

## Brownfield Basics Overview



**Elizabeth Limbrick, LSRP**  
City Hall Auditorium, 1 Winthrop Street, Hallowell, ME  
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## What is a Brownfield?

“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.” USEPA



## Newer Brownfield Sites

*Not just the industries of the 19<sup>th</sup> century...*



# Common Contaminants

## Common Contaminants:

- Fuel oil / diesel fuel
  - Gasoline
  - Motor oil
  - Hydraulic fluid
  - Brake fluid
  - Antifreeze
  - Dielectric fluid (PCBs)
  - Cinders
  - Ash
  - Lead paint (Plaster)
- Mercury (thermometers, electrical switches, fluorescent tubes, etc)
  - Asbestos (virtually any building material)
  - Solvents (Dry Cleaning: Perc, PCE, tetrachloroethylene; TCE, Chlorinated VOCs)
  - “Historic Fill” Typically contains: lead, PAHs





# Environmental Risks

- Environmental Risks associated with Brownfields:
  - Soil: Eating it, Skin Contact – tracking it into a home
  - Water: Groundwater / Surface Water - Drinking it, Skin Contact
  - Air: Breathing it – vapors can migrate from under a building into a building.



Photo Sources: Maine DEP, USEPA



## Disadvantages of Having a Brownfield Site

- Potential harm to human health
- Degradation of the environment – soils, water, air
- Lowers surrounding property values
- Contributes to neighborhood deterioration
- Contributes to negative perception of the neighborhood



[https://en.wikipedia.org/wiki/Brownfield\\_land](https://en.wikipedia.org/wiki/Brownfield_land)



[http://fieldsenvironmentalinc.com/brownfield\\_redevelopment](http://fieldsenvironmentalinc.com/brownfield_redevelopment)

- Reduces local employment opportunities
- Reduces or loss of tax revenue
- Limits economic growth



<http://www.bnd.com/news/local/community/highland-news-leader/article33406179.html>

- Attracts vandals, open dumping, or other illegal or unwanted activity
- Contributes to sprawl – as activities locate on greenfields

# Why is Brownfield Redevelopment Important?

- Fostering New Growth on Old Land
- **Opportunity** to become a Community Asset
- Economic, Environmental, and Societal Benefits
  - Economic – Links the Environment and Economy
    - Return abandoned and underutilized properties to the tax roles
      - Increase local tax base
    - New jobs
    - Typically brownfield properties are available at reduced real estate prices



[http://blog.cleveland.com/metro/2008/11/pittsburghs\\_renaissance\\_holds.html](http://blog.cleveland.com/metro/2008/11/pittsburghs_renaissance_holds.html)

# Why is Brownfield Redevelopment Important? (Continued)

## – Environmental / Societal Benefits

- Cleans up the Environment
  - Eliminates health and safety hazards
  - Alleviates fears and worries for neighbors
- Values Existing Infrastructure
- Reduces Development Pressure for Undeveloped Land – Preserves Greenspace and Farmland
- Prevents Sprawl – Encourages Planned Growth



<http://www.deedworks.org/>



# Benefits to the Public

When Brownfields sites are not addressed – they may become public health threats:

- Occupant Exposure
- Off-Site Exposure
  - Runoff
  - Fugitive Dust / Emissions
  - Vapor Intrusion
  - Contaminated Drinking Water (less likely)

Eye Sores

Attractive Nuisances

# Challenges & Rewards

It often comes down money:

## Challenges

- Contamination
- Liability
  - Seller
  - Buyer
- Costs
- Time
- Regulatory Uncertainty



## Rewards

- ***Existing Infrastructure (Roads, Utilities)***
- ***Cheaper Land?***
- ***Positive public perception***
- ***Opportunity to become community asset***

Influencing Factors: 1) type of contamination, 2) extent of contamination, and 3) selected remedial action

# Why Should I Care About Brownfields?

Brownfields are hidden assets.

