3.17 Hazardous Waste Sites and Spills

3.17.1 Affected Environment

3.17.1.1 Hazardous Waste Sites

Known and potential hazardous waste sites in the project area were identified through the review of Federal and State databases, specifically:

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Information System, which contains information on hazardous waste sites, potential hazardous waste sites, and remedial activities.
- Resource Conservation and Recovery Act (RCRA) Information System, used by the U.S. Environmental Protection Agency (EPA) to track entities regulated as hazardous waste handlers. It includes data on handlers, permit and closure status, compliance with regulations, and cleanup activities.
- Alaska Department of Environmental Conservation (ADEC) State databases:
  - Statewide Oil and Hazardous Substance Spills Database
  - Contaminated Sites Program Database (includes leaking underground storage tanks, or LUSTs)

Database research is summarized in the following paragraphs and in Table 3.17-1 and Table 3.17-2. No CERCLA sites were identified within the project area.

One RCRA record pertains to the project area. A "Fisher Fuels Sterling Hwy Spill Site" incident along the Sterling Highway at Milepost (MP) 52 is documented as an RCRA site in the EPA database. This site listing represents a fuel tank truck rollover with a spill of approximately 5,000 gallons of gasoline and diesel fuel on October 29, 2001 (RCRA handler identity number AKR000005041).

The ADEC databases document multiple kinds of contaminated sites. The ADEC Statewide Oil and Hazardous Substance Spills Database provides a list of documented spills having occurred within the East Kenai/Cooper Landing area (ADEC 2006a, 2012, 2013) since 1995. This search yielded information for 14 separate incidents within the project area (Table 3.17-1). The October 2001 Fisher Fuels spill was not included in the search results, but has been listed in Table 3.17-1 (ADEC 2006a, 2012). All but two spill sites have a cleanup status of Complete, No Further Action (NFA). NFA status indicates a determination by the ADEC that residual contamination remaining at the site does not pose a significant risk to human health and the environment (ADEC 2006a).

Table 3.17-1. Known spill sites in the project area

Spill Date	Spill Location	Quantity (gallons)/ Substance Released	Cleanup Status
07/17/1995	Sterling Highway, Near Kenai River bridge	1/diesel	NFA
08/10/1995	Sterling Highway, Cooper Landing	1/other	NFA
09/28/1995	Sterling Highway, MP 45, Sunrise Inn	1/other	NFA
11/10/1997	Sterling Highway, MP 43.5, near Quartz Creek	75/diesel	NFA
08/28/1998	Cooper Landing	8/diesel	NFA
07/13/2000	Sterling Highway, MP 52.3	0[a]/diesel	NFA
08/06/2001	Cooper Landing, near Quartz Creek	20/aviation fuel	NFA
10/29/2001	Sterling Highway, MP 52, near Gwin's Lodge	8,100/diesel and gasoline	NFA
07/03/2007	Sterling Highway, MP 52	200/diesel 20/engine lube oil	NFA
06/21/2010	Sterling Highway, MP 59.4	15/hydraulic oil	NFA
10/30/2011	Sterling/Snug Harbor Rd	10/gasoline	NFA
12/9/2011	Cooper Landing, Bean Creek Road	30/diesel	Open
02/06/2013	Sterling Highway, MP 57.5, semi truck accident	75/diesel 5/engine lube oil 4/antifreeze	Open
02/19/2013	Sterling Highway, MP 45, Sunrise Inn	50/gasoline	NFA
07/01/2013	Sterling Highway, MP 45, Sunrise Inn	5/gasoline	NFA

[a] Reported quantity of released substance is that reported by ADEC. This event was a collision with no recorded volume of released substance. This may indicate a minor fuel release that was unrecoverable due to rapid evaporation or extremely low quantity.

NFA = "No Further Action" because residual contamination remaining at the site does not pose a significant risk to human health and the environment (ADEC 2012).

Source: ADEC (2012, 2013); EPA (2013)

The ADEC Contaminated Sites Program Database (including LUSTs) contains five records for contaminated sites located within the project area (ADEC 2012). These properties and sites are listed in Table 3.17-2 and are identified in Map 3.17-1.

Table 3.17-2. Sites in the project area in the Contaminated Sites Program Database

Site Name and Location	Description	Cleanup Status
Cooper Landing Elementary School Bean Creek Road	Heating fuel contamination was encountered during underground tank removal. Excavation of contaminated soil was stopped because of concerns about structural integrity of school. Contamination above cleanup levels still exists in ground. If remodeling occurs or if contamination shows up in wells, then remaining contamination must be removed to site specific cleanup levels.	Cleanup Complete – Institutional Controls[a]
Sportsman's Lodge MP 55 Sterling Highway	Diesel-range petroleum contamination was encountered during underground storage tank removal.	Cleanup Complete
Hamilton's Place MP 48.5 Sterling Highway	Gasoline contamination was encountered during the removal of underground storage tanks in May 1994. Cleanup was initiated in 1999. Contaminated soil was excavated and trucked off site for treatment and disposal. Borings indicated groundwater contamination, and monitoring wells were installed. A long-term groundwater monitoring plan was established and is ongoing.	Cleanup Complete – Institutional Controls[a]
Sunrise Inn MP 45 Sterling Highway	Limited fuel contamination was encountered during removal of underground storage tank. Contamination levels were below site cleanup level.	Cleanup Complete
Sportsman's Landing MP 55 Sterling Highway	Diesel-range petroleum contamination was discovered during a site assessment. Soils transported offsite for treatment and disposal.	Cleanup Complete

[a]Institutional Controls are administrative tools used to limit human exposure to hazardous waste by restricting activity, use, and access to properties with residual contamination. Summary of known controls are identified in the Description column.

