This ranking methodology differed from the 2004 Phase I methodology, which included all registered generators and tanks within 2,000 feet of the project. As a result, the number of moderate or high potential impact sites considerably decreased between the 2004 and 2009 evaluations. A low potential for impact to the project still exists from generators, so all acquisition sites would need to be re-evaluated after final plans are developed. Liability associated with acquisitions was not used as a risk identifying criterion.

The sites that were initially ranked as high and moderate during the 2004 Phase I process were re-evaluated in the 2009 Addendum, and subsequently mapped onto the proposed footprints of the three packages. The footprint included areas of construction along the US 36 corridor, as well as other properties that would be involved, such as retention ponds, interchanges, possible ROW acquisitions, etc. This information was used to identify potential areas of concern for either construction or land acquisition. The use of the actual footprint of the proposed area of disturbance eliminated many of the original sites identified in the Modified Phase I ESA, as it was demonstrated that they would not impact the construction activities, nor would they likely be part of a parcel purchased for ROW. The sites ranked as high and moderate for all three build packages are shown in Figures 4.17-1 through 4.17-3.

Figure 4.17-1: Hazardous Material Sites — Adams Segment

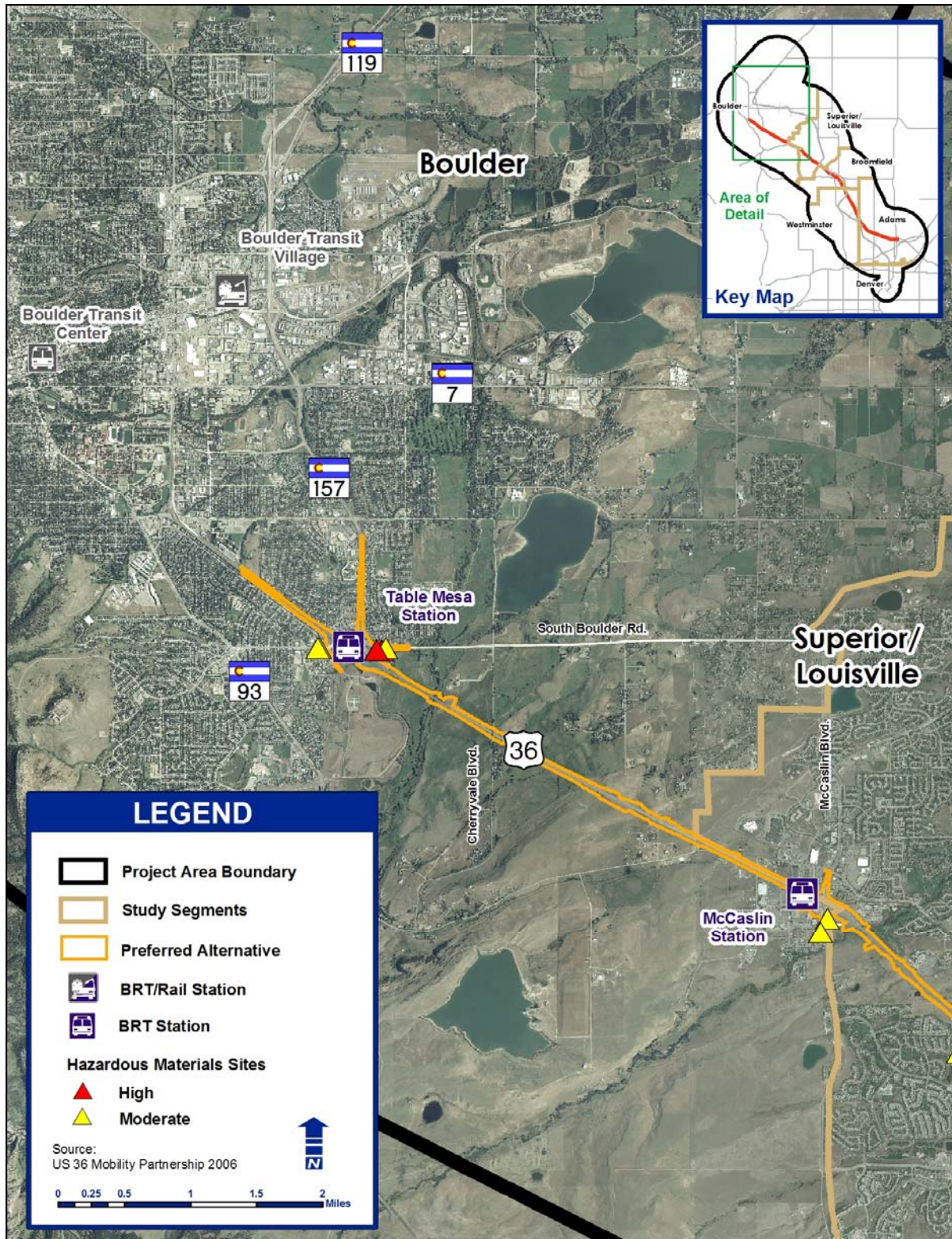


Figure 4.17-2: Hazardous Material Sites — Westminster, Broomfield, and Superior/Louisville Segments



Note: The 116th Avenue Rail Station is not a part of the 2004 FasTracks Program. Additional stations were added in the early planning stages of the US 36 Environmental Impact Statement. Exact rail station locations and additional stations may be reconsidered in the U.S. Army Corps of Engineers/Regional Transportation District Northwest Rail Environmental Assessment/Environmental Evaluation.

