

Analysis of Brownfields Cleanup Alternatives – Preliminary Evaluation
West Fork River Trail Extension and Momentum Adventure Park
Fairmont, Marion County, West Virginia
Prepared on behalf of the City of Fairmont

I. Introduction and Background

The proposed West Fork River Trail Extension and Momentum Adventure Park (MAP) is comprised of ten parcels totaling approximately 28.83 acres. The project will involve two proposed improvement areas totaling approximately 9.88 acres as outlined below:

Proposed Improvement Areas	Parcel Name	Parcels	Parcel Size (acres)	Proposed Improvement Area Size (acres)
Momentum Adventure Park (MAP) Improvement Area	Doerfler	3-0007-0073-0000	0.99	6.41
		3-0007-0074-0004	0.60	
		3-0007-0074-0000	4.98	
	Davis Electric	3-0007-0074-0003	0.57	
		Portion of 3-0007-0074-0001	0.12 of 3.56 parcel	
	Box Factory	3-0007-0074-0005	2.41	
Trail Improvement Area	CSX Rail-Trail	3-0007-0077-0000	6.46	3.47
		3-0008-0140-0000	3.86	
	West Fork River Trail	3-0008-0023-0000	7.45	
		3-0008-0025-0000	1.39	

a) Site Location, Description, and Previous Site Use(s)

Industrialization of the area started in the early 1900s with the Monongah Glass Company and the Fairmont Box Company. The area multiple industrial buildings and railroads throughout the 1900s. Based on the historical resources reviewed, the area was developed as early as 1902; use of the surrounding area prior to 1902 is unknown. A 1902 topographic map depicts the City of Fairmont to the north with a standard city grid layout. There are small communities on both sides of the Monongahela River.

Doerfler

Parcels 3-0007-0073-0000, 3-0007-0074-0004, and 3-0007-0074-0000

The Doerfler property consists of approximately 7.26 acres of undeveloped land from an approximate western boundary near Moore Place to an eastern boundary near 12th Street in the City of Fairmont. The northern boundary of the Doerfler property loosely follows the southern terminus of the developed residential (westernmost), then commercial (eastern) area; the southern boundary of the property follows the former Baltimore and Ohio (B&O) railroad right-of-way that parallels where the Tygart and West Fork rivers confluence to become the Monongahela River.

The Doerfler property had no features noted throughout topographic mapping, limited Sanborn coverage, and no known addresses to evaluate via City Directories; however, a 1955 aerial photograph shows at least three small buildings on the Doerfler property. The subsequent series of photographs are grainy, and the buildings are no longer apparent by 1982. By the late 1990s the area surrounding the Doerfler property was generally in its current configuration. In 1997 and again in 2016, encroachment from adjacent property use is observed in photographs, at the northern boundary.

Davis Electric

Parcels 3-0007-0074-0003 and portion of 3-0007-0074-0001

Davis Electric is located at 40 12th Street and totals approximately 0.69 acres of developed land, with one vacant and dilapidated building occupying most of the parcel.

Davis Electric is north of the Monongahela River and in the southern, industrial portion of the City of Fairmont. To the north is 12th Street, followed by industrial and commercial properties (bus garage, storage units, and public works department), and residential neighborhoods beyond. East is a vacant lot (former Box Factory, demolished in 2025), former rail line, recycling center, and the terminus of the 12th Street Extension. This is followed by undeveloped woodland, extending to the abandoned rail corridor, active rail line, and Monongahela River beyond. South of Davis Electric is undeveloped woodland sloping sharply to the abandoned rail corridor and the Monongahela River. To the west is Valley Distributing (beer distributor), Minor Avenue and 14th Street, a community playing field/swimming pool complex, and residential neighborhoods.

The current structure is a two-story industrial building with a basement, built in the 1920s. The building, which is vacant and in poor condition, comprises most of the parcel. Total area of the building is reported to be 22,104 square feet. Based on the historical resources reviewed, the property was developed in the first Sanborn map (from 1906) with a rail spur traveling along the western boundary, and three smaller buildings associated with the Monongah Glass Company along the rail line. The contents of the small buildings could not be identified. By the 1950s, the Central Repair Company is located on the property, replaced by the West Virginia Armature Company in 1968.

Box Factory

Parcel 3-0007-0074-0005

The Box Factory is located at 5 12th Street and totals approximately 2.41 acres of land. The Box Factory is located north of the Monongahela River and in the southern, industrial portion of the City of Fairmont. The general area is set up in an urban city grid. To the north is 12th Street, followed by industrial and commercial properties (recycling center, storage units, bus garage) and residential neighborhoods beyond. East is the terminus of the 12th Street Extension, at which is the driving entrance to the recycling facility adjacent; this is followed by undeveloped woodland, extending to the abandoned rail corridor, active rail line, and Monongahela River beyond. South is undeveloped woodland sloping sharply to the abandoned rail corridor and the Monongahela River. To the west is an abandoned former industrial building (Davis Electric), Valley Distributing (beer distributor), Minor Avenue and 14th Street, a community playing field/swimming pool complex, and residential neighborhoods.

The Box Factory is fenced but accessible via a gated driveway coming from 12th Street. The building was demolished in 2025.

The parcel was originally developed in the 1910s as the Monongah Glass Company. Starting in the 1920s, the parcel density gradually increased, and the Monongah Glass Company was replaced by the Fairmont Box Company (owned by Beech-Nut Life Savers Inc.). In 1970 the factory was purchased by the employees, who operated it until 1978; at that point PSI (acronym undefined) purchased and ran the factory until its closure in 1980.

CSX Rail-Trail

Parcels 3-0007-0077-0000 and 3-0008-0140-0000

The CSX Rail-Trail is located perpendicular to the West Fork River and the Monongahela River in the City of Fairmont. The parcels total approximately 10.32 acres of undeveloped land. Portions of the parcels are separated from the riverbank by privately owned properties.

