



TAB
Technical Assistance
to Brownfields

KANSAS STATE
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Brownfields 101

Technical Assistance to Brownfields Program (TAB)

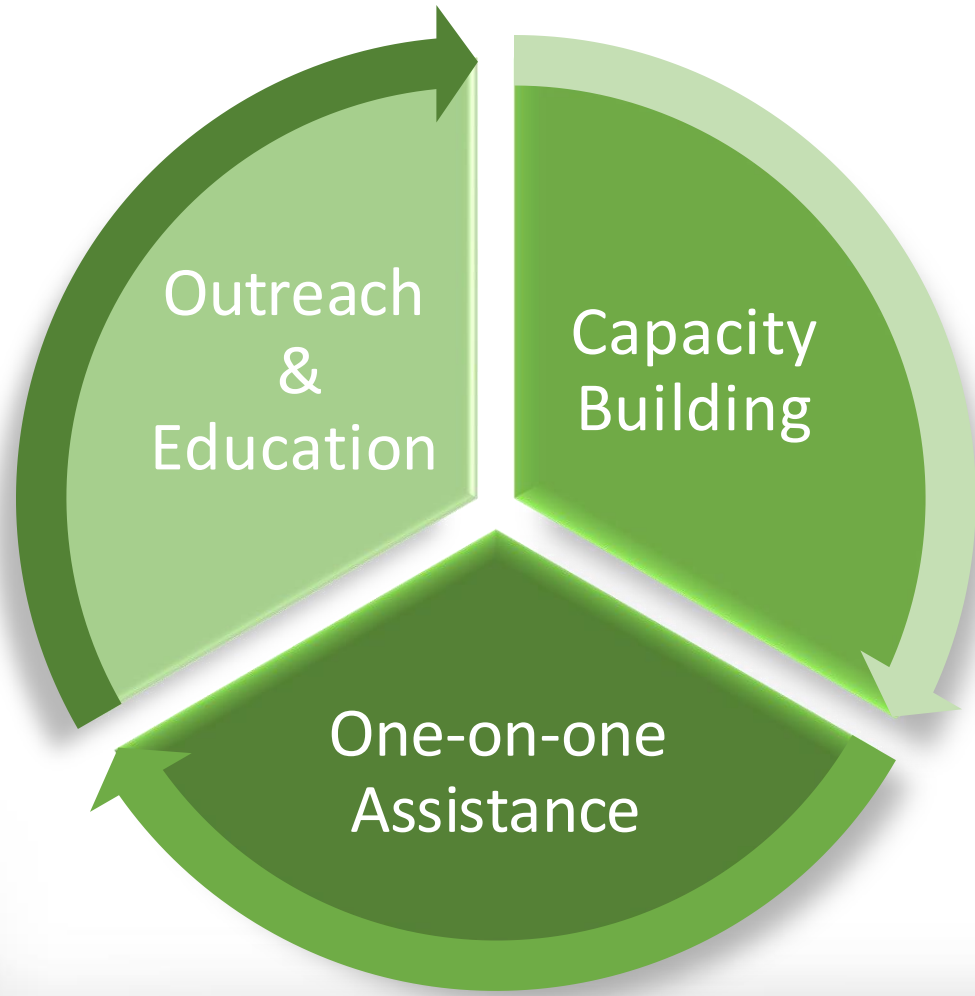
THANK YOU for joining us today. We will get started in a moment.

Technical Assistance to Brownfields (TAB)

- Nationally funding program by U.S. EPA
- Technical assistance for communities, nonprofits, regional councils and tribes revitalizing communities through brownfields redevelopment
- Services provided are free and tailored to meet specific needs



KSU TAB Resources & Assistance



All services are FREE

**Services are provided by:
KSU TAB Staff & as needed,
KSU TAB Partners**

Three main categories of services

Empower communities to realize tangible change through engagement, education, tools and resources.

You've Got a Friend in TAB

TAB providers can fill gaps and help support overall project goals.

- Help identifying your community's brownfields
- Strategic planning and reuse visioning
- Solar and Green Energy Strategies
- Economic feasibility and Market Impact/Analysis
- Community outreach and input
- Educational workshops
- Help identify funding sources
- EPA Brownfields Grants-strategy development and application reviews



Brownfields Inventory Tool (BiT)

Structured to mirror the property redevelopment process

- Site Information
 - Site Details - name, address, site type and status, GPS, property ownership
 - Map sites
- Track the property through Assessment, Cleanup, and Redevelopment
 - Activities, inspections, contaminants, impacted media, receptors
- Document & Track Institutional Controls and Complaints
- Manage Funding Sources
- Export data

The screenshot shows the 'Site Setup' form in the BiT application. The form is titled 'Site Setup' and includes sections for 'Site Name', 'Site Status', 'Site Type', 'Landowner', 'Address', and 'Coordinates'. The 'Address' section is expanded, showing fields for 'Street Address/P.O. Box', 'City', 'State', 'County', and 'Zip Code'. The 'Coordinates' section shows 'Latitude' and 'Longitude' fields. A sidebar on the left contains navigation links like 'All Sites Map', 'Site Setup', 'Export Tool', etc. A map on the right shows the location of the site in Manhattan, Kansas.





