# Eighteen Mile Creek Superfund Site
# Operable Unit 4
# Niagara County, New York

July 2018

## EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies the remedial alternatives considered to address contaminated soil at residential properties in the vicinity of the former Flintkote Plant (Flintkote) property at the Eighteen Mile Creek Superfund Site (Site) in the City of Lockport, New York, and identifies the preferred remedial alternative with the rationale for this preference.

This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), the lead agency, in consultation with the New York State Department of Environmental Conservation (NYSDEC), the support agency. EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also known as Superfund), as amended, and Section 300.430(f) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The purpose of this Proposed Plan is to inform the public of EPA's preferred remedy and to solicit public comments pertaining to all of the remedial alternatives evaluated, including the preferred alternative. The preferred alternative calls for the excavation and off-Site disposal of lead-contaminated soils at certain residential properties in the vicinity of the Flintkote property.

EPA may modify the preferred alternative or select another response action presented in this Proposed Plan if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken all public comments into consideration.

The nature and extent of soil contamination at these residential properties is described on page 3 of this proposed Plan, and in EPA's Remedial Investigation (RI) Report, dated July 2018. The remedial alternatives summarized in this plan are described in EPA's Focused Feasibility Study (FFS) Report, dated July 2018. The RI, FFS, and other Site-related documents are included in the Administrative Record file of this action, which is available at the Public Information Repositories and online (See the "Public Information Repositories" box on page 2). EPA encourages the public to review these documents to gain a more comprehensive understanding of the Site and the Superfund activities that have been conducted.

**MARK YOUR CALENDAR**

PUBLIC COMMENT PERIOD:

**July 28, 2018 to August 27, 2018**
EPA will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING:

**August 16, 2018 at 7:00 pm**
EPA will hold a public meeting to explain the Proposed Plan. Oral and written comments will be accepted at the meeting. The meeting will be held at the 4-H Training Center, Niagara County Fairgrounds, 4487 Lake Avenue, Lockport, NY.

## COMMUNITY ROLE IN SELECTION PROCESS

EPA relies on public input to ensure the concerns of the community are considered in selecting an effective remedy for each Superfund site. The public is encouraged to review this Proposed Plan and submit comments during the 30-day public comment period, which begins on July 28, 2018 and ends on August 27, 2018.

A public meeting will be held on August 16, 2018 to present the conclusions of the RI/FS, elaborate further on the reasons for recommending the preferred alternative, and receive public comments (see the "Mark Your Calendar" box above).

Comments received at the public meeting, as well as written comments received during the public comment period, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), where EPA responds to significant comments. The ROD is a document that formalizes the selection of the remedy.

Written comments on the Proposed Plan should be addressed to:

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**PUBLIC INFORMATION REPOSITORIES**

Copies of the Proposed Plan and supporting documentation are available at the following information repositories:

**Lockport Public Library**
23 East Avenue
Lockport, New York 14094
Telephone: (716) 433-5935

**Newfane Public Library**
2761 Maple Avenue
Newfane, New York 14108
Telephone: (716) 778-9344

**USEPA – Region II**
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007-1866
(212) 637-4308
Hours: Monday – Friday: 9 AM to 5 PM

EPA's website for the Eighteen Mile Creek Site:
www.epa.gov/superfund/eighteenmile-creek

## SCOPE AND ROLE OF ACTION

Site remediation activities are sometimes separated into different phases, or Operable Units (OUs), so that remediation of different aspects of a site can proceed separately, resulting in a more efficient and expeditious cleanup of the entire site. EPA is addressing the Eighteen Mile Creek Site in four OUs.

This Proposed Plan is related to OU4, which addresses lead-contaminated soil at certain residential properties on Mill Street and several other adjoining residential streets east of the Flintkote property in the City of Lockport, New York. A Site location map is provided as Figure 1 and an overview of the OU4 area is provided as Figure 2.

The number of affected residential properties referenced in this Proposed Plan is an estimate used to calculate the approximate costs of the cleanup alternatives. The exact number of residential properties to be remediated will be determined based upon the results of additional soil sampling conducted by EPA in June 2018 and any additional investigations conducted during the remedial design. A minimum of 26 properties will be remediated under this OU.

OU1 addressed the risks associated with the residential soil contamination at nine residential properties located on Water Street and the threats posed from the deteriorating Flintkote Plant building. In September 2013, EPA issued a ROD for OU1. As part of EPA's selected remedy, residents on Water Street were permanently relocated due to the impact of recurring flooding of polychlorinated biphenyl (PCB) contaminated water and sediments from the Creek. Following the relocation, the structures at the OU1 properties were demolished. The buildings at the Flintkote property were also demolished. As indicated in the OU1 ROD, the portion of that remedial action involving the soil excavation at the nine residential properties will be performed during cleanup of the sediments in the Creek Corridor (which is part of OU2, as discussed below) to prevent the sediment and soil in the Creek from recontaminating the above-referenced residential properties.

