



An Introduction to Brownfields & their Impact on the Environment

Leelanau Clean Water

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25
years


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What are Brownfields?

The term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. *(EPA definition)*

BEFORE



AFTER



What are Brownfields?

Michigan Definition:

- **“Facility”** – contaminated above residential cleanup criteria
- **“Blighted”** – determined by the governing body to be:
 - Public nuisance in accordance with local code or ordinance;
 - Attractive nuisance to children – physical condition, use or occupancy;
 - Fire hazard or dangerous;
 - Had utilities disconnected, destroyed, removed or rendered ineffective;
 - Tax reverted property owned by a qualified local governmental unit, county or state;
 - Property owned or under control of a Land Bank;
 - Has substantial subsurface demolition debris buried on site.

What are Brownfields?

- **“Functionally Obsolete”** – property is unable to be used adequately for its intended use due to loss in value from overcapacities, changes in technology, etc.
- **“Historic Resource”** - publicly or privately owned historic building or structure located within a historic district designated by the National Register of Historic Places, the State Register of Historic Places, or a local historic district (Section 90A of the Michigan Strategic Fund Act, 1984 PA 270).
- Includes property that is adjacent or contiguous to property qualifying as either a facility, functionally obsolete or blighted within the project.

Brownfields: All Shapes and Sizes



What are Brownfields? cont.

- Abandoned/Vacant buildings
 - Dry Cleaning Facility
 - “Corner” Gas Station
 - Railroad Yard
 - Commercial facilities
 - Industrial Sites
 - Landfills and dump sites
 - Mine-scarred lands
 - “Main Street” Buildings
 - Publicly Owned/Government buildings/land
 - Schools, former health care facilities
- *According to the U.S. Government Accounting Office – 425,000 brownfields throughout the U.S.*
- *State of Michigan has approximately 35,000 “brownfield sites”.*
- *Leelanau County has approximately 116 **known** sites of environmental contamination according to the MDEQ’s Inventory of Facilities Database.*

Includes Part 201/Part 213 and BEA sites.

Brownfield's Impact on Communities

- Non-environmental impacts –
 - Visual – ugly, blighted, vacant/abandoned;
 - Underutilized – former factory used for storage;
 - Condition affects surrounding property values and perception of community
 - Attracts crime, unwanted animal life, opportunity for uncontrolled dumping, mosquitoes breeding areas, etc.



Brownfields Impact on Communities

- Environmental impacts –
 - Contamination – various media
 - Air – dust, asbestos, lead, vapor migration/intrusion, bird droppings
 - Soil – direct contact, ingestion, run-off
 - Surface water – receives contaminated run-off, nutrient loading, uncontrolled spills, wetlands
 - Groundwater – drinking water, migrating plumes, NAPL, DNAPL
 - Biota – birds, fish, benthic organisms, etc.



Types of Contaminants

- Asbestos and lead
- Volatile aromatics – BTEX
- Polynuclear aromatics – PNAs
 - i.e. Phenanthrene, Benzo-a-pyrene, etc.
- Volatile halocarbons – solvents
 - Trichlorethene, tetrachlorethene, vinyl chloride
- Metals – As, Ba, Cd, Cr, Cu, Pb, Hg, Se, Ag, Zn
- PCBs
- Pesticides and Herbicides
- Nitrates
- Types of analyses depends on site