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Origin of Brownfields, Federal Definitions, and Liability Issues

Origin of Superfund



Love Canal is a reminder of both the devastating consequences of environmental disasters and the power of concerned citizens to spur change nationwide.

From 1942 to 1953, Hooker Chemicals & Plastic Corp. used the area as a landfill, disposing of an estimated 21,000 tons of chemicals and hazardous waste. Community complaints included odors and residues from the site.

In the 1970s, contaminated groundwater migrated through sewers and creeks and began seeping into people's properties.



Superfund Program

CERCLA (aka Superfund) was enacted “in response to the serious environmental and health risks posed by industrial pollution.”

Until 1980, EPA lacked the legal authority to clean up hazardous waste sites like Love Canal, New York, or to respond to emergencies such as train derailments involving dangerous chemicals.

CERCLA’s liability scheme is:

- Wide in scope
- **Strict (it is not based on fault)**, and
- Joint and several



Unintended Consequences

- 1980's: a pattern to avoid potential CERCLA liability was developing...in the greenfields!
- Older industrial/commercial sites continued to deteriorate
- Lenders wouldn't lend due to the liability scheme (CERCLA liability)
- Sites with potential contamination avoided



Brownfields Laws and Incentives

Helps address the environmental issues for property transactions & expansions

Liability protection

- For prospective purchaser, contiguous landowners, and others
- Perform due diligence (environmental assessments) before purchase and cooperate in addressing environmental issues

Funding for eligible sites and entities include:

- Assessment, cleanup
- Redevelopment (primarily non-EPA sources)

EPA Performance Measures:

- Properties assessed
- Jobs leveraged
- Dollars leveraged
- Acres made ready for anticipated re-use



Liability Protection: All Appropriate Inquiry

AAI: the process of evaluating a property's environmental condition and assessing the likelihood of any contamination

- Conducted to claim protection from CERCLA liability
- Must be conducted within 180 days prior to acquisition
- Report must meet the ASTM E1527-21 Phase I standards

Requirements (at a minimum):

- An opinion as to whether the inquiry identified conditions indicative of releases or threatened releases of hazardous materials, pollutants, etc.
- Identification of “significant” data gaps
- Qualifications and signature of the environmental professional
- The environmental professional must include an opinion regarding additional appropriate investigation

The ASTM Phase I Environmental Site Assessment (ESA) is a critical process to identify potential environmental liabilities and ensure compliance with regulations





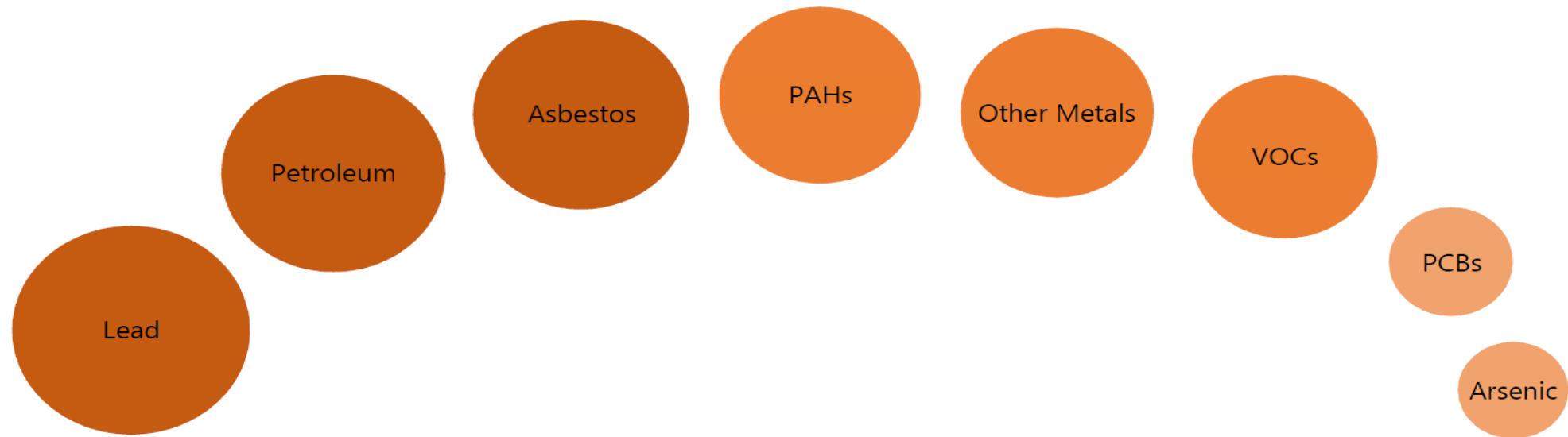
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Common Brownfields Contaminants