Figure 4.17-3: Hazardous Material Sites — Boulder Segment



Based on the impact evaluation, Package 2 has one more high ranking site adjacent to the footprint than Package 4, and three more than the Combined Alternative Package (Preferred Alternative); however, all packages have the same number of high sites located adjacent to the footprint. Packages 2 and 4 have the same number of moderate ranked sites within their footprints, while the Combined Alternative Package (Preferred Alternative) has one less. Table 4.17-1, Summary of Hazardous Material Impacts by Package, summarizes potential moderate and high hazardous material site impacts.

Table 4.17-1: Summary of Hazardous Material Impacts by Package

Hazardous Material Rankings	Location	Total Number of Sites Identified		
		Package 2	Package 4	Combined Alternative Package (Preferred Alternative)
High	Within footprint	7	6	4
	Adjacent to footprint	11	11	11
Total High		18	17	15
Moderate	Within footprint	20	20	19
	Adjacent to footprint	18	19	21
Total Moderate		38	39	40

Source: US 36 Mobility Partnership, 2009.

Package 1: No Action

Direct Impacts

All Segments

Package 1 would likely directly affect hazardous material sites. These sites are being identified as a part of the National Environmental Policy Act of 1969 process for those particular projects.

Indirect Impacts

All Segments

Under Package 1, the planned population increase in the study area would result in additional construction that may disturb existing, unknown hazardous materials. When encountered, these materials would be remediated under current regulations with a potential for greater protection of human health and the environment.

Package 2: Managed Lanes/Bus Rapid Transit

Direct Impacts

All Segments

Sites ranked high or moderate within the construction footprint are shown in Table 4.17-2, Sites Ranked High or Moderate within the Construction Footprint — Package 2. Seven sites ranked high and 20 sites ranked moderate are within this footprint. There is one more high site within the Package 2 footprint than Package 4, and three more than the Combined Alternative Package (Preferred Alternative). However, Package 2 has the same number of moderate sites adjacent to the footprint as Package 4 and the Combined Alternative Package (Preferred Alternative).

In addition to the 11 sites ranked high, 18 sites ranked moderate are adjacent to the Package 2 footprint. These sites are primarily commercial properties that would either use hazardous substances or petroleum products, such as dry cleaners, printers, gas stations, manufacturers, and a tire store. Contaminated soil and groundwater have been encountered at some of these sites.

Table 4.17-2: Sites Ranked High or Moderate within the Construction Footprint — Package 2

Site Ranking	Segment	Facility Type	Address	Comments
High – within footprint	Westminster	Municipal	8800 Sheridan Boulevard	Closed LUST (Westminster Police Department).
Moderate – within footprint	Adams	Municipal	7199 Broadway	Previous operations could include use of hazardous materials or petroleum products (Broadway Yard, closed – USTs removed).
Moderate – within footprint	Adams	Commercial	7260 Broadway	Previous operations could include use of hazardous materials or petroleum products (Former Exxon, closed gas station with USTs removed).
Moderate – within footprint	Adams	Commercial	7300 Broadway	Current operations could include use of hazardous materials or petroleum products (Mountain State Toyota and Scion).
High – within footprint	Adams	Commercial	7310 Broadway	Current operations could include use of hazardous materials or petroleum products (Fairway/Amoco).
Moderate – within footprint	Adams	Commercial	7320 Broadway	Current operations could include use of hazardous materials or petroleum products (Go Chevrolet).
Moderate – adjacent to footprint	Adams	Commercial	7350 Broadway	Previous operations could include use of hazardous materials or petroleum products (Denver Institute of Technology, closed – USTs removed).
Moderate – adjacent to footprint	Adams	Commercial	7500 Pecos Street	Current operations could include use of hazardous materials or petroleum products (Big O Tires).
Moderate – adjacent to footprint	Adams	Commercial	7540 Pecos Street	Current operations could include use of hazardous materials or petroleum products (7-Eleven #13167).
High – within footprint	Adams	Commercial	7790 North Federal Boulevard	Current operations could include use of hazardous materials or petroleum products (Coastal Mart #1263).
Moderate – within footprint	Adams	Commercial	1341 Worley Drive	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	1345 Cortez Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	1620 West 74 th Way	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	1860 West 74 th Way	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	200 72 nd Avenue West	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	470 East 72 nd Avenue	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	7285 Pecos Street	Previous operations could include use of hazardous materials or petroleum products (Diamond Shamrock #4147/TPI/Total Petroleum, open LUST and USTs).
Moderate – within footprint	Adams	Commercial	7420 Pecos Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	7440 Pecos Street	Previous operations could include use of hazardous materials or petroleum products.