The CSX Rail-Trail is currently vacant and wooded, with an overgrown pathway that loosely follows the historic rail line right-of-way. The westernmost extent is accessible off a rough access road declining southwest from Industrial Contracting Road. The Property then follows West Fork River eastward and then the Monongahela River, with a flat area cut into the hillside, which drops off steeply towards the riverbank. This flattened area was historically the rail line for the B&O Railroad.

West Fork River Trail

Parcels 3-0008-0023-0000 and 3-0008-0025-0000

The West Fork River Trail (WFRT) is located along Industrial Contracting Road which runs parallel to the West Fork River. The parcels total approximately 8.84 acres and is surrounded by vacant land with interspersed residential properties to the north, east, and west.

The WFRT is currently vacant and wooded, with a moderate and variable grade sloping south towards the river.

The WFRT is bisected by Industrial Contracting Road which had been a B&O rail line through the 1980s. The WFRT has been utilized for refuse dumping and burning. Overgrown vehicle parts and construction materials (brick, block, shingles, wood, etc.) throughout parcel 24-03-0008-0023-0000 confirm this historic use.

b) Parcel Ownership

The City of Fairmont is the owner of the parcels and is working with stakeholders to restore and renovate the area into the West Fork River Trail Extension and Momentum Adventure Park. The goal is to help revitalize the City of Fairmont by providing new recreational space.

c) Forecasted Climate Conditions

According to the US Global Change Research Program (USGCRP), climate trends for the northeast region of the United States include:

- increased temperatures,
- increased precipitation with greater variability,
- increased extreme precipitation events, and
- rises in sea level.

Some of these factors, most specifically increased precipitation that may affect storm water runoff and flooding potential, are applicable to the cleanup of the site. According to Climate Mapping for Resilience and Adaptation (CMRA) Assessment Tool, climate projections for this area are anticipated to include increased instances of high temperatures (30-34 days per year above 95 °F) and decreased instances of low temperatures (15-16 days per year with temperatures remaining below 32 °F).

d) Any Previous Cleanup/Remediation

There have been no previous site cleanups or remediation on any of the parcels.

II. Site Assessment Findings

Site assessment and findings are below, separated for Doerfler, Davis Electric, Box Factory, CSX Rail Trail, and West Fork River Trail. The results are presented as they apply to the types of users involved in the proposed site development (recreational users, industrial/construction/indoor workers); any residential user implications have been removed as this is not the proposed use.

a) Doerfler

2009 Phase I (Burgess and Niple)

The Phase I ESA identified the following RECs:

- The property is in a historically industrialized area with a long history of glassmaking and other types of manufacturing dating back to the early 1900s. Although the property itself has

remained largely undeveloped, it is located adjacent to and has had common ownership with the former Monongah Glass Company and Fairmont Box Factory operations.

- Unauthorized dumping has occurred on the property. Dumped items principally consist of used tires, discarded household items, scrap wood, concrete pipe, cinder blocks, and similar debris; however, empty drums, totes, paint cans, and other containers which may have contained hazardous substances or petroleum products were observed among the debris. Discarded equipment, debris, and unidentified containers were also observed in the ruined brick outbuildings located on the property. A water-filled pit with steps was observed in one of the ruined outbuildings.
- Fill has been placed on the property in a cleared field near the intersection of 14th Street and Minor Avenue. The origin of the fill was from construction of the West Fairmont Middle School at 110 10th Street on a historically industrialized on the property. No sampling data for the fill material was provided or discovered during the Phase I ESA.

2010 Phase II ESA (Burgess and Niple)

The Limited Phase II ESA divided areas of concern into four RECs: historical operations (REC-1), dumping on the western parcel (REC-2), dumping on the northeastern portion of the property (REC-3), and fill material at 14th Street and Minor (REC-4). Contaminants of potential concern (COPCs) included in testing were volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals, and total petroleum hydrocarbons (TPH).

The following sampling was proposed, per REC:

- REC-1: Six soil borings adjacent to the former Box Factory with eight total soil samples, three groundwater samples, and one surface water sample.
- REC-2: Two hand auger locations on the "western parcel" with two total soil samples.
- REC-3: Two hand auger locations on the "eastern parcel" with two total soil samples.
- REC-4: Two soil borings in the fill area along Minor Avenue, with three total soil samples and one groundwater sample.

The eight soil boring, four hand auger, and one groundwater screening sample were completed during this investigation. The groundwater screening sample was collected from soil boring SB-1 (in the REC-1 area), which was developed as a temporary well. Groundwater was encountered in four of the eight soil borings, at depths ranging from 2 to 20.5 feet below ground surface (bgs).

The water filled pit in a ruined brick outbuilding in REC-1 could not be located and was not sampled.

The analytical data was compared to the risk-based concentrations (RBCs) on Table 60-3B of 60 CSR, current as of March 2010.

It should be noted that recreational standards were not implemented in 2010 and were not part of the comparison used to reach subsequent Phase II ESA conclusions. Additionally, the laboratory reports from the 2010 Phase II ESA were not available for review.

- **REC-1**

- Soil

- Arsenic was detected in each of the soil samples collected at concentrations above the RBC for residential land use. No metals were detected at concentrations greater than the West Virginia Department of Environmental Protection (WVDEP) Voluntary Remediation Program (VRP) De Minimis RBC for industrial land use.
 - Trichloroethene (TCE), a VOC, was detected in two of the eight soil samples collected at concentrations above the RBC for residential land use, but below the RBC for industrial land use.
 - Benzo(a)pyrene was detected in two soil samples at concentrations greater than the WVDEP VRP De Minimis RBC for residential land use.
 - Concentrations of benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected in one soil sample at concentrations greater than the WVDEP VRP De Minimis RBC for residential land use.
 - PCBs and TPH were below standards and/or laboratory detection limits in all soil samples.