How Contamination moves Through the Environment

Environmental Contaminants Often Found at Brownfield Sites



Reference: “EPA Environmental Contaminants Often Found at Brownfield Sites” February 2025



Contaminant	Substance Type	Examples of Past Uses
1. Lead (Pb)	Metals	Mining, fuel, paint, inks, piping, batteries, ammunition
2. Petroleum	Oil, hydrocarbon compounds	Drill and refining, fuel, chemical and plastic production
3. Asbestos	Fiber in rock	Mining and processing, piping, insulation, fire proofing, brakes
4. Polycyclic aromatic hydrocarbons (PAHs)	Hydrocarbon compounds, combustion byproduct	Coal tar, creosote, soot, fire, industry/ manufacturing byproduct
5. Other metals	Metals	Metal fabrication, plating, mining, industry/ manufacturing
6. Volatile organic compounds (VOCs)	Manmade chemicals	Industry and commercial product solvents, degreasers, paint strippers, dry cleaning
7. Polychlorinated Biphenyls (PCBs)	Manmade chemicals	Heat and electrical transfer fluids, lubricants, paint and caulk, manufacturing, power plant
8. Arsenic (As)	Metals	Pesticides, agriculture, manufacturing, wood preservative

Reference: “EPA Environmental Contaminants Often Found at Brownfield Sites” February 2025



Three basic exposure pathways are (1) breathing, (2) eating or drinking, and (3) direct contact with the skin



When contaminants attach to small dust and soil particles or occur as a vapor, **breathing** can expose people.



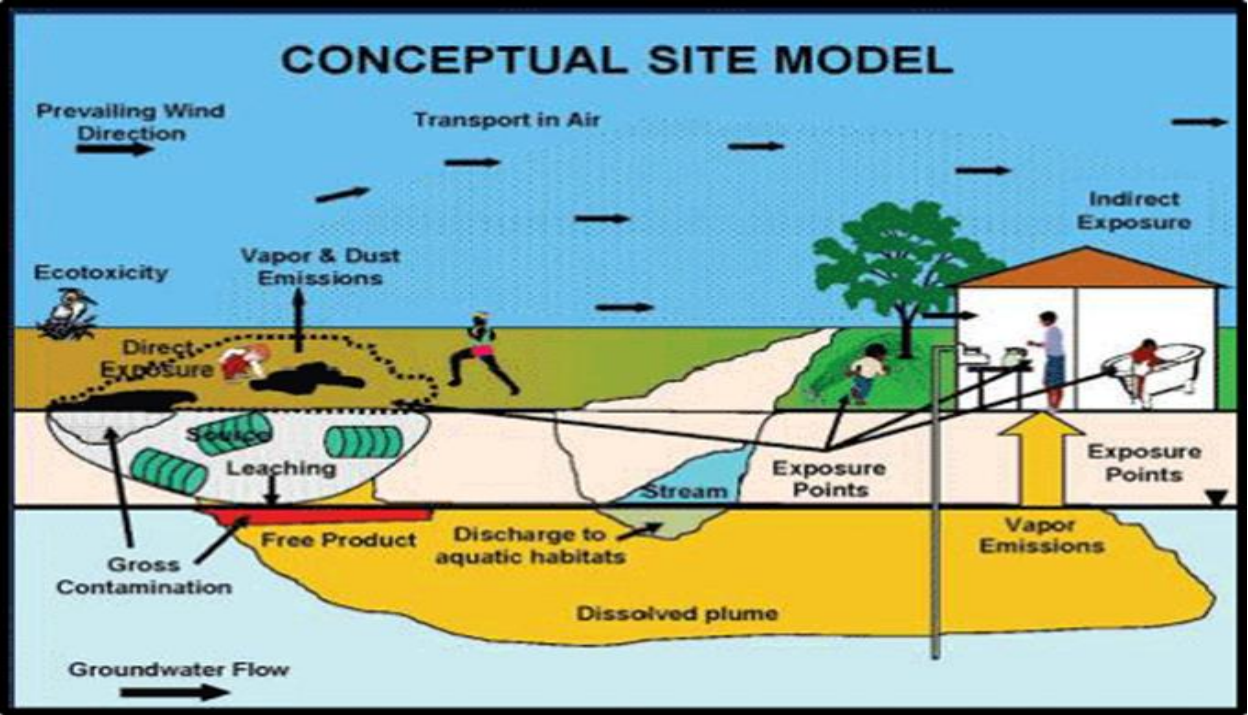
Exposure can occur when people **eat or drink** contaminated water, food, dusts or soils. Children that suck their fingers or chew toys contaminated with dust or soils may be exposed.