You should be interested in Brownfield Redevelopment, if you are interested in:

- Improving the Environment
- Improving the Local Economy
- Sustainability



## Redevelopment: Parks, Recreation, and Open Space

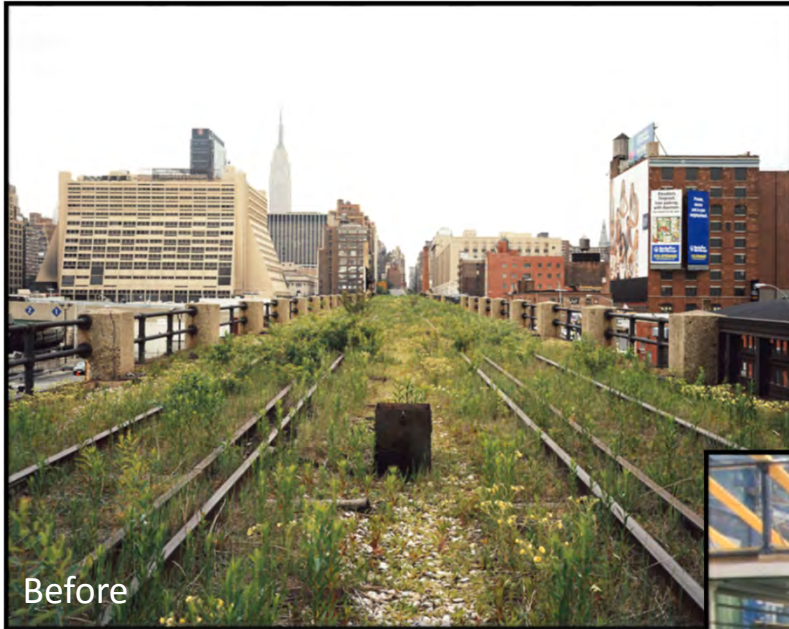


**Lardner's Park Point / East Coast Greenway, PA**



**Cynwyd Heritage Trail, PA**

## Redevelopment: Parks, Recreation, and Open Space



The HighLine, NYC





## Redevelopment Option: Commercial, Light Industrial



Bronx Terminal Market, New York



FedEx Facility,  
Newark, NJ



## Redevelopment Option: Residential



Alexan Cityview, Bayonne, NJ

## Redevelopment Option: Mixed Use



Harrison Commons, Harrison, NJ



## Redevelopment Option: Green Energy



Solar Farm, PSE&G, Trenton, NJ

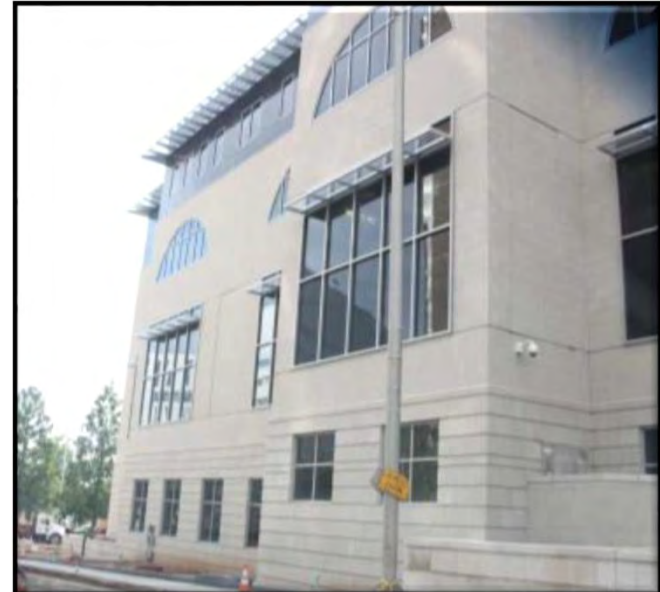
## Redevelopment Option: Public/Government