- Groundwater

- Concentrations of the VOCs 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethene (1,1-DCE), and TCE exceeded their applicable groundwater standards.
 - Metals, PAHs, and PCBs were below standards and/or laboratory detection limits in the groundwater sample.

- **REC-2**

- Arsenic was detected in the samples at concentrations above the RBC for residential land use.
 - Benzo(a)pyrene was detected in one of the two soil samples at a concentration greater than the WVDEP VRP De Minimis RBC for residential land use but below the respective industrial standard.
 - VOCs and TPH were below standards and/or laboratory detection limits.

- **REC-3**

- Lead was detected in one of the two samples collected, at a concentration above the RBCs for industrial and residential land use.
 - Arsenic was detected in both samples at concentrations above the RBC for residential land use.
 - Benzo(a)pyrene was detected in both soil samples at concentrations greater than the WVDEP VRP De Minimis RBC for residential land use, but below the respective industrial standard.
 - Dibenz(a,h)anthracene was detected in one of the two soil samples collected at a concentration greater than the WVDEP VRP De Minimis RBC for residential land use but below the respective industrial standard.
 - VOCs and TPH were below standards and/or laboratory detection limits.

- **REC-4**

- Arsenic was detected in the three soil samples collected at concentrations above the RBC for residential land use.
- Benzo(a)pyrene was detected in one of the three soil samples collected at a concentration greater than the WVDEP VRP De Minimis RBC for residential land use but below the respective industrial standard.
- VOCs were below standards and/or laboratory detection limits.

Based on sampling results the following conclusions were made:

- One soil sample collected in REC-3 (eastern parcel; dumping) exceeded the WVDEP RBC for lead in industrial soils. Calculations were completed to determine site-specific cleanup levels for the construction/excavation and commercial/industrial scenarios. The soil lead cleanup values for the construction/excavation and commercial/industrial scenarios for REC-3 were determined to be 1,344 milligrams per kilogram (mg/kg) and 2,903 mg/kg, respectively. The maximum soil concentration for REC-3 is 1,160 mg/kg. Therefore, the lead concentration present in the soil in REC-3 was below the calculated site-specific clean-up value and may remain in place. This deduction is applicable in the instance of an industrial use.
- Concentrations of several VOCs in the groundwater screening sample collected from a temporary monitoring well exceeded the respective WVDEP RBC for groundwater.
- Concentrations of several COPCs were detected that exceeded the WVDEP RBC for residential land use. Therefore, in the event the plans for future land use change, additional assessment may be required to determine if the COPCs present in property soils represent a risk to potential receptors.

Due to the detection of VOCs above the applicable standards in the groundwater screening sample, it was recommended that additional investigation be completed including, but not limited to, the installation of additional soil borings and permanent monitoring wells to properly delineate potential source areas and the extent of impacts. Furthermore, a risk evaluation was recommended.

2023 Phase I ESA (Montrose)

The 2023 Phase I ESA identified the following RECs:

Historical Industrial Use

- The property is in a historically industrialized area with a long history of glassmaking and other types of manufacturing dating back to the early 1900s, as well as a rail line and rail spur on or adjacent to the property. The property is adjacent to and has had common ownership with the former Monongah Glass Company and Fairmont Box Factory operations. A Phase II ESA completed in 2010 confirmed contamination at the property associated with area-wide historical industrial activity.

Unauthorized Dumping

- Unauthorized dumping has occurred on the property, and there is current evidence of adjacent landscaping service encroaching with both materials and material dumping over the hillside. Dumped items principally consist of used tires, discarded household items, scrap wood, organic material, concrete pipe, cinder blocks, and similar debris; however, containers which may have contained hazardous substances or petroleum products were observed among the debris. A Phase II ESA completed in 2010 (described above) confirmed contamination at Doerfler associated with unauthorized dumping activity.

Undocumented Fill

- Fill material has been placed on the property in a cleared field near the intersection of 14th Street and Minor Avenue. The fill was obtained from construction of the West Fairmont Middle School at 110 10th Street, a historically industrialized property. No sampling data for the fill material was provided or discovered during the 2009 Phase I ESA. A Phase II ESA completed in 2010 confirmed contamination at Doerfler associated with undocumented fill material.

Montrose was unable to compare the 2010 sampling data to current industrial, recreational and residential receptor RBCs.

2025 Phase II ESA (Montrose)

The 2025 Phase II ESA site assessment work included the collection of samples from the following media:

- Eight surface soil samples; six in the proposed trail area, and two in the area of reported historic fill.
- Six subsurface soil samples, co-located with the six surface soil sample locations associated with the proposed trail.

Additional subsurface soil from each of the eight locations was collected and leached using synthetic precipitation leaching procedure (SPLP) methodology by a West Virginia-certified laboratory. The soil leachates (an aqueous) were then analyzed, and the results directly compared to the groundwater De Minimis RBCs as a conservative approximation of migration to groundwater potential.

Samples were laboratory analyzed for the following:

- VOCs in subsurface soil and SPLP
- PCBs in surface soil, subsurface soil, and SPLP
- RCRA metals in surface soil, subsurface soil, and SPLP
- PAHs (via SIM) in surface soil, subsurface soil, and SPLP

As depicted in the contaminant of concern (COC) list below, surface soil, subsurface soil, and groundwater are the media that are potentially complete for receptors associated with the proposed development and use.