Skin can absorb some forms of contaminants from **direct contact** with contaminated dust and soil particles, the contaminants or vapors.

Reference: “EPA Environmental Contaminants Often Found at Brownfield Sites” February 2025





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Contaminant

Potential Health Effects

1. Lead (Pb)

Damage to brain, nerves, organs, and bone; cancer

2. Petroleum

Headache; nervous system, immune, liver, kidney, and respiratory damage; cancer

3. Asbestos

Lung scarring, mesothelioma and lung cancer

4. Polycyclic aromatic hydrocarbons (PAHs)

Liver disorders; cancer

5. Other metals ²⁻⁵

Immune, cardiovascular, developmental, gastrointestinal, neurological, reproductive, respiratory and kidney damage; cancer

6. Volatile organic compounds (VOCs)

Eye irritation; nausea; liver, kidney and nervous system damage; birth defects; cancer

7. Polychlorinated Biphenyls (PCBs)

Disruption or damage to the immune, hormone and neurological system; liver and skin disease

8. Arsenic (As)

Nausea, vomiting and stomach pain; blood disorders; nerve damage; skin disease; lung and skin cancer

Reference: “EPA Environmental Contaminants Often Found at Brownfield Sites” February 2025









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Identification of Brownfields Sites

Past Property Uses May Result in a Brownfield Site

Past Property Use	Example Sources	Possible Contaminants
<p>Housing and Residential Areas</p> 	<p>Single/multifamily housing areas, apartment buildings and other structures built before 1978; garages, sheds or barns.</p>	<p>Asbestos used in insulation of heating and cooling systems, floor, wall and roofing materials. Lead from lead-based paint and materials in homes and apartments. Petroleum and fuels stored for use in heating systems. PCBs from caulk and paint, pesticides from pest control and methamphetamines from drug activity.</p>
<p>Gas Stations and Fuel Storage</p> 	<p>Gas station buildings, structures/signs; underground storage tanks and piping; storage areas for oil, fuel, or solvents.</p>	<p>Gasoline, diesel, and heating oil used in fuels or heating systems. Volatile organic compounds (VOCs) and solvents used for cleaning and repair. Polycyclic aromatic hydrocarbons (PAHs) from asphalts and as a combustion byproduct.</p>
<p>Railroad Facilities</p> 	<p>Railroad lines, rail yards, rail spurs; roundhouse, rail car repair/maintenance facilities; train stations/depots.</p>	<p>Lead from lead-based paint used on older structures, signs, metal equipment, railcars and in repair. Other metals used in railcar repair and treatment of wooden railroad ties. PAHs from coal and diesel combustion, ash and fill disposal. Pesticides or herbicides for weed control. PCBs from power generation.</p>
<p>Automotive Repair</p> 	<p>Structures and properties associated with automobile, truck and bus body repair; radiator and muffler repair.</p>	<p>Petroleum associated with fuels, spills and past gas or fuel operations and heating systems. PAHs from coal and diesel combustion, asphalt, ash and fill disposal. Lead and other metals used in vehicle, structure and sign paint, solder for radiator and car repair. Asbestos from brake repair.</p>

Past Property Uses May Result in a Brownfield Site

Dry Cleaners and Industrial Laundry



Small commercial and larger industrial laundry and dry cleaners.

VOCs or solvents used as degreasers and cleaning agents.
Lead from lead-based paint used on older structures.
Petroleum used to fuel equipment or associated with past fuel storage, heating or spills.

Manufacturers and Power Generation



Textile mills, factories and power plants; industrial operation boiler houses and power systems.

Lead from lead-based paint and lead used on structures and equipment.
Petroleum and fuel for industry equipment and heating.
PCBs and PAHs as a result of industrial power burning, ash and fill.
Other metals, solvents and other hazardous substances from manufacturing.

Agricultural Land and Facilities



Single family homes, barns, outbuildings and fencing, farm equipment.

Lead from lead-based paint coated structures and equipment.
Petroleum and diesel used to power agricultural equipment.
Asbestos from older structures and insulation and illegal dumping on agricultural and range lands.
Pesticides and herbicides.

Mines and Mining Operations



Mines, extraction and processing structures/equipment; tailing and waste spoil areas.

Petroleum and fuel used to power equipment operations and **PCBs** from power generation.
Asbestos from mining and materials use. **Lead** from mining, processing and lead-based paint on structures and equipment.
Other metals from mining, extraction, processing and industry operations.

Public and Commercial Buildings



Schools, hospitals, libraries, courthouses, jails, post offices and other governmental, community and commercial buildings built before 1978.