**Camden ECDC School, NJ**



**Mercer County Criminal  
Courthouse, Trenton, NJ**





## Redevelopment Option: Urban Agriculture



**Urban Commercial Farm, Lynchburg, VA**



**Community Garden,  
Philadelphia, PA**

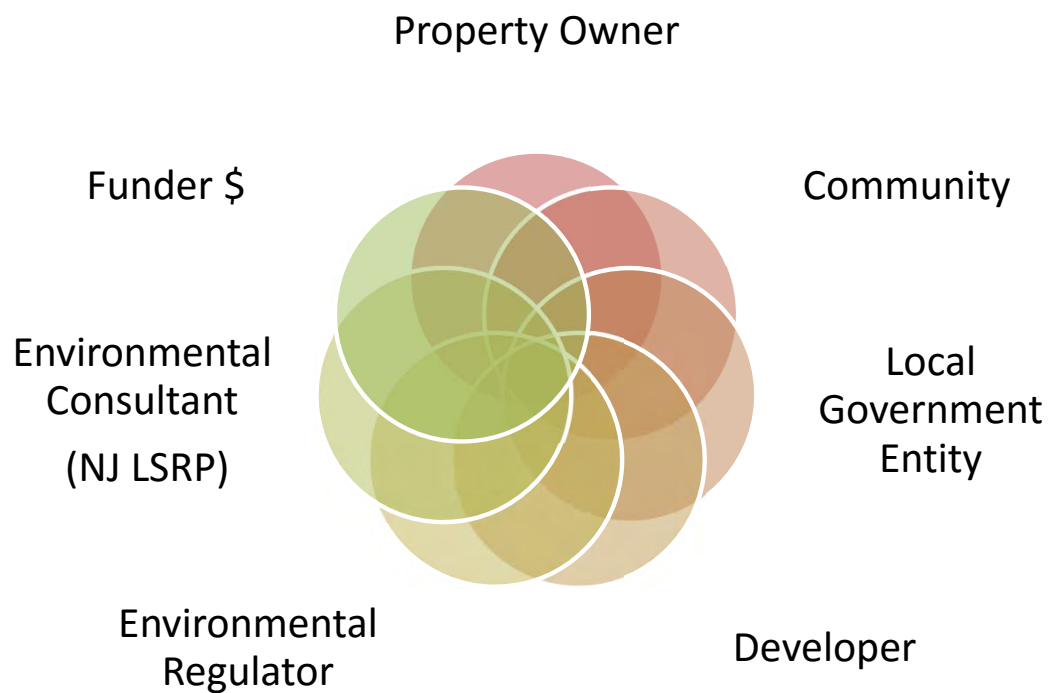
## Steps in the Brownfield Redevelopment Process

Yes – I  
have  
brownfield  
site...  
Now  
What?



<http://wisconsinwatch.org>

# Who is Typically Involved with Redeveloping a Brownfield?





# Brownfields Road Map



## Spotlights

The Road Map "spotlights" highlight key issues, processes and initiatives. Each spotlight provides a summary of topics relevant to brownfields projects and identifies related resources. The following spotlights are included in the Road Map:

### Learn the Basics

1. Redevelopment Initiatives (p. 15)
2. Supporting Tribal Revitalization (p. 16)

### Assess the Site

3. All Appropriate Inquiries (p. 18)
4. Project Life Cycle Conceptual Site Model (p. 22)

### Investigate the Site

5. Data Quality (p. 25)
6. High-Resolution Site Characterization and In Situ Technologies (p. 29)
7. Vapor Intrusion (p. 30)

### Assess and Select Cleanup Options

8. Challenging Cleanups (p. 35)
9. Understanding the Role of Institutional Controls (p. 36)

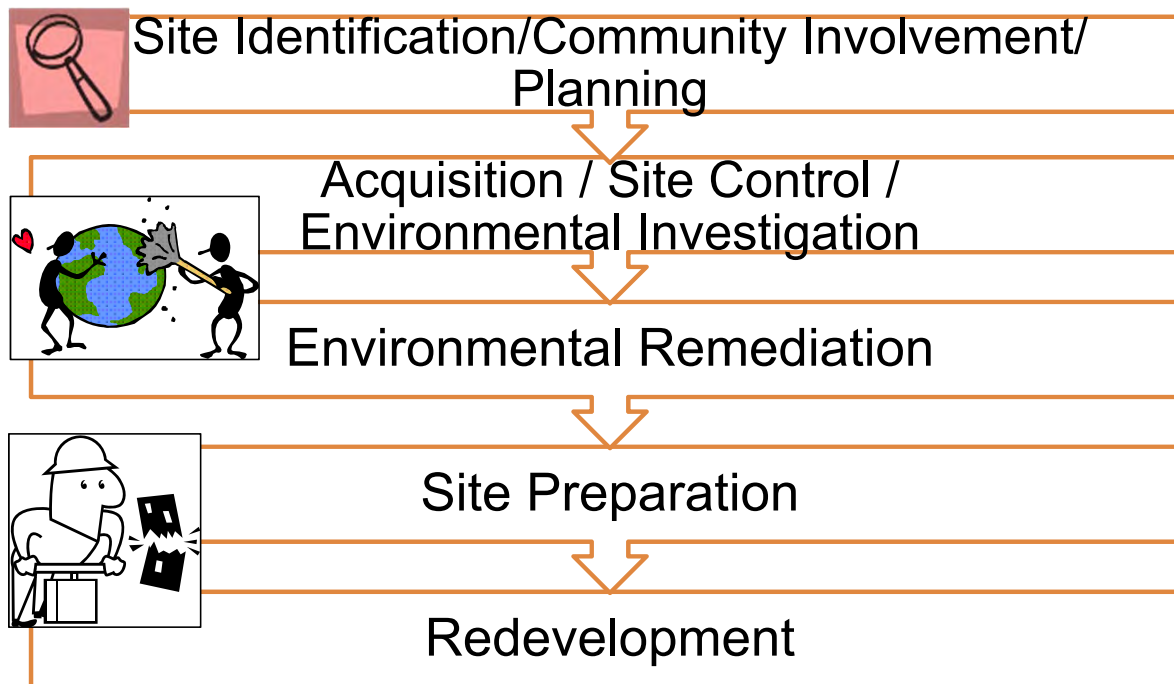
### Design and Implement the Cleanup

10. Greener Cleanups (p. 40)

## The Brownfields and Land Revitalization Technology Support Center

Provided by the U.S. EPA, Argonne National Laboratory, and the U.S. Army Corps of Engineers