Doerfler COC list

Media	Construction/ Utility/ Industrial Workers*	Recreational – Trail User	Recreational – Athletic Field User	Recreational – Park User
Surface Soil	None	Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Naphthalene	Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Naphthalene	Arsenic Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene
Subsurface Soil	Arsenic Lead	Arsenic Lead Benzo(a)pyrene Naphthalene	Arsenic Lead Benzo(a)pyrene	Arsenic Lead
Ground Water	Arsenic Lead Benzo(a)anthracene Dibenz(a,h)anthracene			
Vapor	None	NA	NA	NA

NA= Vapor Intrusion Screening Level (VISL) standard does not exist for recreational uses

*Industrial RBCs also apply to trespasser and visitor risks

b) Davis Electric

2025 Phase I (Montrose)

The Phase I ESA identified the following RECs:

- Historical Railroad Use - Rail lines historically bordered the property to the east and west in the early 1900s. Railroad use may contribute to soil contamination from creosote treated railroad ties, herbicide application, and spills. The presence of rail lines on the property constitutes a REC.
- PCB Containing Equipment - Several transformers were noted on the third floor of the building. One transformer had noticeably spilled contents and formed a sticky tar like substance on the floor. Its sweet smell could indicate PCB containing oil. The presence of PCB oil-containing equipment, and the likely historic presence of more such equipment, is a REC.
- Drum and Container Storage - Numerous drums were identified throughout the subject property. The presence of these drums, their known and unknown contents, and their potential to have leaked, is a REC.

- Area-Wide Historic Industrial Use - The property is in a historically industrialized area with a long history of glassmaking and other types of manufacturing dating back to the 1910s and 1920s. These area-wide industrial uses, as well as those known to be associated specifically with the property, are RECs.
- Potential for Vapor Encroachment (PVEC) - The records review for the established radii revealed that the subject property has a potential for vapor encroachment. Migration of VOCs is a REC.

2025 Hazardous Materials Survey (Boggs Environmental Consulting)

Montrose subcontractor Boggs Environmental Consulting (BEC) evaluated for the presence of asbestos containing material (ACM), lead based paint (LBP), and hazardous materials at 40 12th Street.

- **ACM** - Materials containing ACM were identified in 2nd floor window glazing.
- **LBP** - Building component waste does not meet the definition of lead hazardous waste and may undergo disposal as general construction debris and/or recycling.
- **PCBs, Mercury, Petroleum, & Hazardous Materials Screen** - "Hazardous Materials" or "Substances of Environmental Concerns" have been identified to be present at the property:
 - Fluorescent light tubes
 - Fluorescent light ballasts
 - Fire extinguishers
 - Used motor oil
 - Hydraulic oil
 - Transformer
 - Degreaser/Cleaner
 - 55-gallon drums
 - Computer processing unit
 - Monitor
 - Thermostat

2025 Waste Survey (Miller Environmental)

Miller Environmental (Miller) was contracted by Montrose to conduct a container/drum survey on the property. Miller identified various containers, transformers, and an ash pile of concern.

2025 Phase II ESA (Montrose)

The 2025 Phase II ESA included the collection of samples from the following media:

- Six surface soil samples
- Six subsurface soil samples
- Six SPLP samples co-located with subsurface soil samples.

- Thirteen PCB wipe samples inside the building

Samples were laboratory analyzed for the following:

- VOCs in subsurface soil and SPLP leachate
- RCRA metals in surface soil, subsurface soil, and SPLP leachate
- PAHs via SIM in surface soil, subsurface soil, and SPLP leachate
- PCBs in surface soil, subsurface soil, SPLP leachate, and wipe samples

As depicted in the list below, surface soil, subsurface soil, groundwater, and vapor intrusion (VI) were evaluated in terms of their risk to potential current and future site users – or receptors - of the property. Note that, in the WV VRP, Industrial RBCs apply to indoor and outdoor workers, construction workers, and utility workers, as well as to trespasser and visitor risks.

Davis Electric COC List

Media	Recreational Trail User	Recreational Park User	Construction/ Utility/ Industrial Workers
Surface Soil	Arsenic Lead Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Aroclor 1248 Aroclor 1260	Arsenic Lead Benzo(a)pyrene Benzo(b)fluoranthene Aroclor 1248 Aroclor 1260	Arsenic Aroclor 1248
Subsurface Soil	Benzo(a)pyrene Aroclor 1248	Aroclor 1248	Aroclor 1248
Groundwater VISL	None	None	None
Groundwater	Lead Naphthalene Aroclor 1242		
Porous Surface	Aroclor 1248 Aroclor 1260		

c) Box Factory

2008 Phase I ESA (Burgess and Niple)

Despite an address discrepancy, the Phase I ESA is confirmed to be the Box Factory property. The following RECs were identified:

- Past use of the property as a recycling facility. Remnants of recycling products covered all four floors of the facility, including but not limited to tires, shingles, glass, and plastic bottles. In addition, the exterior of the property was covered with tires and metal scraps.
- Past use of the property as the former box factory.
- Stressed vegetation on the north side of the property.
- Garbage bags with unidentified contents scattered throughout the building.

2024 Phase I ESA (Montrose)

The 2024 Phase I ESA included RECs as follows:

RECs:

Historical Industrial Use

- The property is in a historically industrialized area with a long history of glassmaking and other types of manufacturing dating back to the 1910s and 1920s, as well as a rail line and rail spur on - or adjacent to - the Box Factory. The property is associated with the former Monongah Glass Company and Fairmont Box factory, which had at least one hydraulic elevator within the building. There is also a reported past use as a recycling facility from the 1980s into the 1990s or 2000s. The recycling facility reportedly stored large quantities of refuse and garbage inside the building. These area-wide industrial uses, as well as those known to be associated specifically with the property, are RECs.