Source: ADEC (2012).

The ADEC Statewide Underground Storage Tank (UST) database was also reviewed (June 5, 2012). Within the project area, six USTs are reported as currently in use: three at Cooper Landing Elementary School (MP 47.7) containing heating oil, one at Sunrise Inn (MP 45) containing gasoline, one at Hamilton's Place (MP 48.5) containing gasoline, and one at the Alaska Department of Transportation and Public Facilities (DOT&PF) maintenance station containing diesel fuel. These tanks are in place but not leaking, and otherwise have not and are not currently creating a hazardous waste impact. The database also identifies three other locations with five USTs that are permanently out of use (four have been removed, and one is out of service but still in the ground; none are known to have created a hazardous waste impact).

In their roles as cooperating agencies for this project, the U.S. Fish and Wildlife Service and Forest Service, U.S. Department of Agriculture, commented that wooden power poles that require relocation could have been treated with hazardous substances and could have contaminated the soil around the poles. See Section 3.11, Utilities, for a discussion of poles that may need to be relocated. The agencies indicated that pentachlorophenol (PCP) has been used in the United States as a wood preservative since at least the 1950s. It was once one of the most commonly used pesticides in the United States, but since 1984 its use has been restricted to certain applicators. Commercial PCP mixtures are unintentionally contaminated with trace levels

of dioxins and furans during the manufacturing process; dioxin/furan contamination levels were much higher in mixtures manufactured before the 1980s. As PCP weathers in the environment it can be converted into dioxins and furans, under certain environmental conditions. It is not known whether treated poles are present or that there is soil contamination; however, it is possible, given that power poles exist in the project area and likely were placed between 1950 and 1980.

3.17.1.2 Risk of Spills

The risk of vehicle crashes that would result in pollutants in the Kenai River or adjoining wetlands and connected waterways, particularly the risk of tanker trucks containing fuel or other chemicals overturning or otherwise spilling their loads, was a substantial concern voiced by residents and others during scoping for this project, and it has recurred as a primary issue in comments of agencies and the public since release of the Draft SEIS about the preferred alternative. Commenters appear to be concerned primarily with catastrophic spills where a large proportion of substance in tanks (8,000 gallons or more on a single truck-trailer) might be released into the environment.

All alternatives are located within the Kenai River watershed, which is a sensitive area due to the Kenai River's biologic and economic significance and its substantial human use. As noted above under Section 3.17.1.1, spills adjacent to the Kenai River have occurred (see Table 3.17-1). Because of residents' concerns and the existing highway's proximity to the river and associated wetlands and tributaries, the risk of spills was examined.

Figure 3.17-1. Tanker truck traversing the Sterling Highway through the project area.

The *Kenai River Comprehensive Management Plan* (DNR, ADF&G, KPB 1997, see Section 3.2), which was endorsed by all land management agencies along the Kenai River, recommends that "public road construction projects in upland areas should be located away from the Kenai River" and advocates for a general setback standard of 300 feet for all non-water-dependent public facilities development adjacent to the river.

There are three primary environmental pathways for spill migration:

- Surface migration (surface waters and soil)
- Subsurface migration (groundwater transport)
- Atmospheric migration (air)

A risk evaluation was performed to characterize the sensitivity of the area resources to the alternative alignments. The report, *Emergency Response Assessment and Hazardous Materials*

Spill Control (HDR 2003b), was used as a screening tool early in this project. While the alternatives have changed slightly since that time, the assessment remains valid to discuss and compare the relative risk posed by future spills along the alternatives under consideration (see Section 3.17.2). The report also provides information on the types of substances stored and used on the Kenai Peninsula that may be transported along the Sterling Highway:

- Acrylamide
- Ammonia
- Cyclohexylamine
- Hydrogen sulfide gas
- Sulfur dioxide gas
- Urea formaldehyde
- Diesel and other fuel products

Each of these is noted as lethal to organisms, including to humans, at certain levels—some at very low levels, such as ammonia at less than 1 part per million for aquatic life over 24 hours of exposure. Fuel products, such as diesel, are the most likely to be transported most often. Diesel is toxic to aquatic life at 210 parts per million over 96 hours of exposure.

Spills associated with the highway are mostly the result of crashes. As noted in Chapter 1, the existing highway does not meet current design standards for a rural principal arterial. Many curves are sharp; shoulders are narrow or non-existent, which can lead to long trailers falling off the shoulder and rolling; lanes are narrow, which can contribute to collisions between vehicles; and clear zones typically do not exist, which means the slopes adjacent to the pavement may be steep and contribute to a tanker rolling into a fixed object such as a rock face or tree, and ripping a hole in the tank.

Based on reviews of spill data and commercial vehicle/oversize vehicle permit data, trucking in the project area occurs to ship all kinds of materials between ports and communities, such as from Kenai or Homer to Anchorage or Prudhoe Bay.