Solutions

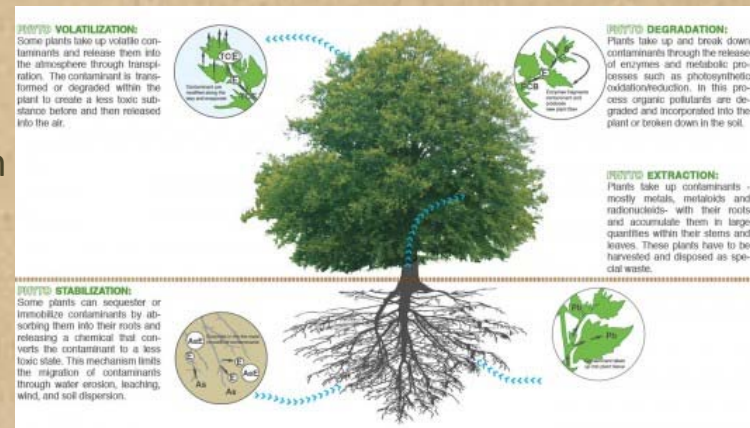
– Risk-based approaches

- State's risk-based cleanup criteria
- Due Care - prevent exposures, exacerbation
- Use restrictions – placed on property deed
 - Groundwater, soil movement/management, fencing
- Vapor mitigation – barriers, sub-slab depressurization systems
- Contaminant barriers – liners, soil caps, clean cover



Solutions

- Remedial approaches
 - Soil
 - Physical/Chemical Treatment
 - » Physical removal and disposal
 - » Solidification/stabilization
 - » Chemical oxidation
 - » Soil vapor extraction
 - » Soil flushing
 - Biological Treatment
 - » Bioventing
 - » Phytoremediation
 - » Monitored natural attenuation
 - Thermal Treatment
 - » Electrical resistance heating
 - » Radio-frequency heat
 - » Steam heating
 - » Vitrification



Solutions

- Remedial approaches

- Groundwater

- Physical Treatment

- » Air sparging
 - » Pump and treat
 - » Dual phase extraction

- Biological Treatment

- » Bioventing
 - » Bioaugmentation
 - » Biosparging
 - » Bioslurping
 - » Permeable Reactive Barriers
 - » Phytoremediation – wetlands, trees, etc.
 - » Monitored natural attenuation

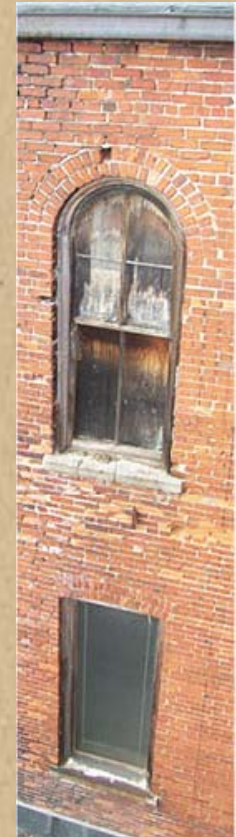
- Chemical Treatment

- » Carbon absorption/adsorption
 - » Chemical oxidation
 - » Surfactant enhanced recovery
 - » Chemical precipitation



Solutions

- Legislation created to aid with brownfield issues:
 - Before 1995 any Person or Entity on Chain of Title was responsible for cleanup, regardless of whether they caused the contamination.
 - In 1995, Michigan Law changed to Causation Based Liability providing that:
 - A Baseline Environmental Assessment is prepared
 - All Due Care is Undertaken
 - Risk-Based Cleanup Standards were developed
 - Process unique in Michigan- allows property to be bought and sold even if contaminated



Solutions Cont.

- Legislation created to aid with brownfield issues:
 - The Brownfield Redevelopment Financing Act, 1996 PA 381, as amended (Act 381)
 - Provides municipalities with a method to finance eligible activities at brownfield sites through:
 - Creation of Brownfield Redevelopment Authorities:
 - Municipality
 - County, on behalf of municipalities within the county
 - There are 291 BRAs in Michigan;
 - Creation of Brownfield Plans – use of Tax Increment Financing to reimburse eligible activities



Solutions Cont.

- Brownfield Plans are Adopted for a Specific Project that describes:
 - Plan for Redevelopment
 - Nature and Condition of the Property
 - Eligible Activities to be Performed
 - Costs to be Reimbursed
 - Method Used to Finance and Reimburse Activities
- The New (Incremental) Taxes are used to Reimburse the Party that Financed (Developer and/or Authority) the Eligible Activities Described in the Brownfield Plan
- ***Tax increment = new taxable value – initial taxable value (based on new investment)***
- ***Plans limit amount of Eligible Activities to be reimbursed and the amount of time for reimbursement***
- ***Once the Plan reaches one of these limits, it is ended and all future tax increment accrues to the individual taxing jurisdictions***



Solutions Cont.