Open Dumping

- Unauthorized dumping has occurred on the property. Landscaping waste, cardboard, scrap wood, household waste, construction debris, tires, and five-gallon buckets were observed in a pile in the western portion of the parcel, as well as intermittently through the rest of the open space. At least one corroded drum was identified within the building, near where large quantities of what is believed to be road salt was also observed (see next REC, below). Additionally, petroleum contaminated soil, concrete washout, and an unknown sludge have been observed on the property by the WVDEP. Some of the waste was observed to have been burned. Several Notices of Violations (NOVs) were issued by the WVDEP for dumping on the property. The sludge dumping was reported to the WVDEP in November 2023, regarding a tanker truck dumping unknown liquid material onto the property. A WVDEP inspector investigated and observed sludge dumped on the ground in two separate piles. A follow up visit conducted by the WVDEP revealed one of the piles of sludge had partially been covered by topsoil and concrete fill. This resulted in NOV# SW23-24-045-RNW in December 2023. The historically reported dumping, as well as the currently observed dumping, constitute RECs. The unaddressed NOV associated with the sludge piles is also considered part of the overall "dumping" REC.

Salt Storage

- Salt stored in the southern portion of the building on the first floor. The property received NOVs for the salt piles on several occasions- associated with its industrial stormwater discharge permit and improper storage. Salt was able to escape from the salt building during loading/unloading activities and had a potential to contaminate the soil. At the time of Montrose's site inspection in July 2024, this NOV had not been addressed. This uncovered salt pile, which according to National Pollutant Discharge Elimination System (NPDES) records discharges into the Monongahela River, is a REC. The unaddressed NOVs associated with the salt pile are also RECs.

Petroleum Staining

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- Soil staining was identified during an August 2023 WVDEP site inspection. The staining was reportedly west of the building, near the dumping area. During the 2024 Phase I ESA, exposed soil in the western portion of the parcel was observed to have discoloration and staining, similar to that noted in August 2023 by WVDEP. This unaddressed and persistent petroleum soil staining is a REC.

PVEC:

- A 2010 Phase II ESA for 12th Street and Minor Avenue, immediately adjacent to the property, reported VOCs in groundwater. Migration of VOCs via the groundwater pathway to the property - and creating a PVEC - is a concern.

2025 Phase II (Montrose)

The Phase II ESA included the collection of samples from the following media:

- Eight surface soil samples
- Eight subsurface soil samples, co-located with the surface soil samples

Additional subsurface soil from each of the eight locations was collected and leached using SPLP methodology.

Samples were laboratory analyzed for the following:

- VOCs in subsurface soil and SPLP
- PCBs in surface soil, subsurface soil, and SPLP
- RCRA metals in surface soil, subsurface soil, and SPLP
- PAHs (via SIM) in surface soil, subsurface soil, and SPLP

As depicted in the list below, surface soil, subsurface soil, groundwater, and VI were evaluated in terms of their risk to likely current and future users – or receptors - of the property. Note that, in the WV VRP, industrial RBCs apply indoor and outdoor workers, construction workers, and utility workers, as well as to trespasser and visitor risks.

Box Factory COC List

Media	Industrial Users	Recreational – Trail User	Recreational – Athletic Field User	Recreational – Park User
Surface Soil	Arsenic Aroclor 1248	Arsenic Lead Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Aroclor 1248	Arsenic Lead Benzo(a)pyrene Dibenz(a,h)anthracene Aroclor 1248	Arsenic Lead Benzo(a)pyrene Aroclor 1248
Subsurface Soil	Arsenic	Arsenic	Arsenic	Arsenic
Vapor	None	NA	NA	NA

Ground	Benzo(a)anthracene
Water (via SPLP)	Dibenz(a,h)anthracene Tetrachloroethene Trichloroethene

NA= Not applicable; a VISL standard does not exist for recreational uses

d) CSX Rail Trail

2022 Phase I ESA (Environmental Standards)

One REC was identified:

- A former B&O railroad line historically transected the CSX Rail Trail from as early as 1902 to 1999. The presence of the former railroad constitutes a REC due to the common use of creosote-treated lumber for railroad ties and extensive use of herbicides for vegetative control.

2022 Phase II ESA (Environmental Standards)

Based on the Phase II ESA investigations and results, Environmental Standards developed the following conclusions.

Surface Soil

Arsenic and PAHs are confirmed to be COCs in surface soils on the CSX Rail Trail.

Groundwater

Elevated concentrations of arsenic, lead, benzo[a]anthracene, and dibenz(a,h)anthracene were observed in the SPLP analysis of surface soils.

Vapor Intrusion

Volatile SPLP leachates were not detected in concentrations over VISL RBCs. Therefore, vapor intrusion is a low risk at the CSX Rail Trail.

e) West Fork River Trail (WFRT)

2021 Phase I ESA (Environmental Standards)

The Phase I ESA included parcel 3-0008-0140-0000, which is now part of parcel 3-0008-0023-0000. RECs were identified as follows:

- The former B&O railroad line crossed over the WFRT, around what is now Industrial Contracting Road. Railroad usage is a REC.
- The City reported that the WFRT was historically utilized for "refuse burning." The material types and time frame of this usage is unknown, and the presence, use, and/or burning of hazardous or petroleum-based products cannot be eliminated as a possibility. This constitutes a REC.
- Two abandoned, unlabeled above ground storage tanks (ASTs) were observed during the site reconnaissance. The presence of these ASTs, whose original contents are unknown, is a REC.

- The unnatural topography of the WFRT, including large mounds and uneven, non-native materials observed during the site reconnaissance indicates the likely presence of introduced fill materials. This material would be from an unknown source and is a REC.

2022 Phase II (Environmental Standards)

Soil, surface water, and sediment samples were analyzed for:

- VOCs in subsurface soils and SPLP
- Metals in surface soil, subsurface soil, surface water, sediment
- PAHs by medium-level methodology in surface soil, subsurface soil, surface water, sediment
- PCBs in surface soil, subsurface soil, sediment

Based on these Phase II ESA investigations and results, Environmental Standards developed the following conclusions.