A query of ADEC's Statewide Oil and Hazardous Substances Spills Database, a public online database for all kinds of spills, spanned the 1995–2017 period (as far back as the database goes) and the Cooper Landing Census Designated Place (the project area is a subset). Spills and releases outside the project area and apparently not associated with the Sterling Highway were discounted. The remaining spills associated with the project area and apparently associated with the Sterling Highway[1] were examined. Note that two large spills—fuel and urea—are categorized in the database differently and did not show up in this query; they are classified as Central Kenai rather than East Kenai, although they occurred in the project area. Including these two larger incidents, the list has the following characteristics:

- Seventeen separate spill incidents
- More than one incident reported for the following locations:
    - "Cooper Landing just before the Kenai River Bridge"
    - MP 44
    - MP 52

[1] It is possible some database entries could be reporting a highway milepost as the location of a spill that occurred on adjacent property, unrelated to operation of the highway.

- Three incidents with very large releases:
  - 8,100 gallons of gasoline and diesel, 10/29/2001
  - 24,000 pounds of calcium chloride,[2] 5/23/2008
  - 48,300 pounds of urea, 3/19/2015
- Fourteen smaller releases:
  - Six reported releases of 0 or 1 gallon
  - Four reported releases of 10 gallons or less
  - Other reported releases: 10, 15, 75, and 84 gallons

Based on spot checking ADEC's reports of other highway spills in other parts of the state and review of ADEC's annual overall spill summaries and historical multi-year summaries on the ADEC web site, the crashes in the project area that result in spills are similar to those in other areas. Statewide, crashes do occur, and spills do occur. Most releases are of fuel, and most are relatively small. Larger releases do occur, much more rarely. In addition, it appears from available data that released substances have entered water near the Kenai River in at least two of the major crashes. ADEC noted the 2001 fuel spill, located at "Gwin's Curve" at MP 52, as entering a small pond connected by culvert to the Kenai River. ADEC noted that the 2015 urea release located a half-mile west of Sportsman's Landing at MP 55.5 as resulting in a tank trailer upside down in a slough and pond that was partly contained by a beaver dam. In both cases, it is likely that some of the spilled material entered the river. The 2008 release of a pallet of sacks of calcium chloride occurred at the southwest end of the Kenai River Bridge near MP 48, and photos show the material on the road embankment slopes at the Cooper Landing Boat Launch and Day Use Area immediately adjacent to the Kenai River.

The 2003 report and ADEC documents indicate the response to the 2001 fuel spill was rapid by the Cooper Landing Volunteer Fire Department (7 minutes). This rapid response may have been instrumental to minimizing flow of spilled fuel to the Kenai River (the culvert also was reported partly clogged by natural materials and ice), but the volunteer force used up all the containment material available in Cooper Landing and did not have the needed personal protective equipment to plug a hole in the leaking tank. The more substantial response from Kenai and Anchorage took 3-4 hours. Spot checks of other truck rollover/spill incidents indicate response often is not immediate to spill locations on remote highways away from larger communities. Contact with the Cooper Landing Volunteer Fire Department in January 2018 indicates that Cooper Landing still has limited absorbent material/boom for reducing the spread of spilled material and limited personal protective equipment. A repeat of a spill like the 2001 tanker rollover likely would result in similar circumstances for the spill response, according to the Volunteer Fire Department (Osowiecki 2018).

3.17.2 Environmental Consequences

3.17.2.1 No Build Alternative

Direct and Indirect Impacts

No known hazardous waste sites would be affected by the No Build Alternative.

[2] Also indicated in ADEC files as sodium chloride.

Spills associated with the highway are virtually always the result of crashes. There are three considerations related to spill risk for waterways:

(1) The likelihood of vehicle crashes in the first place.
(2) The likelihood that any hazardous substance spilled in a crash would reach any waterway.
(3) The time that might be available to respond to a spill to keep it out of flowing water or prevent a slough or side stream from transporting the material into the Kenai River.

Regarding #1, the likelihood of crashes is addressed in Section 3.6, Transportation. In general, the No Build Alternative has a much higher risk of crashes than any of the build alternatives. The risk of spills is heightened because the highway does not meet current standards created, in part, to help prevent vehicles from leaving the roadway or overturning. The No Build Alternative would retain the highway as a narrow road at or near its maximum capacity for traffic.

Regarding #2 and #3, the likelihood that spilled substances would reach waterways is relatively high, and the amount of time it would take substances spilled in water to reach the Kenai River relatively low. Currently, 77 percent of the Sterling Highway in the project area is within 500 feet, and 56 percent of the highway is within 300 feet, of the Kenai River and its Tier I tributaries (Cooper Creek). Because the highway crosses Cooper Creek within 500 feet of its confluence of the Kenai River, this entire percentage is applicable to the river. This proximity presents a risk of automobile or tanker truck crashes that could spill pollutants almost directly into the river, or into adjoining ditches, culverts, wetlands, or connected waterways with little buffer or opportunity for cleanup. It is assumed that, if a spill directly entered a small stream at a highway culvert or a ditch flowing with rainwater or meltwater at an assumed 2.5 mph average speed, with a distance of 500 feet to the Kenai River, it would take approximately 2 minutes to reach the river.