# What is Typically Involved with Redeveloping a Brownfield?





# What is Typically Involved with Redeveloping a Brownfield?

What is driving your need to redevelop a site?

- Community
- Initiative of Local Governing Unit
- Developer Interest
- Other
- Reuse Goal

# What is Typically Involved with Redeveloping a Brownfield?

## Site Identification

- Inventory
- Single Site
- Common Types of Sites
- Area-wide Approach to Sites

## Community Involvement

- Analyze community needs and preference to prioritize development strategies
- Can be a critical piece of redevelopment
- Often ignored by developers
- Video Links <http://www.nyc.gov/html/oer/html/Videos/revitalization.shtml>  
<http://www.nyc.gov/html/oer/html/Videos/communities.shtml>



# What is Typically Involved with Redeveloping a Brownfield?

## Planning

- Evaluating existing environmental conditions, local market potential, and area infrastructure improvements needed;
- Developing strategies for brownfields site cleanup/reuse;
- Identifying resources or leveraging opportunities to implement their plans.



# What is Typically Involved with Redeveloping a Brownfield?

Acquisition / Site Control

All Appropriate Inquiry  
(Phase I Environmental Site Assessment)



# Steps in the Brownfield Redevelopment Process

## Phase I Preliminary Assessment

What environmental issues could we have?



## Phase II Site Investigation

Qualify: Do we have contamination/environmental issues?

***Yes or No?***

## Phase III Remedial Investigation

Quantify: What is the nature and extent of our contamination?

***How much?***



# Phase II Subsurface Investigation

- Test Pit Excavation
- Drilling
- Soil & Groundwater Sampling
- Vapor Intrusion Testing