Table 4.17-2: Sites Ranked High or Moderate within the Construction Footprint — Package 2

Site Ranking	Segment	Facility Type	Address	Comments
Moderate – adjacent to footprint	Adams	Commercial	5054 West 92 nd Avenue	Current operations could include use of hazardous materials (Corrective Action – Rainbow Cleaners)
Moderate – within footprint	Adams	Commercial	8601 Sheridan Boulevard	Current operations could include use of hazardous materials or petroleum products.
High – adjacent to footprint	Broomfield	Commercial	1760 West Midway Boulevard	Current operations could include use of hazardous materials or petroleum products (Midway 66 – Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1765 Midway Boulevard	Previous operations could include use of hazardous materials or petroleum products (Former Hearts Jiffy Stop, Closed LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	425 West Highway 287	Current operations could include use of hazardous materials or petroleum products (Circle K – Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1480 West 1 st Avenue	Current and historic operations could include use of hazardous materials or petroleum products (Sill-Terhar Ford – Open State Lead).
Moderate – adjacent to footprint	Broomfield	Commercial	1951 West 5 th Avenue	Previous operations could include use of hazardous materials or petroleum products (7-Eleven #18671, Closed LUST and USTs).
High – within footprint	Broomfield	Commercial	11515 Wadsworth Boulevard	Previous operations could include use of hazardous materials or petroleum products (Joe Gebauer Property, State LUST Trust).
High – adjacent to footprint	Broomfield	Commercial	525 Highway 287	Current operations could include use of hazardous materials or petroleum products (A-B Petroleum – Closed LUST and Open USTs).
High – adjacent to footprint	Broomfield	Commercial	1601 Highway 287	Current operations could include use of hazardous materials or petroleum products (Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1600 Highway 287	Previous operations could include use of hazardous materials or petroleum products (State Lead Open Release).
Moderate – adjacent to footprint	Broomfield	Commercial	225 Commerce Street	Previous operations could include use of hazardous materials or petroleum products (Broomfield City Shops, Closed LUST and USTs).
Moderate – adjacent to footprint	Broomfield	Commercial	2100 Industrial Lane	Current operations could include use of hazardous materials or petroleum products (Coscan).
Moderate – adjacent to footprint	Broomfield	Commercial	3001 Industrial Lane #1	Previous and current operations could include use of hazardous materials or petroleum products (Jemco Seal).
High – within footprint	Broomfield	Commercial	3050 Industrial Lane	Previous and current operations could include use of hazardous materials or petroleum products (A&H Builders).
Moderate adjacent to footprint	Broomfield	Commercial	3101 Industrial Lane	Previous operations could include use of hazardous materials or petroleum products.
High – within footprint	Broomfield	Commercial	3400 Industrial Lane	Previous operations could include use of hazardous materials or petroleum products (Center Line Machine Company).
Moderate – within footprint	Westminster	Commercial	8685 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate adjacent to footprint	Westminster	Commercial	8725 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate adjacent to footprint	Westminster	Commercial	8731 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.

Table 4.17-2: Sites Ranked High or Moderate within the Construction Footprint — Package 2

Site Ranking	Segment	Facility Type	Address	Comments
Moderate – within footprint	Westminster	Commercial	8741 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8743 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8747 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8749 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8759 Sheridan Boulevard	Previous operations could have included use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8767 Sheridan Boulevard	Current operations could include use of hazardous materials or petroleum products.
High – within footprint	Westminster	Commercial	8769 Sheridan Boulevard	Previous and current operations could include use of hazardous materials or petroleum products (Continental Cleaners).
High – adjacent to footprint	Westminster	Commercial	6990 Church Ranch Boulevard	Current operations could include use of hazardous materials or petroleum products (7-Eleven #34036, Open USTs).
Moderate – within footprint	Westminster	Commercial	8787 Turnpike Drive	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Boulder	Commercial	90 McCaslin Boulevard	Previous operations could include use of hazardous materials or petroleum products (Former Diamond Shamrock #4564, Closed LUST and USTs).
Moderate – adjacent to footprint	Boulder	Commercial	191 McCaslin Boulevard	Current operations could include use of hazardous materials or petroleum products (Conoco #6447, Closed LUST, Open USTs).
Moderate – adjacent to footprint	Boulder	Commercial	2270 South 88 th Street	Previous operations could include use of hazardous materials or petroleum products (Storage Technology Corporation, Closed LUST and USTs).
High – adjacent to footprint	Boulder	Commercial	5200 Manhattan Circle	Current operations could include use of hazardous materials or petroleum products (PDQ gas).
Moderate – within footprint	Boulder	Commercial	5324 South Boulder Road	Previous operations could include use of hazardous materials or petroleum products (Former Exxon – Closed USTs).
High – adjacent to footprint	Boulder	Commercial	5190 South Boulder Road	Current operations could include use of hazardous materials or petroleum products (Turnpike Texaco – Closed LUST, Open USTs).
Moderate – within footprint	Boulder	Commercial	4800 Table Mesa Drive	Previous operations could include use of hazardous materials or petroleum products (Deep Farm Pit – Closed USTs and LUST).
High – adjacent to footprint	Boulder	Commercial	4742 Table Mesa Drive	Current operations could include use of hazardous materials or petroleum products (Amoco Oil #2111 – Closed LUST, Open USTs).