3.17.2.2 Issues Applicable to the Build Alternatives

Direct and Indirect Impacts

Hazardous Waste Sites. Table 3.17-1 and Table 3.17-2 summarize the status of known hazardous waste and spill sites in the project area. Of the 19 known sites of past spills or contamination, 17 have been closed, closed with institutional controls, or designated as NFA by ADEC. It is anticipated that the two open sites would be resolved and closed prior to any construction. No major risk to the project and no major risk of impact to human health from construction of any of the alternatives have been identified as a result of this preliminary investigation. Because most spills are small and most cases have been closed, this analysis does not further report on which sites are most closely associated with the various build alternatives.

Following the Federal Highway Administration record of decision on this Environmental Impact Statement (EIS), further investigation into known and suspected contaminated sites will be necessary if a build alternative is selected. A Phase I Environmental Site Assessment (ESA) would be conducted in accordance with the American Society for Testing and Materials Standard E1527-13. The Phase I ESA would build on the records research already done and would include interviews with property owners, a review of historical sources, regulatory agency file reviews and consultation, and a visual reconnaissance of the alignment. It would identify recognized environmental conditions that could affect the preferred alternative. If the Phase I ESA were to identify a likely presence of hazardous materials, a Phase II site investigation would be undertaken. The investigation would determine the extent of the release, establish an approach to site design and construction to avoid contamination to the extent possible, and recommend

management strategies for unavoidable contamination encountered. Similarly, the Phase I ESA would be used to further evaluate the potential for soil contamination related to preservative compounds used on wooden power poles.

Risk of Spills. Spills associated with the highway are virtually always the result of crashes. There are three considerations related to spill risk for waterways:

(1) The likelihood of vehicle crashes in the first place.
(2) The likelihood that any hazardous substance spilled in a crash would reach any waterway
(3) The time that might be available to respond to a spill to keep it out of flowing water or prevent a slough or side stream from transporting the material into the Kenai River.

Overall, the transport of commodities on the segment of each build alternative that would be built on a new alignment would increase the risks of contaminant spills and other releases from crashes in areas where such risks do not currently exist. However, use of the new alignment would reduce risk of hazardous material releases impacting the Kenai River, in the area of new alignment located away from the river. The length of each of these segments differs among the alternatives, as further described in the following sections.

Regarding (1): All build alternatives would be built to current rural principal arterial standards, which incorporate design features meant to improve safety conditions that may have contributed to spills and crashes adjacent to the Kenai River. For example, upgrading the road design to include wider lanes, shoulders, and clear zones and avoid sharp curves would allow room for recovery before a rollover happened. Shoulders would improve emergency response capabilities to minimize spill-related impacts should a hazardous transportation spill occur along the Sterling Highway. Reduced traffic, specifically by commercial trucks, on the "old" highway under any of the build alternatives would reduce risk of crashes and spills in that area. See crash risk discussions in Section 3.6, particularly the Transportation Safety sub-section in Section 3.6.2.2.

Regarding (2): Numerous factors affect the amount of impact associated with a chemical release to the environment, including location, weather, stream flow, soil permeability, time of year, toxicity and quantity of spilled compound, and species present at the time of the release. However, any release of a chemical compound to the environment would likely adversely affect natural resources that came into contact with the compound. Spills into surface migration pathways (surface waters and soils) pose the greatest potential to quickly impact sensitive areas such as the Kenai River or surface and shallow drinking water sources. As noted in Section 3.17.1.2, the chemical materials most likely to be transported on the Sterling Highway are toxic to living organisms at relatively low concentrations, given sufficient exposure time. A substantial spill could kill wetland and upland plants, microbes in soil and water, insects, small mammals, birds, and fish or fish eggs. Predators and scavengers (larger mammals and birds) could be sickened or killed if eating smaller animals incapacitated by a spill. A relatively volatile substance, such as gasoline, if it did enter streams, could disperse and much of its volume evaporate, potentially minimizing impact associated with contact time. Note that a large tanker truck load typically may be 8,000 gallons. Kenai River low flow at Cooper Landing of about 1,000 cubic feet per second (January 2018) encompasses nearly 8,000 gallons every second.

Regarding (3): In general, it is reasonable to presume that the risk of a spill entering any waterway diminishes the farther the spill occurs from water. Soil and vegetation act to absorb and slow movement of spilled material. In a highway spill scenario, any spill of sufficient

volume is likely to leave the paved surface and flow onto the road embankment or enter the highway drainage system of ditches and culverts. Most ditches would be vegetated and "dry"—without flowing water—except during melt periods and substantial or sustained rainy periods. Depending on grade, distance, and volume and on the rate of the release, spilled material could be essentially contained or could flow quickly to running water. When ditches already were flowing with water, movement of spilled material would be more rapid. Where the highway was built on fill (rather than cut into a slope), there may be no ditch and any substance leaving the roadway would flow down the embankment to native ground. Native ground likely would be vegetated and, if dry, likely would absorb and slow the flow (slowing the time to reach water but impacting organisms in the soil). Water at the base of a road embankment (wetland or pond) could contain spilled material or could quickly carry spilled material to tributaries and then to the Kenai River. The uncertainty of where a spill would occur relative to ditches, vegetation, soils of different types, nearby water, and weather conditions means it is not possible to meaningfully evaluate the time it might take to reach a flowing stream. However, once in a stream, it is possible to evaluate the time to the Kenai River. Map 3.17-2 presents data regarding time for each of the build alternatives using conservative estimates based on 2-year high water event (statistically expected to occur once every 2 years).