OU2 addresses the contaminated soil at the following adjacent properties: the Flintkote property, Upson Park, the White Transportation property, and the former United Paperboard Company property. OU2 also addresses contaminated sediment within the discrete segment of the Creek, commonly referred to as the Creek Corridor, which is the approximately 4,000-foot segment of Eighteen Mile Creek (Creek) that extends from the New York State Barge Canal (Canal) to Harwood Street in the City of Lockport. An overview of the Creek Corridor is provided as Figure 1. EPA issued a ROD for OU2 in 2017, which includes bank-to-bank excavation of sediment in the Creek Corridor, and a combination of soil excavation and capping at the upland properties. The implementation of this remedy is currently in the design phase.

OU3 addresses the groundwater within the Creek Corridor, as well as contaminated sediments in the Creek that are not addressed by OU2, extending from Harwood Street to the mouth of the Creek where it discharges into Lake Ontario in Olcott, New York. EPA is currently performing the remedial investigation and feasibility study for this OU.

## SITE BACKGROUND

Site Description

The Site is in Niagara County, New York, and includes contaminated sediments, soil, and groundwater in and

around the Creek.

The headwaters of the Creek consist of an East and West Branch which begin immediately north of the Canal. Water from the Creek's East Branch originates at the spillway on the south side of the Canal, where it is directed northward underneath the Canal and the Mill Street Bridge through a culvert. Water from the West Branch originates from the dry dock on the north side of the Canal and then flows northward. The East and West Branches converge just south of Clinton Street in Lockport and then the Creek flows north for approximately 15 miles and discharges to Lake Ontario in Olcott, New York.

Site Geology

The topsoil at the residential properties is described as a dark brown silty soil with varying amounts of natural organic matter. Some of the topsoil also contains varying amounts of fill that consists of ash, glass, coal, slag, concrete and brick. Glacially deposited native soil in the area consists of fine grained silts. Clays underlie the fill in most areas, followed by bedrock.

Site History

The Creek Corridor has a long history of industrial use dating back to the 19th Century when it was used as a source of hydropower.

The Flintkote property is approximately six acres in size and consists of two adjoining parcels at 198 and 300 Mill Street. The Flintkote property housed many different operations, beginning as a sawmill in the early 1830s. In 1884, the Lockport Paper Company was established at the property. In 1928, the Beckman Dawson Roofing Company purchased the property and began manufacturing felt and felt products. In 1935, the Flintkote Company began production of sound-deadening and tufting felt for installation and use in automobiles. Manufacturing of this product line continued until December 1971, when operations ceased and the plant closed. The disposal history of the site is largely unknown. However, aerial photographs suggest that by 1938, fill was disposed in the section of 300 Mill Street between the Creek and the Millrace in an area known as the Island. The nature of the fill material at that time is unknown.

## SUMMARY OF PREVIOUS INVESTIGATIONS

In March 2013, EPA initiated an RI at residential properties on Water Street (OU1) to supplement an investigation performed by NYSDEC. As part of EPA's OU1 investigation, five additional surface soil samples were collected in the public rights-of-way along Mill Street opposite of the Flintkote property. Analytical results of these five soil samples did not reveal elevated levels of PCBs, a contaminant of concern at the former Flintkote Plant property. However, lead was detected in all five Mill Street soil samples, and two out of the five Mill Street soil samples revealed levels of lead ranging from 420 parts per million (ppm) to 470 ppm.

In June 2013, EPA conducted a second sampling event at the two properties with elevated lead levels to further evaluate the lead concentrations in soil at these properties. The results of the June 2013 sampling showed the average concentration of lead in the surface soil at one of the properties exceeded 400 ppm, which was the risk-based screening level for lead in residential soil at the time. In September 2013, EPA issued a Record of Decision to address nine residential properties along Water Street while indicating there was a need for further evaluation of the Mill Street soil sampling results.

## RESULTS OF EPA's OU4 REMEDIAL INVESTIGATION

In 2016, in order to determine if the lead found in the soil samples from the previous investigation was related to the Site, additional samples were collected at the Mill Street properties and the Flintkote property to perform a comparative forensic evaluation. The results of the analysis confirmed that the contaminated soil found on the Mill Street residential properties was related to the Flintkote property. However, an evaluation of historical aerial photographs of the OU4 area did not reveal evidence of historical fill from the Flintkote property being deposited at the residential properties.

Using a phased approach, EPA conducted three separate residential soil sampling events in July, September, and November of 2017, totaling 27 properties. EPA issued the RI Report for OU4 in July 2018, which provides the analytical results of soil sampling conducted in 2016 and 2017 to characterize the nature and extent of contamination at this OU.

The results of the soil sampling at the residential properties showed generally shallow lead contamination at varying concentrations with no distinct pattern of distribution. The results indicated a wide range of lead concentrations from 11 ppm to 1,610 ppm, which may indicate the presence of hot spots. Many of the properties showed lead contamination in the surface soil from 0-2 inches and 2-6 inches. Most of the properties also showed elevated concentrations of lead contamination in the soil from 6-18 inches, which is indicative of fill material believed to be related to the Flintkote property.