Source: US 36 Mobility Partnership, 2006 and 2009.

Notes:

- LUST = leaking underground storage tank
- TPI = Total Petroleum Incorporated
- UST = underground storage tank

Design Options

The two design options on the west end, Options A and B, for Packages 2 and 4 would have similar impacts on hazardous material sites. Table 4.17-3, Summary of Hazardous Material Impacts by Design Option, summarizes potential moderate and high hazardous material site impacts by design option. The Cherryvale Road/South Boulder Road bikeway alignment option was included in the evaluation of Packages 2 and 4. The Combined Alternative Package (Preferred Alternative) footprint includes Option A and the US 36 bikeway alignment options. Therefore, these options are not called out separately like they are for Packages 2 and 4.

Table 4.17-3: Summary of Hazardous Material Impacts by Design Option

Hazardous Material Rankings	Location	Total Number of Sites Identified			
		Package 2		Package 4	
		Option A	Option B	Option A	Option B
High	Within footprint	0	0	0	0
	Adjacent to footprint	3	3	3	3
Total High		3	3	3	3
Moderate	Within footprint	2	2	2	2
	Adjacent to footprint	1	1	1	1
Total Moderate		3	3	3	3

Source: US 36 Mobility Partnership, 2009.

Indirect Impacts

All Segments

At this time, none of the build packages are anticipated to have indirect impacts on hazardous materials. If major dewatering activities are required, as would be determined during more detailed engineering, there is a potential that the flow of the groundwater plume could be altered and nearby properties could be indirectly impacted.

Package 4: General-Purpose Lanes, High-Occupancy Vehicle, and Bus Rapid Transit

Direct Impacts

All Segments

Sites ranked high or moderate within the construction footprint are shown in Table 4.17-4, Sites Ranked High or Moderate within the Construction Footprint — Package 4. Six sites are ranked high and 20 sites are ranked moderate within this footprint. Package 4 has one fewer high site within the footprint than Package 2 and the same number of moderate sites as the footprint of Package 2. The footprint of Package 4 has two more high sites within the footprint and one more moderate site within the footprint than the Combined Alternative Package (Preferred Alternative).

In addition to the 11 sites ranked high, 19 sites ranked moderate are adjacent to the Package 4 footprint. These sites are primarily commercial properties that would either use hazardous substances or petroleum products, such as dry cleaners, printers, gas stations, manufacturers, and a tire store.

Table 4.17-4: Sites Ranked High or Moderate within the Construction Footprint — Package 4

Site Ranking	Segment	Facility Type	Address	Comments
High – within footprint	Westminster	Municipal	8800 Sheridan Boulevard	Closed LUST (Westminster Police Department).
Moderate – within footprint	Adams	Municipal	7199 Broadway	Previous operations could include use of hazardous materials or petroleum products (Broadway Yard, Closed – USTs removed).
Moderate – within footprint	Adams	Commercial	7260 Broadway	Previous operations could include use of hazardous materials or petroleum products (Former Exxon, Closed gas station with USTs removed).
Moderate – within footprint	Adams	Commercial	7300 Broadway	Current operations could include use of hazardous materials or petroleum products (Mountain State Toyota and Scion).
High – within footprint	Adams	Commercial	7310 Broadway	Current operations could include use of hazardous materials or petroleum products (Fairway/Amoco).
Moderate – within footprint	Adams	Commercial	7320 Broadway	Current operations could include use of hazardous materials or petroleum products (Go Chevrolet).
Moderate – adjacent to footprint	Adams	Commercial	7350 Broadway	Previous operations could include use of hazardous materials or petroleum products (Denver Institute of Technology, Closed – USTs removed).
Moderate – adjacent to footprint	Adams	Commercial	7500 Pecos Street	Current operations could include use of hazardous materials or petroleum products (Big O Tires).
Moderate – adjacent to footprint	Adams	Commercial	7540 Pecos Street	Current operations could include use of hazardous materials or petroleum products (7-Eleven #13167).
High – within footprint	Adams	Commercial	7790 North Federal Boulevard	Current operations could include use of hazardous materials or petroleum products (Coastal Mart).
Moderate – within footprint	Adams	Commercial	1341 Worley Drive	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	1345 Cortez Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	1620 West 74 th Way	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	1860 West 74 th Way	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	200 72 nd Avenue West	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	470 East 72 nd Avenue	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	7285 Pecos Street	Previous operations could include use of hazardous materials or petroleum products (Diamond Shamrock #4147, Open LUST and USTs).
Moderate – within footprint	Adams	Commercial	7420 Pecos Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	7440 Pecos Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	5054 West 92 nd Avenue	Current operations could include use of hazardous materials (Corrective Action – Rainbow Cleaners).
Moderate – within footprint	Adams	Commercial	8601 Sheridan Boulevard	Current operations could include use of hazardous materials or petroleum products.
High – adjacent to footprint	Broomfield	Commercial	1760 West Midway Boulevard	Current operations could include use of hazardous materials or petroleum products (Midway 66 – Open LUST and USTs).