Asbestos from insulation and building materials.
Lead from lead-based paint used in public buildings and structures.
Petroleum for fleet fuel and heating operations.
Pesticides or other hazardous substances used in operations.

Metal Salvage and Recycling



Metal recycling, plating and scrap metal yards.

Petroleum from fuel and heating systems, tank and piping systems.
PAHs from asphalt or combustion.
VOCs from solvents and degreasers used in metal cleaning.
PCBs, other metals and hazardous substances used in operations.

Illegal Dumping



Unregulated solid waste, construction debris, tire and illegal dumping areas.

Lead from lead-based paint coated structures and materials.
Petroleum used in oil and fuel systems.
Other metals associated with a range of waste materials such as lighting waste materials.
PCBs, solvents, asbestos, other metals and other hazardous substances

Reference: "EPA Past Property Uses" September 2019



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How to Screen Sites for Brownfields

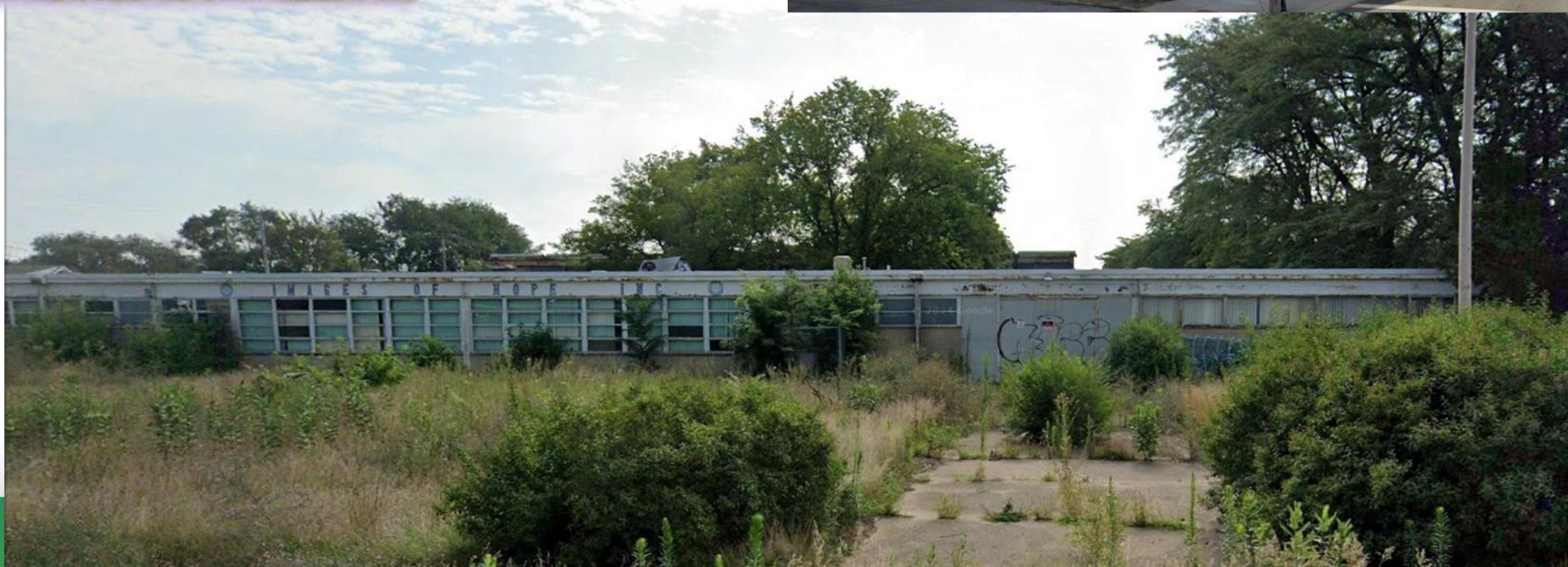
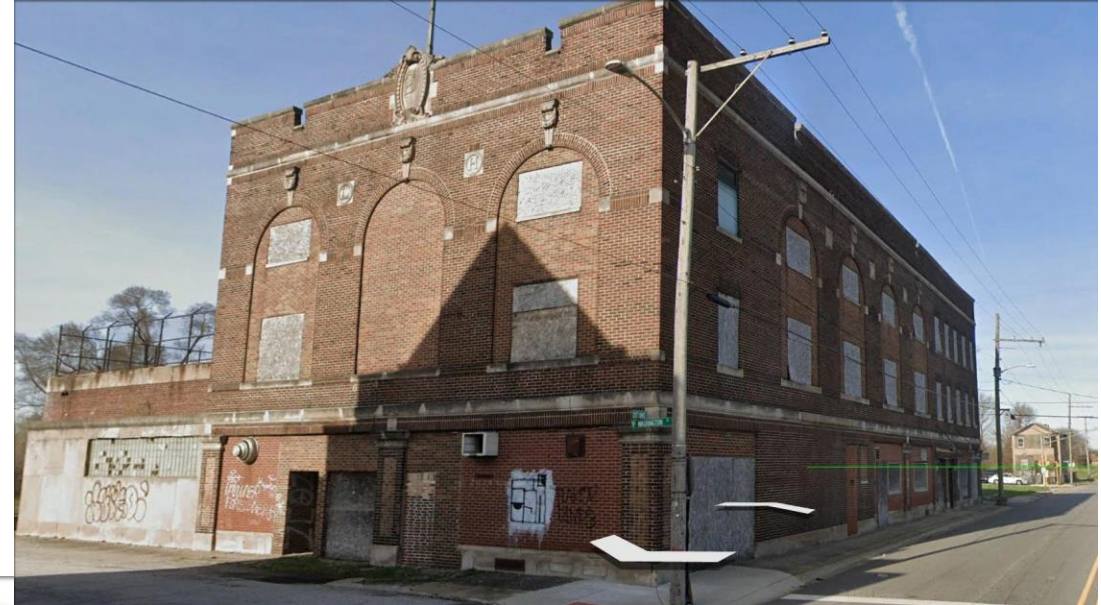