The results of the investigation determined that lead contamination was present in soil above screening levels at 26 properties. The residents have received their results as well as information on how to reduce their potential exposure until an action is implemented. In June 2018, EPA conducted soil sampling at an additional four properties along North Adams Street to delineate the extent of contamination.

Groundwater was not evaluated as part of the OU4 RI because the contamination is primarily located in the top two feet of soil; therefore, it is assumed that there would be no impacts to groundwater.

## PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a Site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. Source material includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to ground water, surface water, or air, or acts as a source for direct exposure. Principal threat wastes are source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. There are no principal threat wastes identified at the residential properties associated with OU4.

## RISK SUMMARY

EPA conducted a baseline Human Health Risk Assessment (HHRA) as part of the OU4 RI/FS to assess Site-related cancer risks and non-cancer health hazards in the absence of any remedial action. The four-step process includes: Hazard Identification, Exposure Assessment, Toxicity Assessment, and Risk Characterization (see the "What is Human Health Risk and How is it Calculated" box on page 5).

Human Health Risk Assessment

Contaminants of Potential Concern (COPCs) were selected by comparing the maximum detected concentration of each contaminant in surface soil (0-2 feet) with federal risk-based screening values. The screening of each COPC was conducted separately for each residential property. Based on current zoning and future land use assumptions, exposure to surface soil by adults and the most sensitive population of children (0-6 years) were the receptors and media of interest considered in this risk assessment. Potential exposure routes included ingestion of, dermal contact with, and inhalation of particles from surface soil. In the HHRA, 27 exposure areas representing the individual residential properties were evaluated. Antimony, PCBs, and lead were identified as COPCs for OU4.

Lead

Potential risks and/or hazards from exposure to lead in surface soil were evaluated for child residents (0-6 years) because they represent the most sensitive individuals for lead exposure. Potential exposures to lead are evaluated based on blood lead level (PbB), which can be correlated with both exposure and adverse health effects. The Site-specific risk reduction goal is to limit the probability of a child's PbB exceeding 5 micrograms per deciliter (μg/dL) to 5% of the population or less. To predict PbB and the probability of a child's PbB exceeding 5 μg/dL, the Integrated Exposure and Uptake Biokinetic (IEUBK) model for lead was used to calculate an exposure level that satisfies the risk reduction goal by considering lead exposure, the rate it enters the body, and the metabolism and excretion of lead from the body.

The results of the risk assessment for lead using the IEUBK model show that the risks are elevated above the EPA risk reduction goal for the Site. The percentage of children with predicted PbBs greater than 5 μg/dL, ranged from 5.6% to 76.8% on the properties assessed.

PCBs and Antimony

Consistent with EPA policy and guidance, PCBs and antimony were evaluated based on the reasonable maximum exposure (RME), which is the highest exposure reasonably anticipated to occur at the Site.

Cancer risks and non-cancer hazards were calculated for the adult and child for exposure to PCBs and antimony. The HHRA results show that exposure to PCBs and antimony in surface soil for the adult/child resident is within EPA's target cancer risk range for the exposure areas. Non-cancer hazards from exposure to PCBs and antimony on the individual properties were both below the Hazard Quotient (HQ) of 1, which meets the goal of protection for non-cancer exposures for the individual chemicals. Although PCBs and antimony did not pose a risk based on HHRA calculations, it is likely that these contaminants are collocated with the lead contamination and would be removed under the preferred alternative.

Ecological Risk Assessment

The main purpose of the assessment of exposures on residential properties is for human use and activities, and thus ecological function is not considered a primary goal for the area. Further, the soils do not represent secondary

sources of contamination because contaminant migration to ecological areas of concern (the Eighteen Mile Creek) is not expected. Therefore, further assessment of ecological risk for these properties is not required.

Conclusion

The results of the HHRA indicate that lead present in surface soil at each of the targeted exposure areas could present adverse hazards to current and future residents. It is EPA's judgment that the Preferred Alternative identified in this Proposed Plan is necessary to protect public health from actual or threatened releases of hazardous substances into the environment.

## REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and site-specific risk-based levels.

The following RAOs have been established for OU4:

- Prevent potential current and future unacceptable risks to human receptors resulting from direct contact (e.g. ingestion) with contaminated soil.
- Prevent migration of site contaminants from the OU4 properties to other areas via overland flow and air dispersion.