Table 4.17-4: Sites Ranked High or Moderate within the Construction Footprint — Package 4

Site Ranking	Segment	Facility Type	Address	Comments
High – adjacent to footprint	Broomfield	Commercial	1765 Midway Boulevard	Previous operations could include use of hazardous materials or petroleum products (Former Hearts Jiffy Stop, Closed LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	425 North Highway 287	Current operations could include use of hazardous materials or petroleum products (Circle K – Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1480 West 1 st Avenue	Current and historic operations could include use of hazardous materials or petroleum products (Sill-Terhar Ford – Open State Lead).
Moderate – adjacent to footprint	Broomfield	Commercial	1951 West 5 th Avenue	Previous operations could include use of hazardous materials or petroleum products (7-Eleven #18671, Closed LUST and USTs).
High – within footprint	Broomfield	Commercial	11515 Wadsworth Boulevard	Previous operations could include use of hazardous materials or petroleum products (Joe Gebauer Property, State LUST Trust).
High – adjacent to footprint	Broomfield	Commercial	525 Highway 287	Current operations could include use of hazardous materials or petroleum products (A-B Petroleum – Closed LUST, Open USTs).
High – adjacent to footprint	Broomfield	Commercial	1601 Highway 287	Current operations could include use of hazardous materials or petroleum products (Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1600 Highway 287	Previous operations could include use of hazardous materials or petroleum products (State Lead Open Release).
Moderate – adjacent to footprint	Broomfield	Commercial	225 Commerce Street	Previous operations could include use of hazardous materials or petroleum products (Broomfield City Shops, Closed LUST and USTs).
Moderate – adjacent to footprint	Broomfield	Commercial	2100 Industrial Lane	Current operations could include use of hazardous materials or petroleum products (Coscan).
Moderate – adjacent to footprint	Broomfield	Commercial	3001 Industrial Lane #1	Previous and current operations could include use of hazardous materials or petroleum products (Jemco Seal).
Moderate – adjacent to footprint	Broomfield	Commercial	3050 Industrial Lane	Previous and current operations could include use of hazardous materials or petroleum products (A&H Builders).
Moderate – adjacent to footprint	Broomfield	Commercial	3101 Industrial Lane	Previous operations could include use of hazardous materials or petroleum products.
High – within footprint	Broomfield	Commercial	3400 Industrial Lane	Previous operations could include use of hazardous materials or petroleum products (Center Line Machine Company).
Moderate – within footprint	Westminster	Commercial	8685 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Westminster	Commercial	8725 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Westminster	Commercial	8731 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8741 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8743 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8747 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8749 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.

Table 4.17-4: Sites Ranked High or Moderate within the Construction Footprint — Package 4

Site Ranking	Segment	Facility Type	Address	Comments
Moderate – within footprint	Westminster	Commercial	8759 Sheridan Boulevard	Previous operations could have included use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8767 Sheridan Boulevard	Current operations could include use of hazardous materials or petroleum products.
High – within footprint	Westminster	Commercial	8769 Sheridan Boulevard	Previous and current operations could include use of hazardous materials or petroleum products (Continental Cleaners).
High – adjacent to footprint	Westminster	Commercial	6990 Church Ranch Boulevard	Current operations could include use of hazardous materials or petroleum products (7-Eleven #34036, Open USTs).
Moderate – within footprint	Westminster	Commercial	8787 Turnpike Drive	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Boulder	Commercial	90 McCaslin Boulevard	Previous operations could include use of hazardous materials or petroleum products (Former Diamond Shamrock #4564, Closed LUST and USTs).
Moderate – adjacent to footprint	Boulder	Commercial	191 McCaslin Boulevard	Current operations could include use of hazardous materials or petroleum products (Conoco #6447, Closed LUST, Open USTs).
Moderate – adjacent to footprint	Boulder	Commercial	2270 South 88 th Street	Previous operations could include use of hazardous materials or petroleum products (Storage Technology Corporation, Closed LUST and USTs).
High – adjacent to footprint	Boulder	Commercial	5200 Manhattan Circle	Current operations could include use of hazardous materials or petroleum products (PDQ gas).
Moderate – within footprint	Boulder	Commercial	5324 South Boulder Road	Previous operations could include use of hazardous materials or petroleum products (Former Exxon – Closed USTs).
High – adjacent to footprint	Boulder	Commercial	5190 South Boulder Road	Current operations could include use of hazardous materials or petroleum products (Turnpike Texaco – Closed LUST, Open USTs).
Moderate – within footprint	Boulder	Commercial	4800 Table Mesa Drive	Previous operations could include use of hazardous materials or petroleum products (Deep Farm Pit – Closed USTs and LUST).
High – adjacent to footprint	Boulder	Commercial	4742 Table Mesa Drive	Current operations could include use of hazardous materials or petroleum products (Amoco Oil #2111 – Closed LUST, Open USTs).