Surface Soil

All surface soil samples, except SB-02(0-2), had concentrations of at least one PAH (benz[a]anthracene, benzo[b]fluoranthene, benzo[a]pyrene, and/or naphthalene) above recreational RBCs.

Therefore, PAHs are a COC in surface soils.

Subsurface Soil

Naphthalene and arsenic are COCs in subsurface soil, but only if excavation activities would cause the subsurface soil to become exposed to future residents and recreators, which is not anticipated to occur.

Surface water

No surface water near the property has been impacted by historical on-site activities.

Sediment

There are no COCs in sediment whose source can be attributed to the WFRT.

Groundwater

Groundwater monitoring wells could not be installed due to equipment limitations and subsurface conditions; therefore, potential groundwater impacts were inferred from subsurface soil concentrations and/or leachate analysis.

Elevated concentrations of arsenic and naphthalene (a PAH) observed in the subsurface soils may be indicative of potential groundwater impacts of these chemicals.

Vapor Intrusion Potential

SPLP and soil concentrations were below the vapor intrusion screening criteria, making vapor intrusion an incomplete pathway.

Ecological

The ecological pathway is potentially complete due to the potential for sediment contamination; however, any sediment contamination appears to likely be influenced by an off-site source and not attributable to the property.

f) Site Comprehensive COC List

The COC list for the entire West Fork River Trail Extension and Momentum Adventure Park is summarized below, as it applies to the types of users involved in the proposed site development (recreational users, industrial/construction/indoor workers):

- Surface Soil
 - PAHs throughout the site
 - Arsenic for all site locations except the West Fork River Trail.
 - Lead at the Box Factory and Davis Electric parcels.
 - Aroclor(1248) and Aroclor(1260) at Davis Electric and Aroclor(1248) at the Box Factory.
- Subsurface Soil
 - Arsenic for the West Fork River Trail, Box Factory, and Doerfler parcels.
 - Naphthalene for the West Fork River Trail and Doerfler parcels.
 - Benzo(a)pyrene for the Davis Electric and Doerfler parcels.
 - Dibenz(a)anthracene for the Doerfler parcel.
 - Aroclor(1248) for Davis Electric
 - Subsurface soil samples were not collected at the CSX Rail Trail
- Groundwater (assessed via SPLP)
 - Arsenic for West Fork River Trail and Doerfler parcels.
 - Lead for CSX River Trail, Davis Electric, and Doerfler parcels.
 - Benzo(a)anthracene and dibenz(a,h)anthracene for the CSX River Trail, Box Factory, and Doerfler parcels.
 - Naphthalene for the West Fork River Trail, and Davis Electric parcels.
 - Tetrachloroethene and trichloroethene for the Box Factory.
 - Aroclor(1242) for Davis Electric.
- Vapor
 - Ethylbenzene and Trichloroethene for Box Factory
- Porous Surfaces
 - Aroclor(1248) and Aroclor(1260) in the interior of the building on the Davis Electric parcel.

g) Project Goal

The City of Fairmont has acquired and assembled the parcels included in the site to build the West Fork River Rail-Trail Extension and Momentum Adventure Park. The project will involve two proposed

improvement areas: the Trail Improvement Area and the Momentum Adventure Park (MAP) Improvement Area.

Trail Improvement Area

The City intends to develop a 1.6-mile rail-trail connector that will be 10'-wide. This area will extend through the CSX Rail-Trail and West Fork River Trail Parcels from the West Fork River Trail Industrial Property gap to the west, along the West Fork River to the Doerfler and Box Factory properties on the east. There will also be a spur extending north from the West Fork River Trail to Country Club Road. The rail-trail will be bordered with low-maintenance low-grow plantings on either side, intended to keep trail users from wandering from the trail. The total 6.5-acre Trail Improvement Area, which includes portions of each of the subject parcels, will include approximately 2 acres of paved rail-trail and approximately 4.5 acres of plantings.

MAP Improvement Area

The MAP Improvement Area includes the Doerfler, Davis Electric, and Box Factory Parcels. MAP Improvement Area will be a trailhead park with a bicycle pump track, a skate park, bouldering area, multi-use sport courts, and walking paths. MAP Improvement Area is 3.5 acres and will be comprised of a total of 2 acres of paved surfaces and 1.5 acres of planted surfaces.

To develop the proposed recreational amenities for the Trail Improvement Area and MAP Improvement Area, soil contamination must be remediated or removed prior to installing recreational amenities throughout the site.

The following soil contaminants are present throughout the site:

- Metals (arsenic and lead)
- PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene)
- PCBs (Aroclor1248, and Aroclor1260)

III. Applicable Regulations and Cleanup Standards

a) Cleanup Oversight Responsibility

The cleanup will be overseen by the WVDEP Office of Environmental Remediation (OER). A West Virginia Licensed Remediation Specialist (LRS) will oversee and direct all site cleanup activities.

b) Cleanup Standards for Major Contaminants

The applicable cleanup standards will be:

- US EPA and WVDEP standards for the major contaminants
- As appropriate, WVDEP De Minimis standards for recreational soil.
- As appropriate, WVDEP De Minimis standards for groundwater.

c) Laws and Regulations Applicable to the Cleanup

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, Occupational Safety and Health Administration (OSHA) permissible exposure limits and the West Virginia Voluntary Remediation & Redevelopment Act. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will also be followed. In addition, all appropriate permits, as applicable, will be obtained prior to the work commencing.

IV. Cleanup Alternatives

a) Cleanup Alternatives Considered

The results of environmental site assessments referenced previously were used in the development of cleanup alternatives. The following cleanup alternatives were considered:

- **Alternative #1: No Action.**
- **Alternative #2: Removal and Disposal of Impacted Soils and Replacement of Clean Fill.**

Alternative #2 would require the wholesale removal and disposal of a minimum of 1 foot of surface soil covering the entire 6.5-acre Trail Improvement Area, as well as the removal of impacted subsurface soil, approximated at 14-foot depth, from the 3.5-acre MAP Improvement Area.