## PRELIMINARY REMEDIATION GOALS

To achieve the RAOs, EPA has identified a soil cleanup goal, or Preliminary Remediation Goal (PRG), for contaminated soil to attain a degree of cleanup that ensures the protection of human health and the environment. The two-tiered PRG is based on the New York State's 6 NYCRR Part 375 Residential Soil Cleanup Objective for lead and EPA Region 2's lead strategy consistent with OLEM Directive 9200.2-167.[1]

[1] See Updated Scientific Considerations for Lead in Soil Cleanups, December 22, 2016 https://semspub.epa.gov/work/08/1884174.pdf

### WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED?

Human Health Risk Assessment: A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases under current- and anticipated future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure (RME) scenarios.

*Hazard Identification:* In this step, the chemicals of potential concern (COPCs) at the site in various media (*i.e.*, soil, fish, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

*Exposure Assessment:* In this step, the different exposure pathways through which people might be exposed to the contaminants in air, water, soil, etc. that were identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated fish. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" RME scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

*Toxicity Assessment:* In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other noncancer health hazards, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer risks and noncancer health hazards.

*Risk Characterization:* This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a $10^{-4}$ cancer risk means a "one-in-ten-thousand excess cancer risk;" or one additional cancer may be seen in a population of 10,000 people as a result of exposure to Site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of $10^{-4}$ to $10^{-6}$, corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For noncancer health effects, a "hazard index" (HI) is calculated. The key concept for a noncancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which noncancer health hazards are not expected to occur. The goal of protection is $10^{-6}$ for cancer risk and an HI of 1 for a noncancer health hazard. Chemicals that exceed a $10^{-4}$ cancer risk or an HI of 1 are typically those that will require remedial action at a site and are referred to as chemicals of concern, or COCs, in the final remedial decision document or the Record of Decision.

The following two-tiered PRG has been identified for OU4:

- Lead: 400 ppm
- In addition to targeting detections of lead above 400 ppm, the average soil concentration across each residential property will be at or below 200 ppm.

Impact to groundwater was not evaluated as part of the OU4 RI, but given the concentrations found and the fact that the contamination is primarily located in the top two feet of soil, EPA does not anticipate this is an issue for this OU.

## SUMMARY OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARS, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to reduce permanently and significantly the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. Section 121(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

Detailed descriptions of all the remedial alternatives for addressing the contamination associated with OU4 can be found in the FFS Report, dated July 2018. In this Proposed Plan, as discussed below, EPA has considered alternatives for soil contamination at residential properties near the Flintkote property.

The construction time for each alternative reflects only the actual time required to construct or implement the action and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure the contracts for design and construction.

On-site treatment options were not evaluated in the FFS because of the potential impracticability of performing treatment at these residential properties. These options would not be practicable because of space limitations for the placement of an on-site treatment facility and the prolonged length of time for treatment technologies to achieve remedial action objectives for the COPCs.

### Alternative 1: No Action

The NCP requires that a "No Action" alternative be developed and considered as a baseline for comparing other remedial alternatives. Under this alternative, no action would be taken to remediate the lead contaminated soil at the residential properties. This alternative does not include any monitoring or institutional controls. Because this alternative would result in contaminants remaining at the Site that are above levels that would otherwise allow for unrestricted use and unlimited exposure, CERCLA would require that the Site be reviewed at least once every five years. If justified by the review, additional response actions may be implemented.

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| *Capital Cost:* | $0 |
| *Annual O&M Costs:* | $0 |
| *Present-Worth Cost:* | $0 |
| *Construction Time:* | Not Applicable |

### Alternative 2: Limited Soil Excavation, Soil Cover, and Institutional Controls

Under this alternative, lead-contaminated soil would be excavated at a minimum of 26 residential properties to a depth of six inches and sent for off-Site disposal. If necessary, in order to meet the requirements of the disposal facilities, treatment of the soil would be conducted at and by the approved disposal facility. Once excavation activities have been completed, a geotextile fabric layer would be placed in the excavated areas to act as a demarcation barrier, and six inches of clean top soil would be used as backfill that would be planted with native grasses, shrubs, and/or trees. Clean backfill would meet the requirements as set forth in 6 NYCRR Part 375-6.7. Additionally, EPA would require that backfill concentrations for lead be below 200 ppm. No hardscape, such as pavement or structures would be removed under this alternative.

Because contaminated soil would remain at the Site after remediation that are above levels that, if attained, would allow for unrestricted residential use, institutional controls such as land-use restrictions would need to be implemented.

The institutional controls would require maintenance of the cover material and impose restrictions on excavation of the property. In addition, deed notices would be issued stating that contaminated soil remains on the property, and that future use restrictions and maintenance requirements exist.

Depending on the results of the June 2018 sampling, this alternative may include further investigations during the remedial design to determine if additional properties require remediation. EPA has conservatively estimated that additional sampling may identify up to 12 additional affected properties that would be remediated as part of this OU.

Because this alternative would result in contaminants remaining at the Site that are above levels that would otherwise allow for unrestricted use and unlimited exposure, CERCLA requires that the Site be reviewed at least once every five years. If justified by the review, additional response actions may be implemented.