Source: US 36 Mobility Partnership, 2009.

Notes:

LUST = leaking underground storage tank

UST = underground storage tank

Indirect Impacts

All Segments

Indirect impacts for Package 4 are the same as in Package 2.

Combined Alternative Package (Preferred Alternative): Managed Lanes, Auxiliary Lanes, and Bus Rapid Transit

Direct Impacts

All Segments

Sites ranked high or moderate within the construction footprint are listed in Table 4.17-5, Sites Ranked High or Moderate within the Construction Footprint — Combined Alternative Package (Preferred Alternative). The intersection of Bradburn Boulevard and 72nd Avenue was also evaluated in this package, for a potential future pedestrian/bicycle crossing.

Four sites are ranked high and 19 sites are ranked moderate within this footprint. The footprint of the Combined Alternative Package (Preferred Alternative) has three fewer high sites within the footprint and one fewer moderate site within the footprint than Package 2. The footprint of the Combined Alternative Package (Preferred Alternative) has two fewer high sites within the footprint and one fewer moderate site within the footprint than Package 4.

In addition to the 11 sites ranked high, 21 sites ranked moderate are adjacent to the Combined Alternative Package (Preferred Alternative) footprint. These sites are primarily commercial properties that would either use hazardous substances or petroleum products, such as dry cleaners, printers, gas stations, manufacturers, and a tire store.

Table 4.17-5: Sites Ranked High or Moderate within the Construction Footprint — Combined Alternative Package (Preferred Alternative)

Site Ranking	Segment	Facility Type	Address	Comments
Moderate – adjacent to footprint	Westminster	Municipal	8800 Sheridan Boulevard	Closed LUST (Westminster Police Department).
Moderate – within footprint	Adams	Municipal	7199 Broadway	Previous operations could include use of hazardous materials or petroleum products (Broadway Yard, Closed – USTs removed).
Moderate – within footprint	Adams	Commercial	7260 Broadway	Previous operations could include use of hazardous materials or petroleum products (Former Exxon, Closed gas station with USTs removed).
Moderate – within footprint	Adams	Commercial	7300 Broadway	Current operations could include use of hazardous materials or petroleum products (Mountain State Toyota and Scion).
High – within footprint	Adams	Commercial	7310 Broadway	Current operations could include use of hazardous materials or petroleum products (Fairway/Amoco).
Moderate – within footprint	Adams	Commercial	7320 Broadway	Current operations could include use of hazardous materials or petroleum products (Go Chevrolet).
Moderate – adjacent to footprint	Adams	Commercial	7350 Broadway	Previous operations could include use of hazardous materials or petroleum products (Denver Institute of Technology, Closed – USTs removed).
Moderate – adjacent to footprint	Adams	Commercial	7285 Pecos Street	Previous operations could include use of hazardous materials or petroleum products (Diamond Shamrock #4147, Open LUST and USTs).
Moderate – adjacent to footprint	Adams	Commercial	7500 Pecos Street	Current operations could include use of hazardous materials or petroleum products (Big O Tires).
Moderate – adjacent footprint	Adams	Commercial	7540 Pecos Street	Current operations could include use of hazardous materials or petroleum products (7-Eleven #13167).

Table 4.17-5: Sites Ranked High or Moderate within the Construction Footprint — Combined Alternative Package (Preferred Alternative)

Site Ranking	Segment	Facility Type	Address	Comments
Moderate – adjacent to footprint	Adams	Commercial	7790 North Federal Boulevard	Current operations could include use of hazardous materials or petroleum products (Coastal Mart).
Moderate – within footprint	Adams	Commercial	1341 Worley Drive	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	1345 Cortez Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	1620 West 74 th Way	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	1860 West 74 th Way	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	200 72 nd Avenue West	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	470 East 72 nd Avenue	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	7420 Pecos Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Adams	Commercial	7440 Pecos Street	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Adams	Commercial	5054 West 92 nd Avenue	Current operations could include use of hazardous materials (corrective Action – Rainbow Cleaners).
Moderate – within footprint	Adams	Commercial	8601 Sheridan Boulevard	Current operations could include use of hazardous materials or petroleum products.
High – adjacent to footprint	Broomfield	Commercial	1760 West Midway Boulevard	Current operations could include use of hazardous materials or petroleum products (Phillips/Midway 66 #27244 – Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1765 Midway Boulevard	Previous operations could include use of hazardous materials or petroleum products (Former Hearts Jiffy Stop, Closed LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	425 North Highway 287	Current operations could include use of hazardous materials or petroleum products (Circle K – Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1480 West 1 st Avenue	Current and historic operations could include use of hazardous materials or petroleum products (Sill-Terhar Ford – Open State Lead).
High – within footprint	Broomfield	Commercial	11515 Wadsworth Boulevard	Previous operations could include use of hazardous materials or petroleum products (Joe Gebauer Property, State LUST Trust).
High – adjacent to footprint	Broomfield	Commercial	525 Highway 287	Current operations could include use of hazardous materials or petroleum products (A-B Petroleum – Closed LUST and Open USTs).
High – adjacent to footprint	Broomfield	Commercial	1601 Highway 287	Current operations could include use of hazardous materials or petroleum products (Conoco, Open LUST and USTs).
High – adjacent to footprint	Broomfield	Commercial	1600 Highway 287	Previous operations could include use of hazardous materials or petroleum products (State Lead Open Release).
Moderate – adjacent to footprint	Broomfield	Commercial	225 Commerce Street	Previous operations could include use of hazardous materials or petroleum products (Broomfield City Shops, Closed LUST and USTs).
Moderate – adjacent to footprint	Broomfield	Commercial	2100 Industrial Lane	Current operations could include use of hazardous materials or petroleum products (Coscan).