Don't Mess with a Junkyard Dog...or even Granny Smith's Dog!!



Brownfield?





Asbestos Containing Building Materials

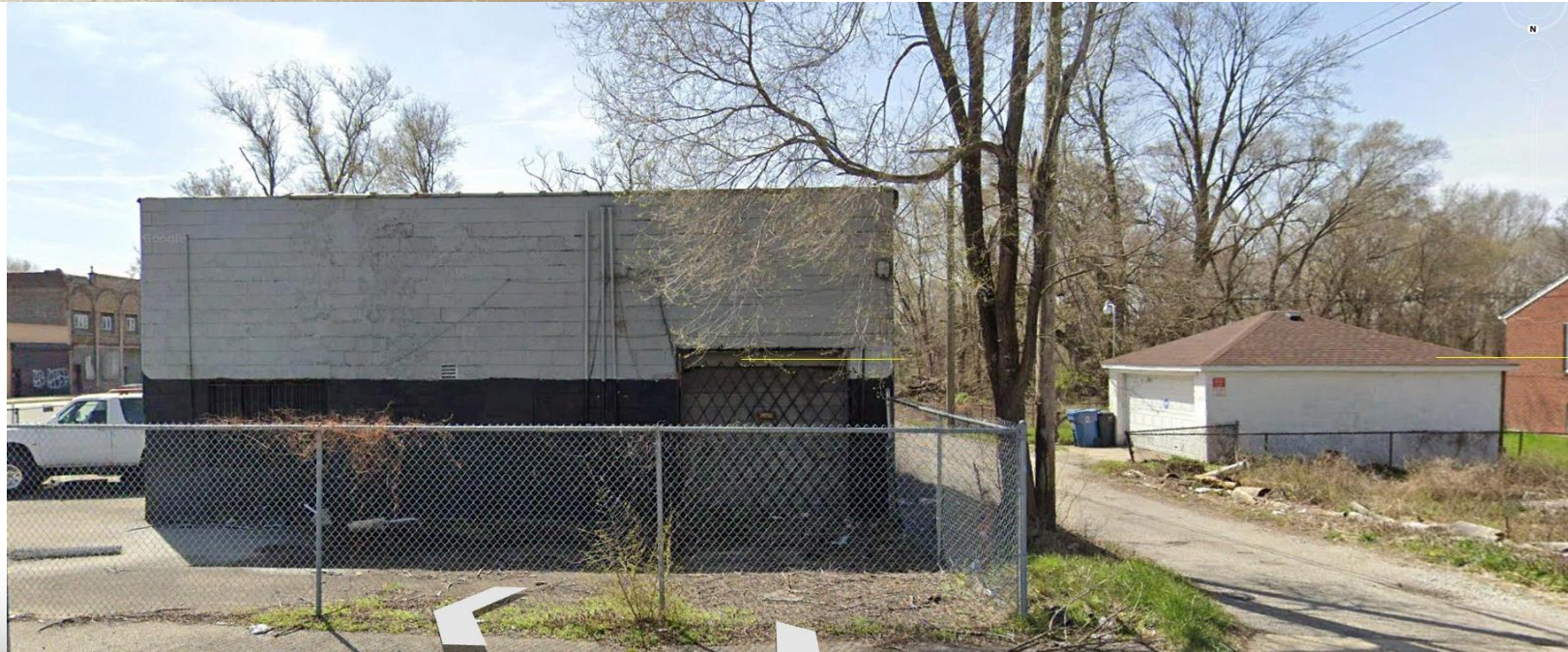
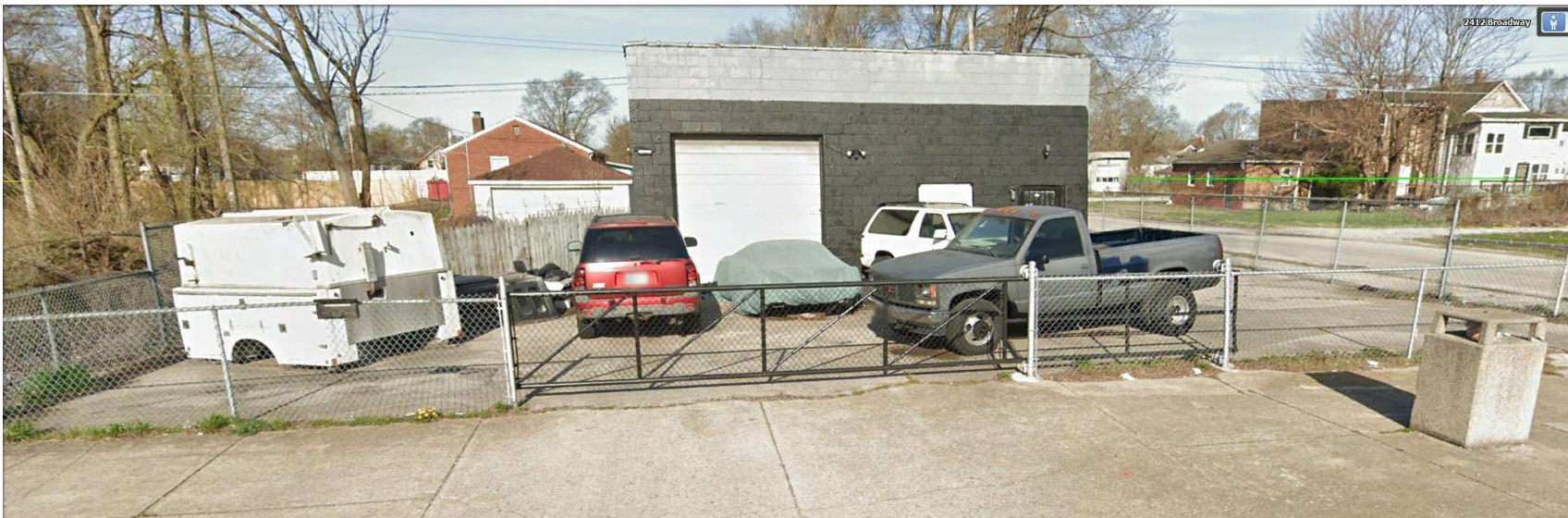