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| *Capital Cost:* | $2,956,056 |
| *Annual O&M Costs:* | $2,600 |
| *Present-Worth Cost:* | $2,958,656 |
| *Construction Time:* | 12 Months |

**Alternative 3: Excavation and Off-Site Disposal**

This alternative includes the excavation and off-Site disposal of lead contaminated soil at a minimum of 26 residential properties to a cleanup level of 400 ppm with an overall average of 200 ppm. This would allow for residential use. An estimated 14,000 cubic yards of soil would be removed under this alternative. Based on the existing data, an excavation depth of approximately one to two feet is currently anticipated for most of the properties. The excavation depth may increase if contamination is present at depths greater than anticipated. Verification samples would be collected to confirm that the all contaminated soil in excess of the preliminary remediation goal has been removed and the remedial action objectives have been met. If necessary, in order to meet the requirements of the disposal facilities, treatment of the soil would be conducted at and by the approved disposal facility. However, due to the concentrations found in the soil, it is not expected that much of the soil will require treatment. Once excavation activities have been completed, clean soil would be used as backfill and the properties would be restored, including concrete and asphalt pavement replacement. Clean backfill would meet the requirements for soil as set forth in 6 NYCRR Part 375-6.7. Additionally, EPA would require that backfill concentrations for lead are below 200 ppm. Under this alternative, institutional controls would not be necessary. This alternative includes the potential to offer residents temporary short-term relocation during the cleanup of their properties, if excavation activities significantly impact their ability to access or use their properties.

Depending on the results of the June 2018 sampling, this alternative may include further investigations during the remedial design to determine whether additional properties require remediation. EPA has conservatively estimated that the additional sampling may identify up to 12 additional affected properties that would be remediated as part of this OU.

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| *Capital Cost:* | $6,711,416 |
| *Annual O&M Costs:* | $0 |
| *Present-Worth Cost:* | $6,711,416 |
| *Construction Time:* | 12 Months |

## EVALUATION OF ALTERNATIVES

EPA uses nine criteria to evaluate the remedial alternatives individually and against each other to propose a remedy. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. A detailed description of these criteria can be found in the box on the next page, "Evaluation Criteria for Superfund Remedial Alternatives".

**Overall Protection of Human Health and the Environment**

A threshold requirement of CERCLA is that the selected remedial action be protective of human health and the environment. An alternative is protective if it reduces current and potential risk associated with each exposure pathway at a site to acceptable levels.

Alternative 1 (No Action) would not be protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated soil. Alternative 2 (Limited Action) would provide some protection to property owners/occupants from exposure to contaminated soil through a combination of the removal of contaminated soil in the top six inches, placement of clean backfill material, and institutional controls such as land-use restrictions. However, contaminated soils would remain in place above the soil cleanup goals because only the top six inches of contaminated soil would be excavated and transported off-site for proper disposal. Alternative 3 would provide the highest level of protection of human health through permanently removing the lead contaminated soil, thereby eliminating potential exposure.

**Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)**
Compliance with ARARs is the other threshold requirement for remedy selection under CERCLA.

New York State's 6 NYCRR Part 375 is an ARAR, a TBC, or an 'other guidance' to consider in addressing contaminated soil at OU4. Alternative 1 would not achieve New York State cleanup goals for soil because no measures would be implemented and contaminated soil would remain in place. Alternative 2 would prevent direct contact with lead contaminated soil exceeding the soil cleanup goal through a combination of removal and capping. Alternative 3 would prevent direct contact with lead contaminated soil exceeding the soil cleanup goal through the removal of contaminated soil exceeding the soil cleanup goal.

The Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA) are federal laws that mandate procedures for managing, treating, transporting, storing and disposing of hazardous wastes and PCBs. All portions of RCRA and TSCA that are applicable or relevant and appropriate to the proposed remedy for OU4 would be required to be met with Alternatives 2 and 3.

**Long-Term Effectiveness and Permanence**
Alternative 1 provides no reduction in risk. Alternative 2 provides long-term effectiveness through effective maintenance of the soil cover and institutional controls such as land-use restrictions. Alternative 2 would be less permanent or effective as Alternative 3 over the long term because institutional controls may not reliably reduce future health risks to property owners/occupants associated with exposure to contaminated soil. It would be difficult to maintain institutional controls as residents would have to be restrained from normal every day activities including digging gardens. Alternative 3 would be the most effective in removing long-term risks because contaminated soil would be permanently removed from the properties, and maintenance or institutional controls would not be necessary. Off-site treatment/disposal at a secure, permitted hazardous waste facility for the contaminated soil is reliable because the design of these types of facilities includes safeguards and would ensure the reliability of the technology and the security of the waste material.