As shown on the Map, the time for a spill to reach the Kenai River increases the farther away from the Kenai River the spill occurs. A greater distance from the Kenai River allows not only the time in the ditch or over dry ground but additional time it would take for pollutants to flow down a waterway to the Kenai River. Any delay would allow more time for responders to contain the spilled material and prevent it from reaching the river. Tributaries to the Kenai River, riparian areas, and wetlands are areas of special concern. In such a circumstance, impacts would be expected to occur to water quality in the subsidiary waterway and to vegetation and wildlife along the way, even if the spill were contained before entering the Kenai River.

Other Concerns: Subsurface migration pathways are difficult to identify with certainty; however, private residences downgradient from alternative alignments are identified as sensitive areas because they likely have private drinking water wells (there is no public water supply in the Cooper Landing area). Atmospheric migration pathways are highly unpredictable and are not examined.

Analysis: Environmental sensitivity of each alignment to risks associated with hazardous materials is evaluated in this EIS using eight different metrics, as defined below:

- Steep side slopes, represented as a percentage of the alignment length that has steep slopes (6-10 percent) adjacent to surface water bodies or residential areas where a spill could quickly migrate overland into sensitive areas.
- Downgradient residences, represented as a percentage of the alignment adjacent to residential property downslope from the alternative alignment.
- Proximity to Tier I water bodies, represented as a percentage of the alignment within the 300 foot buffer setback identified by the *Kenai River Comprehensive Management Plan*. Tier I waterbodies in the project area are the Kenai River, Kenai Lake, and their immediate tributaries, which include the Russian River, Cooper Creek, and Juneau Creek.
- Proximity to Tier I water bodies, represented as a percentage of the alignment length within a 500-foot riparian buffer. This more conservative buffer was used in the 2003 report.

- Proximity to Tier II water bodies, represented as a percentage of the alignment length within a 500-foot riparian buffer. Tier II streams are tributaries to Tier 1 streams. Surface migration pathways of Tier II streams can affect large areas and important habitat but are potentially slower than Tier I stream pathways.
- Proximity to palustrine wetlands, which are bogs hydrologically connected to Tier I or Tier II streams.
- Time for water to flow from a highway crossing to the Kenai River, a measure of how long it could take a spill directly in the drainage way to reach the Kenai River.

Table 3.17-3 and Table 3.17-4 summarize data associated with these metrics, and the relative risk is discussed below under each build alternative. Map 3.17-2 shows the alternative alignments with the 300-foot and 500-foot buffer zone areas near Tier I and Tier II streams in the project area, and it shows time measurements.

The time measurements illustrated on Map 3.17-2 were taken from field measurements of some drainage ways along the alternatives. Time was derived by accounting for distance from the proposed crossing of the drainage to the Kenai River and for stream characteristics such as width, depth, and water discharge flow rates. This can be considered a conservative estimate of time a substance spilled directly into the stream would take to reach the Kenai River. As discussed above, many other variables affect the time it might take for spilled substances to reach water. Still, the mapped data demonstrate substantial differences in time depending solely on distance from the river and amount of flow.

Table 3.17-3 presents data from the 2003 report and uses alignments as they existed at that time. Table 3.17-4 present the 300-foot buffer data based on a guideline identified in the *Kenai River Comprehensive Plan*, calculated based on current alignments. The alignments are very similar, and the 2003 data present ways to compare among the alternatives.

The two tables (Table 3.17-3 and Table 3.14-4) show evidence of a trade-off. Alignments farther from the Kenai River show decreased percentage near Tier I streams but typically show increased percentage near Tier II streams. It is possible that a large spill would enter a Tier II tributary and pollute both the tributary and the Kenai River before a meaningful response could be mounted. Proposed build alignments typically cross Tier II streams quickly (perpendicular) rather than running parallel to them for long distances, as the existing highway does along the Kenai River. Because the project would not cause higher overall traffic volumes in the project area, in areas where the highway built on a new alignment and the "old" highway would split the traffic stream, the risk of spill (1) would be reduced in any given area on the "old" highway, (2) would be introduced along the new segment, and (3) would be substantially reduced overall because of safety features built into the highway design (e.g., consistent and predictable lane widths, shoulders, clear zones, curves, and speeds).

The improvements to design (meeting current design standards), the reduction of traffic volume on the "old" highway sections, and the shifting of the majority of traffic onto project alternatives farther from the river all indicate that the risk of contamination from spills resulting from traffic on any of the build alternatives would be reduced compared to the No Build Alternative. Because truck traffic passing through the area is anticipated to use the new highway, the risk of spills would also be lower on the "old" highway.

Table 3.17-3. Sensitive resources and proximity to alternatives[a]

	No Build	Cooper Creek	G South	Juneau Creek	Juneau Creek Variant
Percent near down-gradient residences	37.2%	44.9%	40.6%	34.4%	36.6%
Percent with steep down-gradient side slopes	6.7%	7.6%	24%	24.1%	32.6%
Percent length within 500 feet of Tier I streams	77%	61%	47%	29%	28%
Percent length within 500 feet of Tier II streams	1.5%	1.5%	10.7%	22.5%	25%
Percent length within 500 feet of wetlands hydrologically connected to Tier I or Tier II streams[b]	1.3%	2.1%	6.8%	12.1%	12.1%

Source: *Emergency Response Assessment and Hazardous Spill Control*, (HDR 2003b).