The removed soil would then be replaced with clean material- a minimum of 1 foot of topsoil over the entire site and clean fill material at a depth of approximately 14-feet in the targeted areas where additional soil would have been removed.

- **Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use.**

Alternative #3 would require preparing surfaces throughout the site and installing cap material over impacted areas proposed for reuse. Alternative #3 would also include institutional controls restricting groundwater use on the MAP Improvement Area.

Earthwork would be done to grade the site for proposed development areas for MAP and the trail in accordance with the grading plan, which diverts stormwater from paved surfaces onto planted surfaces and to the river or existing stormwater infrastructure.

The finished cap material that would be installed would be comprised of different surfaces based on the end use for each development area:

- Sidewalks and the future skate park will be capped with concrete,
- Parking lots, the pump track, and trails will be capped with asphalt,
- Pickleball courts will be capped with a synthetic play surface, and
- Landscape planting areas will be capped with soil.

For the purpose of this analysis, the finished surfaces of concrete, asphalt, and synthetic surface are referred more generally as “paved surfaces”.

b) Evaluation of Cleanup Alternatives

The effectiveness, the ability to implement the cleanup, and the costs of each alternative are to be considered prior to selecting a recommended cleanup alternative. The analysis for each alternative is presented below.

Effectiveness - Including Climate Change Considerations

- **Alternative #1: No Action**

Performing no action would not be effective in preventing or controlling exposure pathways to contaminants at the site and would prevent the City of Fairmont from reusing the site for the proposed recreational use.

- **Alternative #2: Removal and Disposal of Impacted Soils and Replacement of Clean Fill**

Alternative #2 will eliminate the existing exposure pathways and protect human health of future recreational/residential site users, including potential trespassers who may enter it currently.

Climate Change Considerations

The construction effort for Alternative #2 would be highly disruptive to the neighborhood, removing and replacing the soil would require sending approximately 7,000 20-ton truckloads through the mixed use residential and commercial area. This alternative would also have a large impact on local carbon emissions, as the removal of 43,000 cubic yards of soil from two locations in the Fairmont area is a very large earthwork project that will disrupt the local ecosystem and emit carbon into the environment. Furthermore, moving the material around will require fossil fuels, as well as wear and tear on the equipment and local roadways.

- **Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use.**

Alternative #3 would be effective in protecting future site users from potential exposure pathways, as all areas that are to be used by people will be covered with a pavement material or soil cap. Future site users will be deterred from venturing onto uncapped areas by low-grow plantings, shrubs, and trees which will be installed and maintained in coordination with Federal and State of WV health and safety standards.

Marion County Parks and Recreation Commission will be a site managing partner who will assist with scheduling, program support, etc.

Climate Change Considerations: Alternative #3 would be disruptive to the environment, as the topsoil covering the 10-acre site will be disturbed when it is graded and approximately 550 20-ton truck loads of topsoil is removed from the site and 550 20-ton truck loads of fill and pavement material would be transported to the site. However, while still providing an

effective remedial solution for reusing the site, Alternative #3 will have far less of a carbon footprint and disruption to local ecology than presented in Alternative #2.

Additionally, the proposed plantings, pervious surfaces, and stormwater retention areas that will be created on the site will promote local biodiversity while reducing stormwater runoff and promoting local drought resiliency.

Implementation

- **Alternative #1: No Action**

Simple to implement, as no actions will be required.

- **Alternative #2: Removal and Disposal of Impacted Soils and Replacement of Clean Fill**

To implement Alternative #2, impacted soils will be removed from the site and clean fill material will be placed on the site. The improvement area on the site is 10 acres, including 6.5 acres with impacted surface soils and 3.5 acres with impacted subsurface soils at a depth of approximately 14 feet.

Trail Improvement Area - Replacement of Surface Soil

To remediate the 6.4 acres with surface-impacted soils. The top 1 foot of soil would be removed and replaced with clean topsoil. This translates to 10,300 cubic yards of topsoil being removed from the site and the same volume of soil being brought in to replace it. This would require:

- The soil would be dug and staged into piles by an excavator and loaded into dump trucks that would be driven to an approved landfill.
- A standard dump truck will hold 20 tons and approximately 10-14 cubic yards of soil. Therefore, removal of the topsoil would require approximately 860 dump truck loads away from the site.
- The removed soils would need to be trucked to a landfill that will accept the material, such as the Meadowfill Landfill in Bridgeport, located 18.5 miles from the site.
- The same amount of clean fill would need to be sourced and removed from another location, sending another approximately 860 20-ton truck loads back to the site.

MAP Improvement Area - Replacement of Subsurface Soils

To remediate the 3.5-acre MAP Improvement Area with impacted subsurface soils, the impacted soils at a depth of approximately 14' would be removed from the site and replaced with 14' of clean fill and 1 foot of clean topsoil. This translates to 78,500 cubic yards of soil being removed from the site and the same amount of fill and topsoil being brought to the site to replace it.

- The soil would be dug and staged into piles by an excavator and loaded into dump trucks that would be driven to an approved landfill.
- Removal of the impacted soils in this area would require approximately 7,500 dump truck loads away from the site.
- As with the topsoil, the removed soils would need to be trucked to a landfill that will accept the material.

- The same amount of clean fill and topsoil would need to be sourced and removed from another location, sending another approximately 76,500 20-ton truck loads back to the site.