**Reduction of Toxicity, Mobility, or Volume through Treatment**
Alternative 1 would not achieve any reduction in toxicity, mobility, or volume because contaminated soil would remain in place. Alternative 2 would use a combination of capping and removal to achieve a reduction in mobility, volume, and exposure to contaminants at the residential properties. The off-site treatment, when required by the disposal facility, would reduce the toxicity of the contaminated soil prior to disposal. Alternative 2 would not reduce the toxicity of the contaminants that would remain at the residential properties. Under Alternative 3, the mobility, volume, and exposure to contaminants would be reduced through the removal and disposal of the soil at an

**EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES**

**Overall Protectiveness of Human Health and the Environment** evaluates whether and how an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

**Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the Site, or whether a waiver is justified.

**Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time.

**Reduction of Toxicity, Mobility, or Volume (TMV) of Contaminants through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

**Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation.

**Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

**Cost** includes estimated capital and annual operations and maintenance costs, as well as present-worth cost. Present-worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

**State/Support Agency Acceptance** considers whether the State agrees with EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

**Community Acceptance** considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

approved off-site facility. Furthermore, off-site treatment, if required, would reduce the toxicity of the contaminated soil prior to disposal.

**Short-Term Effectiveness**
Alternative 1 would not create new adverse short-term impacts because no actions would be taken. Alternatives 2 and 3 would cause a disturbance of the surface soil, which could present short-term risk from the potential for exposure toto dust from excavation and transportation of contaminated soil. Alternative 3 presents the highest short-term risk because it involves a larger volume of contaminated soil that would be excavated and transported off-site. Alternatives 2 and 3 would also cause an increase in truck traffic, noise, and potentially dust in the surrounding community as well as potential impacts to workers during the performance of the work. These potential impacts would be related to construction activities and potential exposure to the contaminated soil being excavated and handled.

However, proven procedures including engineering controls, personal protective equipment, and safe work practices could be used to address potential impacts to workers and the community. For example, the work would be scheduled to coincide with normal working hours on week days, and no work would occur on weekends or holidays. In addition, trucking routes with the least disruption to the surrounding community would be utilized. Appropriate transportation safety measures would be required during the shipping of the contaminated material to the off-site disposal facility.

The risk of release during implementation of Alternatives 2 and 3 is principally limited to wind-blown soil transport or surface water runoff. Any potential environmental impacts associated with dust and runoff would be minimized with proper installation and implementation of dust and erosion control measures and by performing the excavation and off-site disposal with appropriate health and safety measures to limit the amount of material that may migrate to a potential receptor.

No time is required for construction of Alternative 1. Time required for implementation of Alternative 2 is estimated to take 12 months. Alternative 3 is estimated to take 12 months.

**Implementability**
Alternative 1 does not involve the application of any technology, therefore, there are no issues relating to implementation. The implementation of soil excavation and installation of a cover system for Alternative 2 would use readily available services and equipment. However, the development of protective institutional controls that would be both enforceable and acceptable to the homeowners is in question. Alternative 3 would require the implementation of technologies known to be reliable and that can be readily implemented. These approaches have been used at other sites and have been shown to be reliable and effective in addressing the excavation of contaminated soil, dust control, and property restoration.

**Cost**
The estimated capital cost, operation and maintenance (O&M), and present worth cost are discussed in detail in the FFS. The cost estimates are based on the best available information.

There is no cost associated with Alternative 1 because no activities are implemented. The present worth cost for Alternatives 2 is $2.9 million. The present worth cost for Alternative 3 is $6.7 million.

**State/Support Agency Acceptance**
NYSDEC concurs with the preferred alternative.

**Community Acceptance**
Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the Responsiveness Summary section of the Record of Decision for this OU. The Record of Decision is the document that formalizes the selection of the remedy for an OU.

## PREFERRED REMEDY AND BASIS FOR PREFERENCE

**Basis for the Remedy Preference**
Based upon an evaluation of the remedial alternatives, EPA, with the concurrence of NYSDEC, proposes Alternative 3, Excavation and Off-Site Disposal, for cleaning up lead-contaminated soil at residential properties in the vicinity of the Flintkote property. The preferred alternative has the following key components: excavation of lead-contaminated soil above PRGs, off-Site disposal (with treatment, if required), and property restoration. This alternative has the estimated present worth of $6.7 million.

Although the present worth cost associated with Alternative 3 is significantly more than Alternative 2, Alternative 3 is preferred because it is expected to achieve permanent risk reduction through excavation and off-Site disposal of lead-contaminated soil, and it is expected to allow the properties to be used for the reasonably anticipated future land use, which is residential. Alternative 3 is preferred because it reduces the risk within a reasonable time frame and provides for long-term and reliability of the remedy.