- Develop and Implement Brownfield Plans
 - Allows Reimbursement of Eligible Activities
 - Environmental
 - Phase I and II Environmental Site Assessments (MDEQ)
 - Baseline Environmental Assessment (BEA) Activities (MDEQ)
 - Due Care Plans/Activities (MDEQ)
 - Additional Response Activities (Environmental Cleanup) (MDEQ)
 - Environmental Insurance (MDEQ)
 - Develop/Prepare Brownfield Plans and Act 381 Work Plans (MDEQ /MSF)
 - Non-Environmental
 - Demolition that is not a response activity (MSF)
 - » Includes: selective demolition, site demolition
 - Asbestos/Lead Abatement (MSF)
 - Site Preparation (Core Communities, Land Banks)
 - Infrastructure Improvements (Core Communities, Land Banks)
 - Relocation of Public Buildings or Operations for economic development purposes (MSF)



Solutions Cont.

- EPA awarded Leelanau County BRA \$400,000 Community-wide Brownfield Assessment Grant
 - \$200,000 used for assessing sites with suspected petroleum contamination
 - \$200,000 used for assessing sites with suspected hazardous substance contamination
 - Project Period October 1, 2014 to September 30, 2017
 - Work Plan and Budget designed to address approximately 15 sites over life of each grant



Solutions Cont.

EPA Revolving Loan Fund (RLF) Grant

- Hazardous RLF - \$750,000
- Petroleum RLF - \$250,000
- Allows the LCBRA to make low interest loans to:
 - Public entities, non-profits, and private, for-profit entities to carryout cleanup activities at EPA defined brownfields properties
 - Project Period September 2010 through August 2015

State Resources –

- MDEQ Grants and Loans
- MEDC/MSF – Grants and Loans



Solutions Cont.

- It should be noted that the EPA grant program is a voluntary program and the LCBRA will not pursue any actions on properties that may be found to be contaminated. However, reports and information generated from the grant program will be shared with the EPA and potentially the MDEQ.



Project Application Process

- Contact LCBRA staff with intended project plans and need for brownfield assistance.
- Application process is two parts:
 - Part I – required for all projects,
 - Part II – required for projects requesting grant/loan assistance or Brownfield Plan.
 - Depending on available funding and the project, an application fee or Processing/Review Fee may be required.
- Applications are received on an on-going basis.
- EPA Assessment Grant funded activities conducted by LCBRA-contracted consultants.

Project Application Process

- Contact LCBRA staff with intended project plans and need for brownfield assistance.
- Application process is two parts:
- Staff will:
 - Review merits of project: i.e. project readiness, strength of business plan, amount of new property tax generated, amount of investment, jobs, reductions of environmental risks to community, etc.
 - Contact local unit of government.
 - Refer applications to LCBRA for consideration.
 - All grant/loan funding is controlled by the LCBRA and is subject to applicable criteria, rules and ultimate approval by the LCBRA.
 - Development and Reimbursement agreement with applicant necessary for projects with Brownfield Plans and Act 381 Work Plans.
 - RLF projects will require appropriate loan documents.

Project Application Process

- Timing:

- LCBRA meets every 3rd Tuesday
- EPA Grant funded due diligence (Phase I/II ESAs, BEAs) completed within 4-6 weeks of LCBRA/EPA approval
- RLF/Brownfield Plan/Act 381 Work Plan projects:
 - approximately 60 to 90 days depending on approvals required (LUG Approval, Public Hearing, DEQ/MSF and/or loan documentation)
- Important to communicate timing requirements of project

Final Thoughts.....

- Be creative and innovative when applying these tools – flexibility is possible
- Bring Brownfield discussion to the potential development early
- Funds are immediately available
- Ability to finance eligible environmental and non-environmental activities
- Ability to layer incentives on a project:
 - Grants, loans, CIA, TIF, tax abatements, etc.
- Ability to close the “gap” on a project
- Leverage other grant/loan programs – potential funds to overcome site conditions



Wrap-up and Q & A

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