- **Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use.**

To implement Alternative #3, the entire site will be graded, and then surface material will be installed over the pavement and soil cap areas and plantings will be installed on the soil cap and landscape planting areas as described below:

Trail Improvement Area

An asphalt cap will be installed on the 1.9-acre area proposed for trail surface development. This would require removing the top 6 inches of soil and installing a pervious indicator layer, such as plastic fencing, beneath 4 inches of base aggregate, such as 2A modified stone, to prepare and stabilize the area for paving. Above the base aggregate, 2 inches of asphalt would be installed.

Low grow plantings will be installed in open areas on both sides of the asphalt cap areas. These planted areas will extend an average of 12 feet on either side of the trail, covering an approximately 4.5-acre area. This planting area will not be capped and is designed to be re-naturalized and thus not maintained or accessed by recreational users.

MAP Improvement Area

The entirety of the MAP improvement area will be graded in accordance with the site grading plan for the MAP park, which is designed for park uses and to manage stormwater. Prior to installing the cap material, an indicator layer, such as plastic fencing, will be installed over the area.

Pavement Areas within the MAP Improvement Area will be capped with 6 inches of aggregate base and 2 inches of concrete or asphalt. Different pavement surfaces (asphalt, concrete, synthetic play surface) will be installed in accordance with the proposed uses of the site. Soil cap areas will be covered with 12 inches of clean topsoil. The topsoil will be installed around pavement areas to create a smooth surface. Finally, soil capped areas will be planted with shrubs and trees.

Cost

- **Alternative #1: No Action**

There will be no costs.

- **Alternative #2: Removal and Disposal of Impacted Soils and Replacement of Clean Fill**

The cost of Alternative #2: Removal and Disposal of Impacted Soils and Replacement of Clean Fill is estimated to cost \$20,420,763.

Topsoil for purchase and for disposal may be estimated at approximately \$15 per cubic yard. The larger expense, however, is moving the material, which may cost approximately \$100

per cubic yard. The following is based on spending \$115 per cubic yard for soil removal and \$115 per cubic yard for soil replacement:

- Trail Improvement Area
10,334 cubic yards of impacted soils x (\$115 per cubic yard for removal +115 per cubic yard for replacement) = \$2,376,837
- MAP Improvement Area
78,451 cubic yards of impacted soils x (\$115 per cubic yard for removal +115 per cubic yard for replacement) = \$18,043,926

In total, the cost of Alternative #2: Removal and Disposal of Impacted Soils and Replacement of Clean Fill is estimated to cost \$20,420,763.

- **Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use.**

The estimated cost for implementing Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use is \$2,852,000. The estimated costs for each of the improvement areas described in Alternative #3 above is outlined below.

- Trail Improvement Area
 - Grading and 2-Inch Soil Removal (2 acres): \$60,000
 - Indicator Layer (2 acres): \$83,000
 - 6-Inch Aggregate Base (2 acres): \$200,000
 - Asphalt Trail Cap (2 inches): \$664,000
 - Aggregate Berms (2 feet each side of trail): \$20,000
 - Plantings (4.5 acres): \$270,000

Trail Improvement Area Total: \$ 1,297,000

- MAP Improvement Area
 - Site Grading (3.5 acres): \$30,000
 - 6-Inch Soil Removal (2 acres): \$176,000
 - Indicator Layer (3.5 acres): \$151,000
 - 4-Inch Aggregate Base (2 acres): \$102,000
 - 2-Inch Pavement Finish (2 acres): \$1,621,500
 - 12-Inch Soil Cap (1.5 acres): \$292,000
 - Landscape Plantings (1.5 acres): \$90,000

MAP Improvement Area Total: \$2,462,500

Groundwater Use Restriction Process- \$10,000

In total, the estimated cost to implement Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use is **\$3,769,500.**

Note: This estimate of probable costs is for planning purposes and does not represent an actual estimate of cleanup costs. An actual cost estimate will be needed in coordination with future design and engineering activities.

Green Remediation Considerations

Green Remediation Considerations were at the forefront of this Analysis of Brownfield Cleanup Alternatives. Furthermore, the most recent Best Management Practices (BMPs) issued under ASTM Standard E- 2893: *Standard Guide for Greener Cleanups* will be used as a reference in this effort. The carbon footprint associated The number of mobilizations to the site will be minimized and erosion control measures used to minimize runoff. In addition, the City of Fairmont will consider asking bidding cleanup contractors to propose additional green remediation techniques in their response to any Request for Proposals for the cleanup contract. The City will consider sustainable stormwater management practices as site redevelopment proceeds.

c) Recommended Cleanup Alternative

The recommended cleanup alternative is **Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use**. This alternative allows for repurposing the site for recreation in coordination with the City of Fairmont's plans to develop the West Fork River Trail Extension and Momentum Adventure Park. It protects human health and the environment through eliminating exposure pathways to soil contamination through proposed new recreational spaces, with capping material doubling as a finished, usable recreational space.

- **Alternative #1: No Action.** This alternative cannot be recommended since it does not address the site risks, and the community would continue to be exposed to site environmental hazards.
- **Alternative #2: Removal and Disposal of Impacted Soils and Replacement of Clean Fill.** Although this alternative would be highly effective at removing contamination and potential exposure risk for recreational users and local residents, Alternative #2 would be more labor intensive, more costly, and would have a greater negative impact to the local and global environment. Thus, Alternative #2 is not the recommended cleanup alternative for the Site.
- **Alternative #3: Apply Soil Cover to Impacted Areas and Implement a Land Use Covenant Restricting Groundwater Use.** Applying a Soil Cover to Impacted Areas and Implementing a Land Use Covenant Restricting Groundwater Use is far less expensive and resource intensive than Alternative #2. Strategic capping will enable the reuse of the site for passive and organized recreational sports in different areas throughout the site. Implementing this alternative is also sensitive to local ecosystems and the climate and will provide a valuable asset to the City of Fairmont and Marion County.