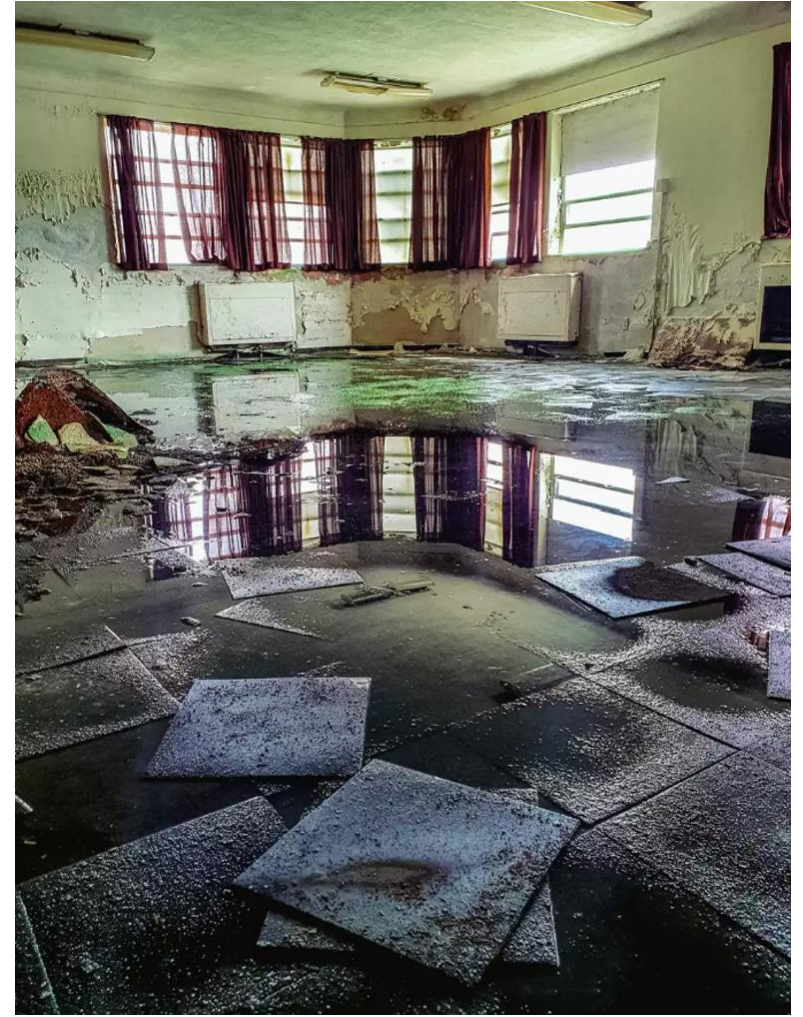
Lead Paint



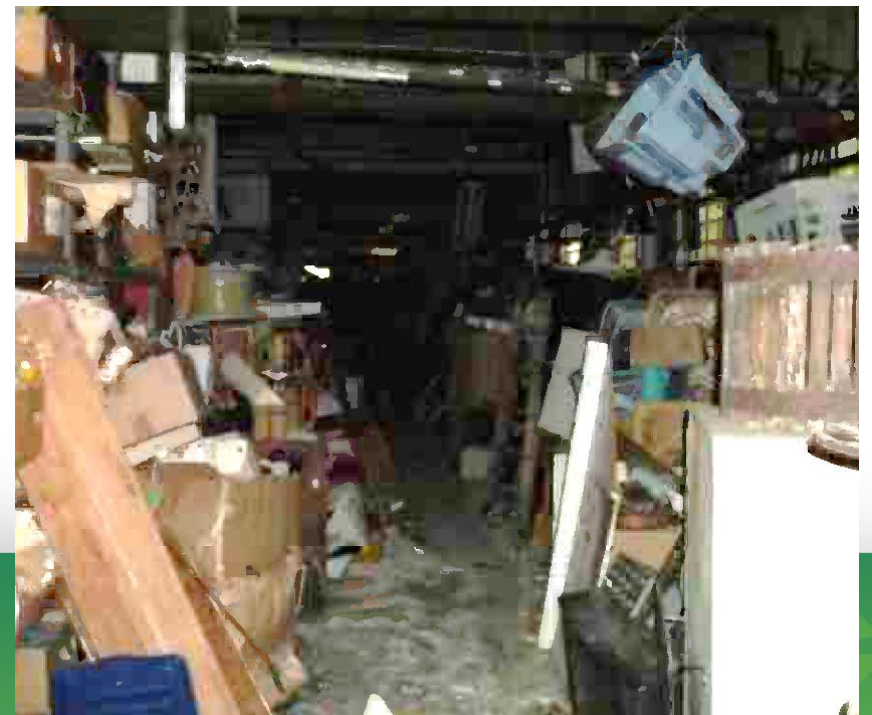














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How to Screen Sites for Brownfields

Homework:

Identify one or more potential brownfield sites and fill out the Brownfield ID form. Please bring it to our next workshop for discussion.

1. Basic Property Information

Address or nearest cross-street:

Type of property:

- Vacant lot
 - Stained soil, stressed vegetation, unusual odors
 - Concrete Foundation
 - Uneven surface
 - Dumping on site
- Former gas station
 - Vent pipes
 - Fill ports
- Former factory / mill / warehouse
 - Tall Chimney/Smokestack
 - Loading Docks
 - Pipes, drums, or containers left behind
- Railroad Roundhouse, Stations
- Banks of River/Creek with Dumping
- Dry cleaner, Laundromats
- Auto repair, Auto Maintenance, Car Wash
- Former Hospitals, Schools
- Junkyard/Auto Recycling
- Fire Stations
- Old Strip Malls
- Old Motels, Hotels
- Closed business / store
- Other: _____

2. Current Condition of the Site

Is the site currently:

- Vacant land
- Abandoned building
- Active but underused
- Boarded-up or fenced-off

Visible signs of neglect:

- Overgrown weeds or brush
- Broken windows or crumbling walls
- Dumping of trash, tires, or debris
- Rusting tanks, barrels, or machinery

3. Safety and Community Impact

- Does the site present safety risks?
- Open holes, pits, unstable structures
- Frequent dumping / illegal activity
- Attracting pests (rats, insects)

Is the site nearby:

- Homes
- Schools
- Parks / playgrounds
- Streams, rivers, or lakes

5. Community Knowledge

Do residents or nearby business owners know the site's history?

- Yes → What was it used for? _____
- No → Unsure of past uses

Has the site been vacant or abandoned for more than 1 year?

- Yes
- No

6. Documentation

- Take photos (if safe to do so).
- Note conversations with neighbors who know site history.
- Record date observed: _____

Contact Info

Beth Grigsby

Assistant Regional Director,
KSU TAB
beth27@ksu.edu

Let's Connect!

Scan to get in touch with a TAB team member or to join our mailing list



This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement (41-84066501) to Kansas State University. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.

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Evaluation and Wrap Up

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