[a] This table is taken from a 2003 report. At that time, the alternatives were named somewhat differently, and modest changes to alignments have occurred since that time. The alignments are similar enough that the data presented is useful in delineating differences among alternatives. This table addresses spill potential related to traffic on the new highway. Note that varying lengths of old highway remain under the various build alternatives (see project descriptions in Chapter 2). Approximately 70% of Sterling Highway traffic is expected to use the new highway, and approximately 30% of traffic would continue to use the old highway. Traffic using the old highway is anticipated to be local traffic, accessing local destinations. Spills associated with local traffic in areas along the old highway or any along other roads near the Kenai River are not addressed in this table. No geometric improvements are proposed on the old highway. Reduction in spill risk on the old highway would result from the reduction in traffic (moving the through-traffic farther from the Kenai River and reducing congestion and traffic conflicts in Cooper Landing and along the old highway).

[b] This represents the incremental risk posed by a spill beyond 500 feet from a Tier I or Tier II stream, but within 500 feet of wetlands that are hydrologically connected to a Tier I or Tier II stream. The geographic information systems (GIS) analysis performed to generate this data used older, National Wetland Inventory mapping and may not correlate directly with the analysis discussed in Section 3.20, Wetlands and Vegetation.

Table 3.17-4. Proximity to sensitive resources (300 ft.)

	No Build	Cooper Creek	G South	Juneau Creek	Juneau Creek Variant
Percent length within 300 feet of Tier I streams	56%	43%	33%	15%	16%

Note: The length of the alternatives used to calculate this table was slightly different than lengths used in Table 3.17-3. In each case, however, the same methods were used for the data within each table.

Construction Impacts

Should contamination be encountered during construction of any of the build alternatives, the ADEC would be notified and the response efforts would be handled in accordance with an ADEC-approved Corrective Action Plan. Hazardous materials that would be used, transported, or stored within the project right-of-way as part of the construction activities could adversely affect the environment if they were not properly handled and contained. These materials would include asphalt, concrete, and fuel and lubricants for vehicles and other equipment.

Mitigation

Construction contractors would be required to meet all Federal, State, and local regulatory requirements regarding the discovery and use of hazardous materials. These regulatory requirements include worker right-to-know and safety training for the use of hazardous materials, as well as the recognition and reporting of hazardous materials discovery.

Should the Phase I ESA indicate risk of soil contamination around chemically treated power poles that must be relocated, DOT&PF would prepare a contaminant sampling and analysis plan developed and agreed to by affected land management agencies, ADEC, DOT&PF, and the utility company that owns the poles. The plan likely would specify soil testing for contaminants around poles that would be removed. If testing indicated contamination, a contaminated materials management plan agreed upon by the same entities would specify proper excavation and treatment/disposal of contaminated soils.

Hazardous materials used during project construction would be stored and handled according to State and Federal regulations. As part of standard specifications for highway construction, the contractor would develop a Hazardous Material Control Plan (HMCP) and a Spill Prevention, Control, and Countermeasure Plan. Detailed best management practices and housekeeping measures regarding hazardous materials would be outlined in a site-specific HMCP, which is a required part of the contractor's Storm Water Pollution Prevention Plan. The contractor would be required to practice proper hazardous material storage and handling and adhere to the DOT&PF emergency response procedures, which stipulate that all work must stop immediately and the site be secured to prevent unauthorized access if hazardous materials are encountered. The contractor would be expected to isolate the area and prevent migration of any contaminants. In addition, the appropriate regulatory authorities must be notified immediately.

3.17.2.3 Cooper Creek Alternative

Direct and Indirect Impacts

Hazardous Waste Sites. The MP 52 site that is the location of three spills, one of which was a 5,000-gallon fuel spill, would be subject to earth moving during reconstruction of the existing highway for the Cooper Creek Alternative. Work at this site would be more likely to unearth previously undetected contaminated soils than at other areas along the alignment, and presents a slightly elevated risk to DOT&PF of additional time and costs to the project for cleanup. See Section 3.17.2.2 for issues applicable to all build alternatives.

Risk of Spills. The primary reduction in spill risk would come from the reduction in crash risk. The risk of crashes would be reduced substantially compared to the No Build Alternative; see Section 3.6. The risk of any spill that did occur reaching water or the Kenai River would depend on many variables, as described in Section 3.17.2.2. While the Cooper Creek Alternative would have low exposure to steep side slopes, Tier II tributaries, and wetlands, it would have a high exposure to downgradient residences and Tier I stream (almost exclusively the Kenai River itself). Approximately 62 percent of the alignment would be within 500 feet of the Kenai River, of which about 6 miles (43 percent) would be within 300 feet. West of Cooper Creek, the alternative largely follows the existing highway alignment along the Kenai River, which poses a relatively high level of risk of any spilled material reaching the Kenai River, as indicated on Map 3.17-2. However, the highway would be reconstructed throughout to meet current standards and

improve safety, so the risk of crashes would be much lower than the risk on the existing highway.