Table 4.17-5: Sites Ranked High or Moderate within the Construction Footprint — Combined Alternative Package (Preferred Alternative)

Site Ranking	Segment	Facility Type	Address	Comments
Moderate – adjacent to footprint	Broomfield	Commercial	3001 Industrial Lane #1	Previous and current operations could include use of hazardous materials or petroleum products (Jemco Seal).
Moderate – adjacent to footprint	Broomfield	Commercial	3050 Industrial Lane	Previous and current operations could include use of hazardous materials or petroleum products (A&H Builders).
Moderate – adjacent to footprint	Broomfield	Commercial	3101 Industrial Lane	Previous operations could include use of hazardous materials or petroleum products.
High – within footprint	Broomfield	Commercial	3400 Industrial Lane	Previous operations could include use of hazardous materials or petroleum products (Center Line Machine Company).
Moderate – within footprint	Westminster	Commercial	8685 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Westminster	Commercial	8725 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – adjacent to footprint	Westminster	Commercial	8731 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8741 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8743 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8747 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8749 Sheridan Boulevard	Previous operations could include use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8759 Sheridan Boulevard	Previous operations could have included use of hazardous materials or petroleum products.
Moderate – within footprint	Westminster	Commercial	8767 Sheridan Boulevard	Current operations could include use of hazardous materials or petroleum products.
High – within footprint	Westminster	Commercial	8769 Sheridan Boulevard	Previous and current operations could include use of hazardous materials or petroleum products (Continental Cleaners).
High – adjacent to footprint	Westminster	Commercial	6990 Church Ranch Boulevard	Current operations could include use of hazardous materials or petroleum products (7-Eleven #34036, Open USTs).
Moderate – adjacent to footprint	Westminster	Commercial	7007 Church Ranch Boulevard	Previous and current operations could include use of hazardous materials or petroleum products (Anderson Amoco Food Shops, Closed LUST and USTs).
Moderate – adjacent to footprint	Boulder	Commercial	90 McCaslin Boulevard	Previous operations could include use of hazardous materials or petroleum products (Former Diamond Shamrock #4564, Closed LUST and USTs).
Moderate – adjacent to footprint	Boulder	Commercial	191 McCaslin Boulevard	Current operations could include use of hazardous materials or petroleum products (Conoco #6447, Closed LUST, Open USTs).
Moderate – adjacent to footprint	Boulder	Commercial	2270 South 88 th Street	Previous operations could include use of hazardous materials or petroleum products (Storage Technology Corporation, Closed LUST and USTs).
High – adjacent to footprint	Boulder	Commercial	5200 Manhattan Circle	Current operations could include use of hazardous materials or petroleum products (PDQ gas).

Table 4.17-5: Sites Ranked High or Moderate within the Construction Footprint — Combined Alternative Package (Preferred Alternative)

Site Ranking	Segment	Facility Type	Address	Comments
Moderate – within footprint	Boulder	Commercial	5324 South Boulder Road	Previous operations could include use of hazardous materials or petroleum products (Former Exxon – Closed USTs).
High – adjacent to footprint	Boulder	Commercial	5190 South Boulder Road	Current operations could include use of hazardous materials or petroleum products (Turnpike Texaco – Closed LUST, Open USTs).
Moderate – within footprint	Boulder	Commercial	4800 Table Mesa Drive	Previous operations could include use of hazardous materials or petroleum products (Deep Farm Pit – Closed USTs and LUST).
High – adjacent to footprint	Boulder	Commercial	4742 Table Mesa Drive	Current operations could include use of hazardous materials or petroleum products (Amoco Oil #2111 – Closed LUST, Open USTs).

Source: US 36 Mobility Partnership, 2009.

Notes:

LUST = leaking underground storage tank

UST = underground storage tank

Indirect Impacts

All Segments

Indirect impacts for the Combined Alternative Package (Preferred Alternative) are the same as those discussed in Package 2.