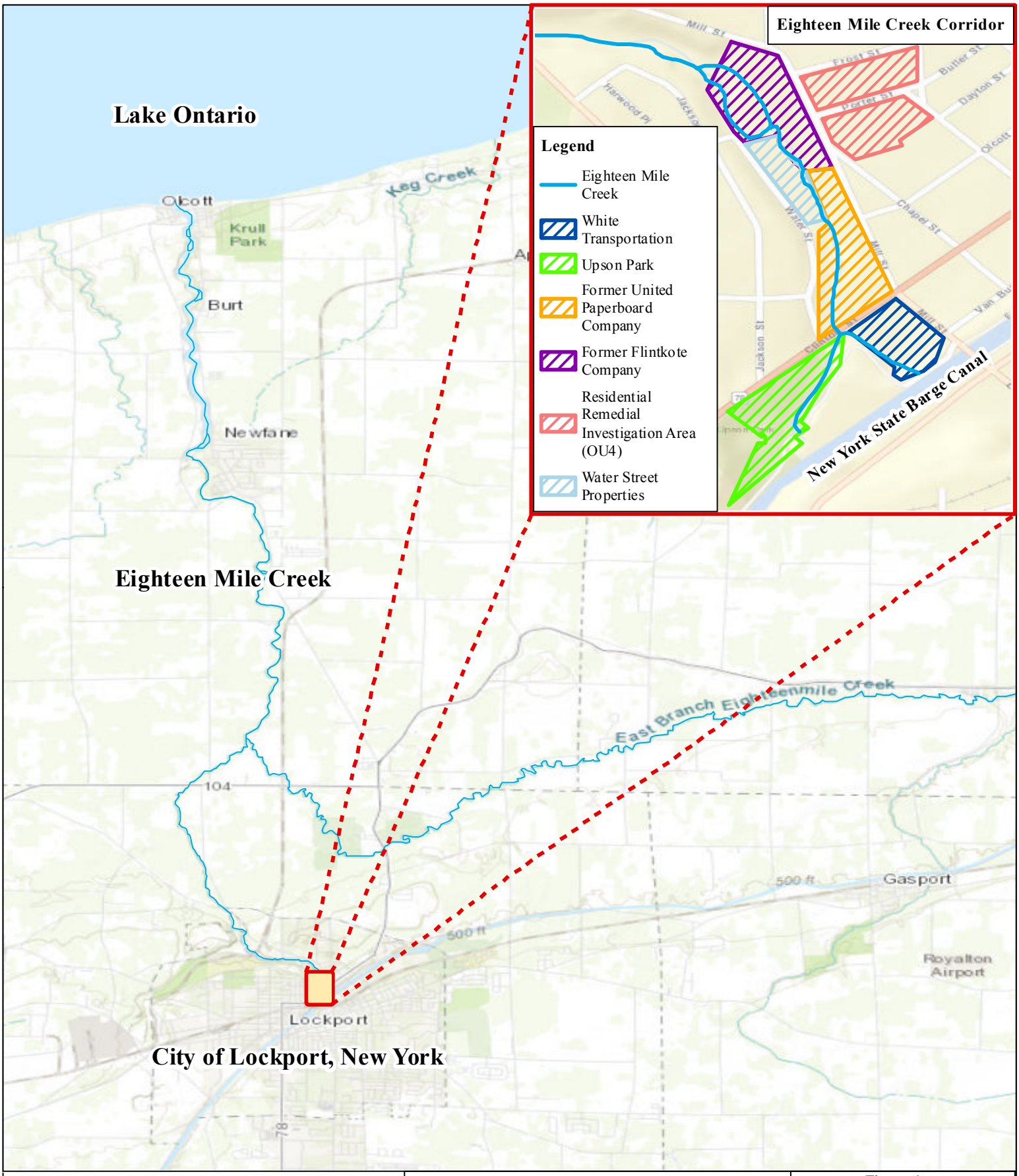
The exact number of residential properties to be remediated will be determined upon completion of additional soil sampling during the remedial design, which is expected to take approximately 1 year.

Based upon the information currently available, EPA believes the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing criteria. EPA expects the preferred alternative to satisfy the following statutory requirements of Section 121(b) of CERCLA: 1) it is protective of human health and the environment; 2) it complies with ARARs; 3) it is cost effective; and 4) it utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The preferred alternative would be readily implementable using technologies proven to be effective at other similar sites. The short-term effects of the preferred alternative include potential impacts to workers and the surrounding community, but these could be mitigated using the appropriate health and safety measures. The cost for the preferred alternative is $6.7 million.

The preferred alternative may satisfy the preference for treatment, since, if necessary, in order to meet the requirements of the disposal facilities, some of the contaminated soil would be treated prior to land disposal. The environmental benefits of the preferred alternative may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with the both the EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[2] This would include consideration of green remediation technologies and practices.

With respect to the two modifying criteria of the comparative analysis, state acceptance and community acceptance, NYSDEC concurs with the preferred alternative, and community acceptance will be evaluated upon the close of the public comment period.