Construction Impacts

Construction impacts for all build alternatives, as related to known contamination, are addressed in Section 3.17.2.2.

Mitigation

Mitigation for all build alternatives is addressed in Section 3.17.2.2.

3.17.2.4 G South Alternative

Direct and Indirect Impacts

Hazardous Waste Sites. The MP 52 site that is the location of three spills, one of which was a 5,000-gallon fuel spill, would be subject to earth moving during re-construction of the existing highway for the G South Alternative. Work at this site would be more likely to unearth previously undetected contaminated soils than at other areas along the alignment, and presents a slightly elevated risk to DOT&PF of additional time and costs to the project for cleanup. See Section 3.17.2.2 for issues applicable to all build alternatives.

Risk of Spills. The primary reduction in spill risk would come from the reduction in crash risk. The risk of crashes would be reduced substantially compared to the No Build Alternative; see Section 3.6. The risk of any spill that did occur reaching water or the Kenai River would depend on many variables, as described in 3.17.2.2. About one-quarter of the G South Alternative alignment has exposure to steep side slopes adjacent to water bodies. Approximately 47 percent would be within 500 feet of the Kenai River and other Tier 1 streams, and about 33 percent would be within 300 feet. It would create a new bridge over the Kenai River, and 70 percent of area traffic would be expected to cross that bridge. The existing Cooper Landing Bridge would see a reduction in traffic (30 percent of total traffic would use that bridge), but the alternative would create a new crossing of the river. The G South Alternative has moderate exposure to Tier II streams and wetlands that are hydrologically connected to the Kenai River. A substantial portion of this alternative would be built on the existing alignment near the Kenai River, as indicated on Map 3.17-2. However, the highway would be reconstructed throughout to meet current standards and improve safety, so the risk of crashes would be much lower than the existing highway.

Construction Impacts

Construction impacts for all build alternatives, as related to known contamination, are addressed in Section 3.17.2.2.

Mitigation

Mitigation for all build alternatives is addressed in Section 3.17.2.2.

3.17.2.5 Juneau Creek and Juneau Creek Variant Alternatives

Direct and Indirect Impacts

Hazardous Waste Sites. The direct and indirect impacts from hazardous waste sites are the same as those discussed in Section 3.17.2.2.

Risk of Spills. The primary reduction in spill risk would come from the reduction is crash risk. The risk of crashes would be reduced substantially compared to the No Build Alternative; see Section 3.6. The risk of any spill that did occur reaching water or the Kenai River would depend on many variables, as described in 3.17.2.2. The Juneau Creek Alternative alignment would be approximately26 percent within 500 feet of Tier I streams, and approximately 16 percent would be within 300 feet. The Juneau Creek Variant Alternative would be about 25 percent within 500 feet, and 16 percent of the total would be within 300 feet of the Tier I water bodies.

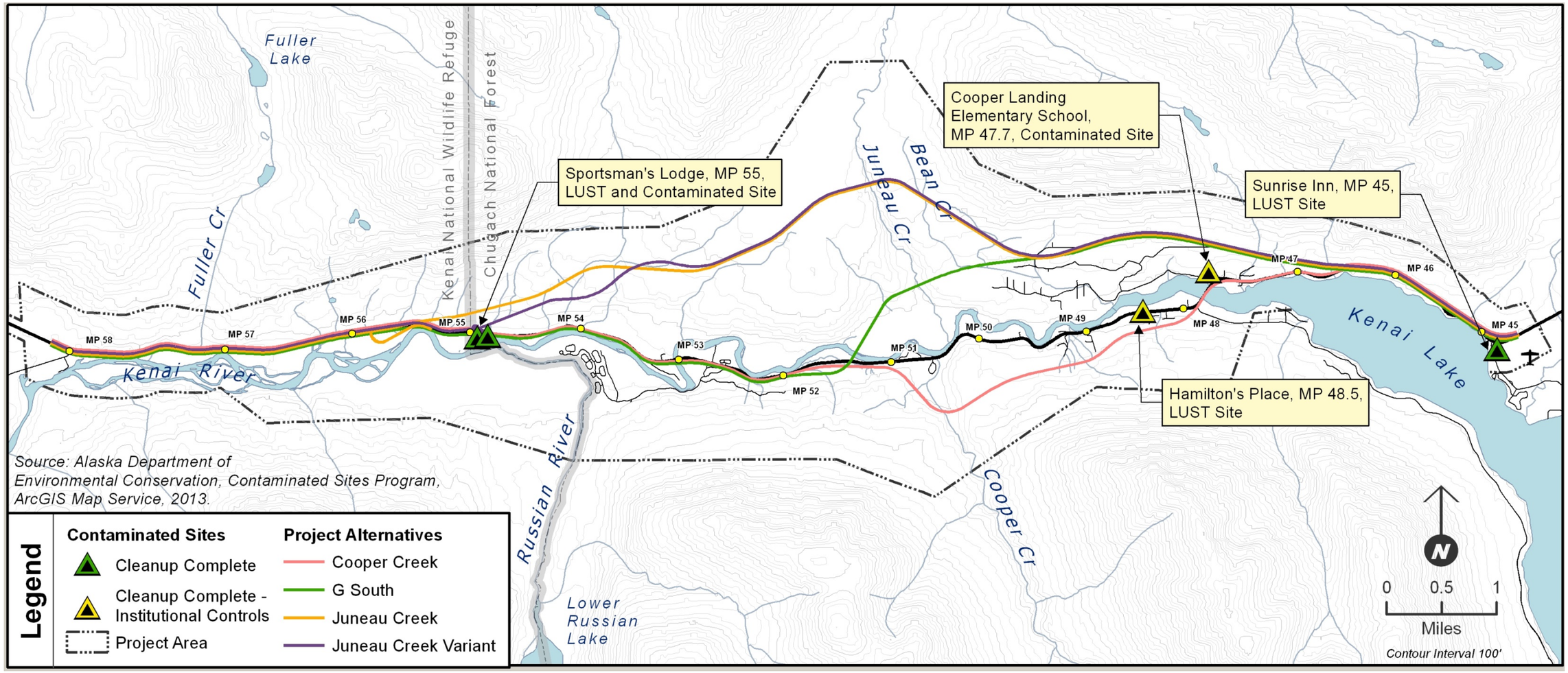
Both of these alternatives have moderate exposure to steep side slopes and high exposure to wetlands. However, these alternatives provide separation from the Kenai River and other Tier I streams over the longest distance, likely providing responders more time to protect the Kenai River in the event of a spill in these separated locations. See Map 3.17-2. The western segments of these alternatives built on the existing alignment would remain relatively near the Kenai River, posing greater risk than the segment built on a new alignment. However, the highway would be reconstructed throughout to meet current standards and improve safety, so the risk of crashes would be much lower than the existing highway.