Mitigation

A Phase II ESA, including laboratory sampling and analysis of soil and groundwater, may be necessary at all of the hazardous material sites that may have an impact on the project. This will likely include the high-ranked sites and possibly some of the hazardous material sites ranked as moderate. For sites ranked as moderate, an attempt will first be made to obtain additional information from landowners, regulatory agency representatives, etc., to further evaluate the potential for an impact to the project. Depending on the result of that effort, sampling and laboratory analysis may be required on these sites. This work will be completed after property acquisition and/or design and construction elements are clearly defined. The scope of work for the Phase II ESAs will be completed during the design phase of the project. The scope of work will outline the steps and data necessary, by site, to define measures that will be required to protect workers during construction, comply with environmental regulations, and protect CDOT and RTD from liabilities associated with property acquisition. Sample locations, depths, and media will be selected based on the nature of the construction activities (depth of excavation), the location of the hazardous material sites, and local hydrology.

Engineering controls to minimize the quantity of contaminated materials requiring long-term maintenance will need to be addressed during final design. In addition, determining responsible parties for designing, building, and operation of any necessary remediation systems and cost recovery must be established. Where such operations are necessary for the project, responsible parties should be identified and held to a commitment to permanently maintain the systems. CDOT and RTD should ensure liability issues are negotiated prior to any property acquisitions so that future corporate changes of property or operation owners do not cause CDOT or RTD to assume operations.

An asbestos and hazardous material survey and a lead paint survey will also be conducted if bridge, building, guardrails, or sign alteration or demolition are required at any property. If the analytical results indicate that lead-based paint is present, proper measures will be incorporated in the design documents and implemented during construction activities to minimize worker and public exposure to lead and to ensure that demolition materials are handled and disposed of in accordance with applicable regulations. If analytical results indicate building materials contain asbestos, a comprehensive Asbestos Operations and Maintenance (O&M) Plan will be developed in accordance with applicable regulations. The O&M Plan will address worker training, as well as safety measures to be taken when disturbing asbestos-containing materials, and during abatement activities.

If buried construction debris is encountered during construction activities, the Colorado Department of Public Health and Environment’s Hazardous Materials and Waste Management Division’s *Asbestos Contaminated Soil Guidance Document* (CDPHE 2006a) will be followed, in accordance with Solid Waste Regulations. Soil characterization, management plans, and standard operating procedures should be implemented and submitted pursuant to Section 5.5.4(B) of the Solid Waste Regulations as defined in the *Regulations Pertaining to Solid Waste Sites and Facilities 6 CCR 1007-2* (CDPHE 2006b), to minimize worker and public exposure and to ensure the construction debris is handled and disposed of in accordance with applicable regulations.

Mitigation measures to reduce hazardous material impacts are summarized in Table 4.17-6, Mitigation Measures — Hazardous Materials.

Table 4.17-6: Mitigation Measures — Hazardous Materials

Impact	Impact Type	Mitigation Measures
Existing hazardous material sites adjacent to or within the corridor	Construction/ Long-term management	<ul style="list-style-type: none"> • Site-specific Phase II ESAs will be conducted with subsurface investigation (soil and groundwater) for sites that may affect final design. • A Materials Handling Plan will be prepared to address contaminated soil and groundwater, and a Health and Safety Plan will be developed as required by Section 250.03 of the <i>CDOT Standard Specifications for Road and Bridge Construction</i> (CDOT 2005). • Engineering controls will be determined to minimize quantity of contaminated materials. • Responsible parties will be identified for design, build, and operation of remediation systems. • Cost recovery of hazardous material sites where removal actions and long-term maintenance is required will be determined. • A heavy-metal-based paint survey will be prepared for bridges in the project area. • An asbestos survey will be prepared in the event of building and/or bridge acquisition or demolition, or if asbestos is known to be present. • Soil Characterization and Management Plans will be prepared according to CDPHE HMWMD if construction debris is encountered during construction activities and is suspected to contain asbestos.

Table 4.17-6: Mitigation Measures — Hazardous Materials

Impact	Impact Type	Mitigation Measures
Acquisition of additional right-of-way or new property	Construction/ Long-term management	<ul style="list-style-type: none"> • An individual site-specific Phase I ESA will be conducted on properties before acquiring any right-of-way. • Site-specific Phase II ESAs will be conducted with subsurface investigation (soil and groundwater) for sites that may affect final design. • A Materials Handling Plan will be prepared to address contaminated soil and groundwater and a Health and Safety Plan will be developed as required by Section 250.03 of the <i>CDOT Standard Specifications for Road and Bridge Construction</i> (CDOT 2005). • Engineering controls will be determined to minimize the quantity of contaminated materials. • Responsible parties will be identified for design, build, and operation of remediation systems, and to ensure CDOT and RTD are not liable for future operations. • Cost recovery of hazardous material sites where removal actions and long-term maintenance is required will be determined. • A heavy-metal-based paint survey of bridges in the project area will be prepared. • An asbestos survey for any building acquisition or demolition, if asbestos is known to be present, will be prepared. • Soil Characterization and Management Plans will be prepared according to CDPHE HMWMD if construction debris is encountered during construction activities and is suspected to contain asbestos.

Source: US 36 Mobility Partnership, 2009.

Notes:

- CDOT = Colorado Department of Transportation
- CDPHE = Colorado Department of Public Health and Environment
- ESA = Environmental Site Assessment
- HMWMD = Hazardous Materials and Waste Management Division
- RTD = Regional Transportation District