[2] See http://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf




**Legend**

Eighteen Mile Creek Corridor

Eighteen Mile Creek

0 0.5 1 2 3 4 Miles

N

**Weston Solutions, Inc.**
**East Division**

In Association With
Scientific and Environmental Associates, Inc.,
Environmental Compliance Consultants, Inc.,
Avatar Environmental, LLC, On-Site Environmental,
Inc. and Sovereign Consulting, Inc

**Figure 1:**
**Site Location Map**

Eighteen Mile Creek Site
Niagara County, New York

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL SUPPORT TEAM 3
CONTRACT # EP-S2-14-01

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|---|---|
| GIS ANALYST: | M. MANNINO |
| EPA OSC: | T. KISH |
| RST SPM: | M. GARIBALDI |
| FILENAME: | 180517_UPDATEDSLM.MXD |

DATE MODIFIED: 7/25/2018

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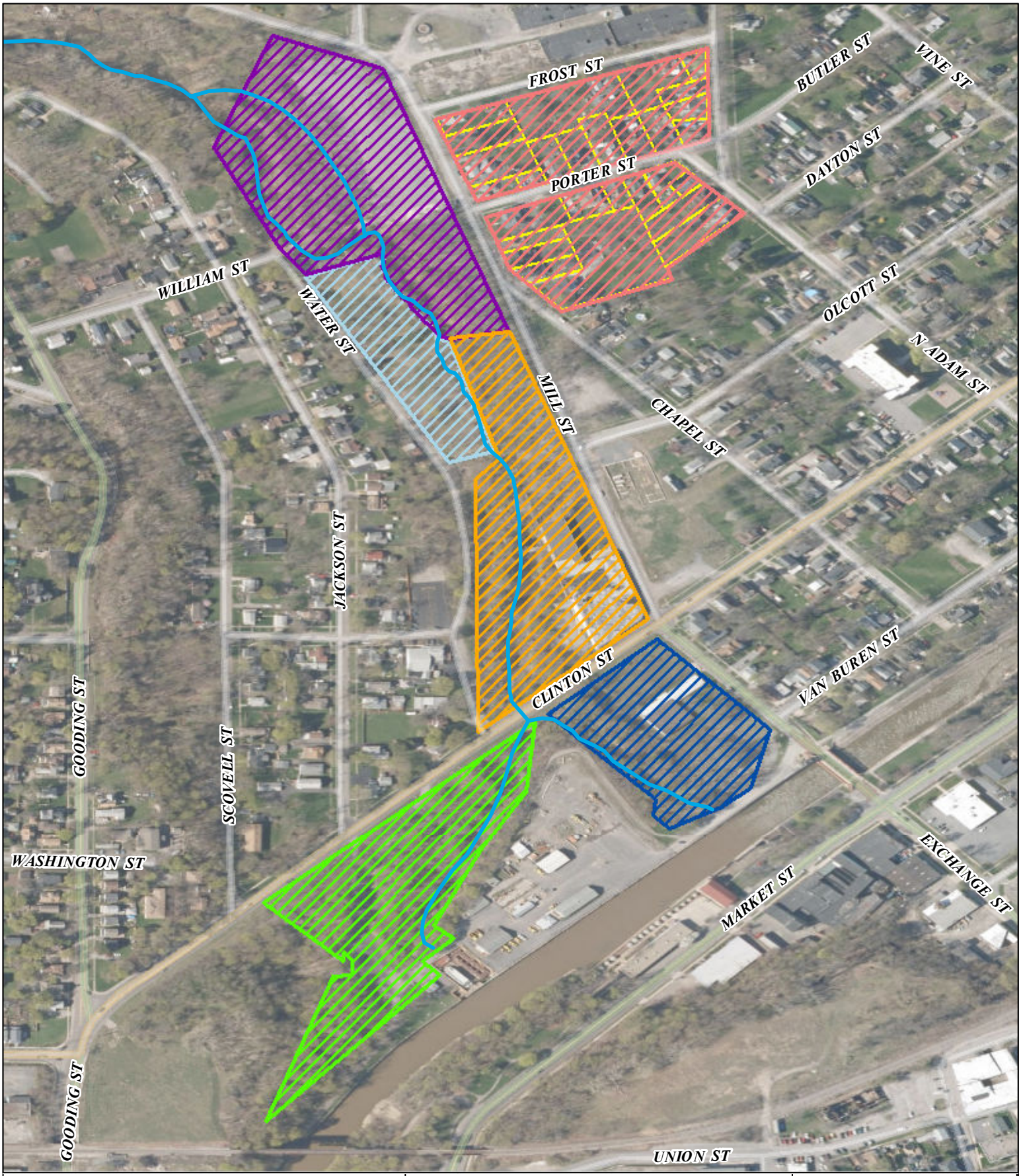


**Legend**

- Eighteen Mile Creek
- White Transportation
- Upson Park
- Former United Paperboard Company
- Former Flintkote Company
- Residential Remedial Investigation Area (OU4)
- Water Street Properties
- Parcel Boundaries

0 0.025 0.05 0.1 0.15 0.2 Miles

N

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**Figure 2: Eighteen Mile Creek Corridor Overview**

Eighteen Mile Creek Site
Niagara County, New York

U.S. ENVIRONMENTAL PROTECTION AGENCY
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