Construction Impacts

Construction impacts, as related to known contamination for the Juneau Creek and Juneau Creek Variant alternatives, are addressed in Section 3.17.2.2.

Mitigation

Mitigation for all build alternatives is addressed in Section 3.17.2.2.



Map 3.17-1. Hazardous material sites

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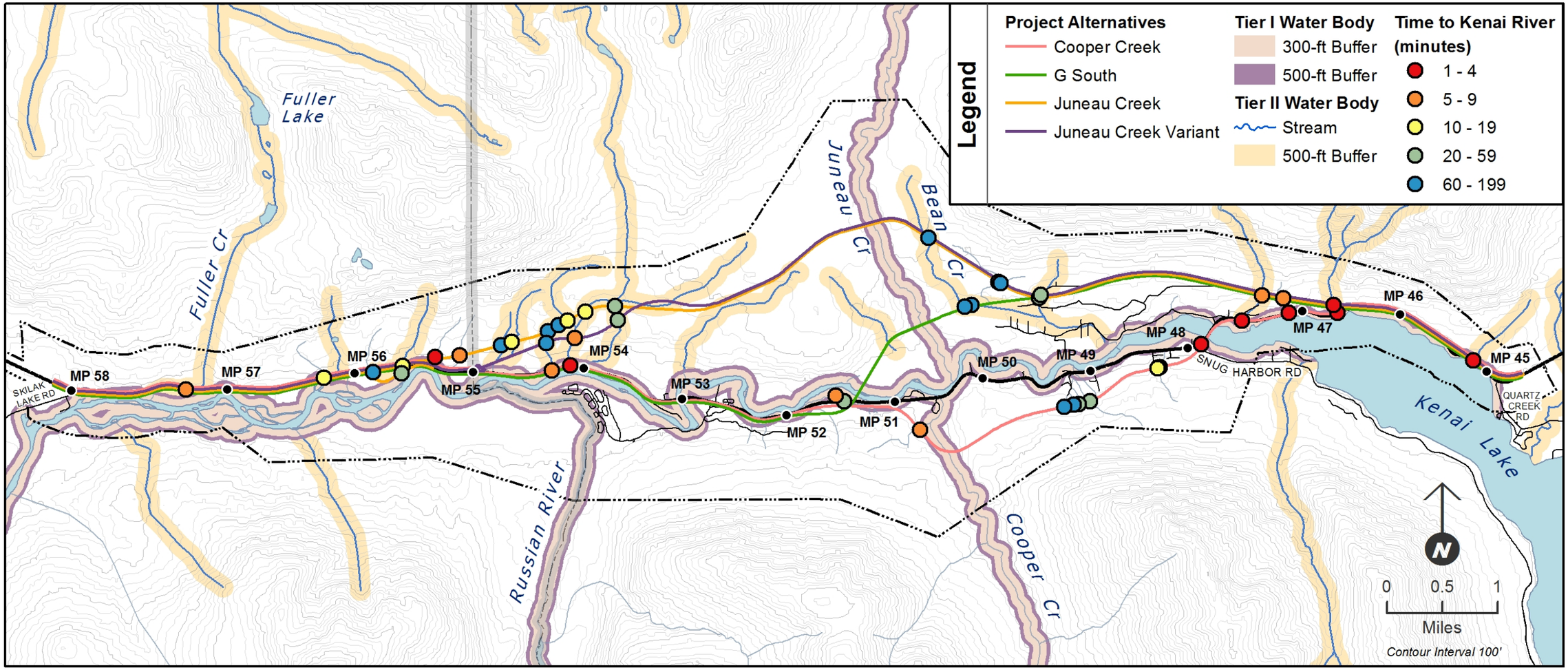

Map 3.17-2. Highway alternatives with proximity to streams and flow times to Kenai River [Updated]

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