# Test Pit Excavation



# Buried Tannery Waste



# Soil Borings & Wells





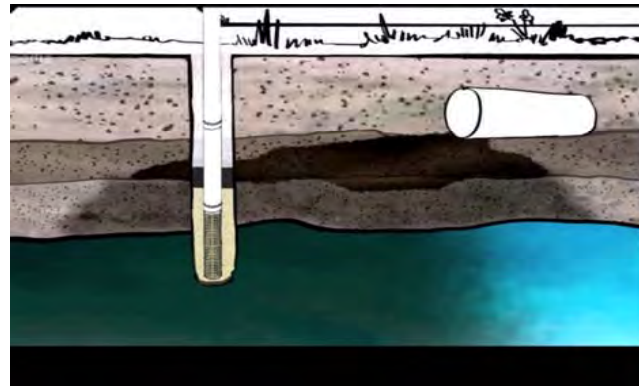
## Oil in Soil Cores



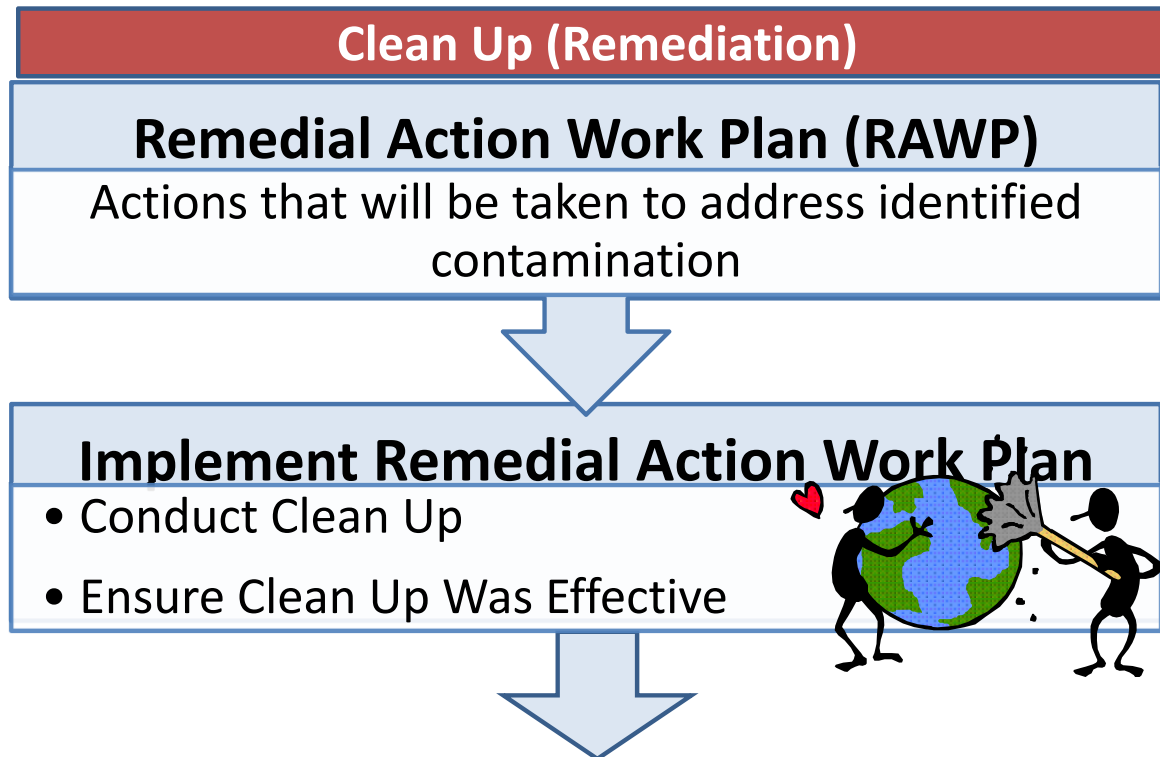
# Video – Environmental Investigation

For reference on environmental investigations – see this 8 minute video.

<http://www.nyc.gov/html/oer/html/Videos/investigations.shtml>



# What is Typically Involved with Redeveloping a Brownfield?







# Remediation

- Tank Removal
- Contaminated Soil Excavation
- Groundwater Treatment
- Barrier & Cap Technologies
- In-Situ Stabilization

# Tank Removal

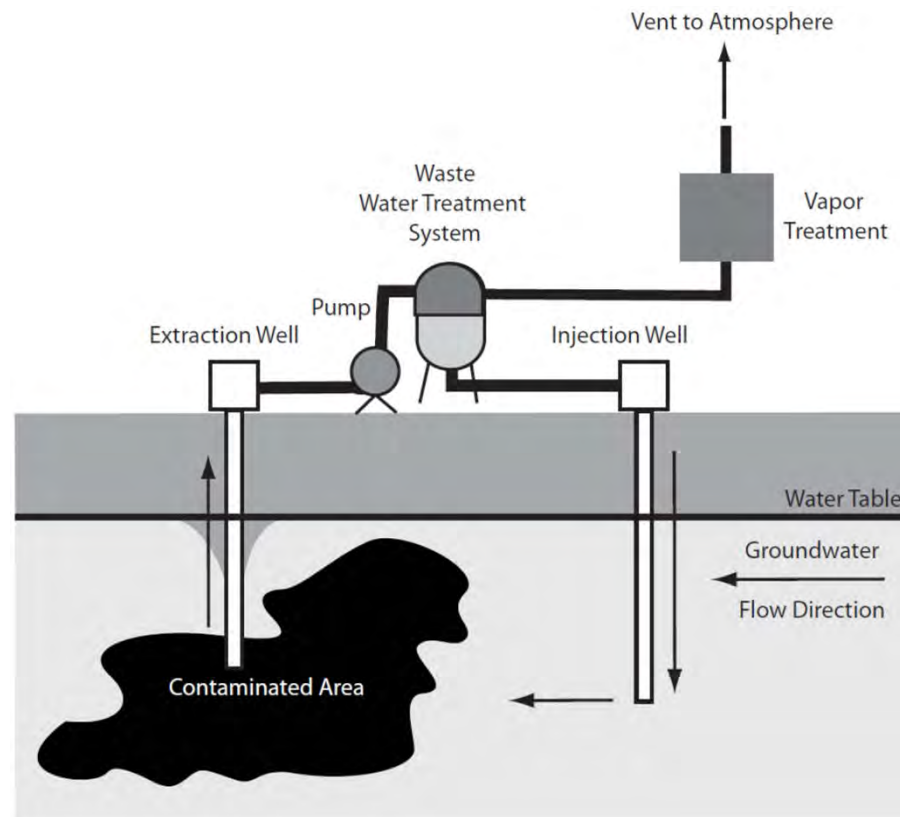


## Holes in Leaking UST



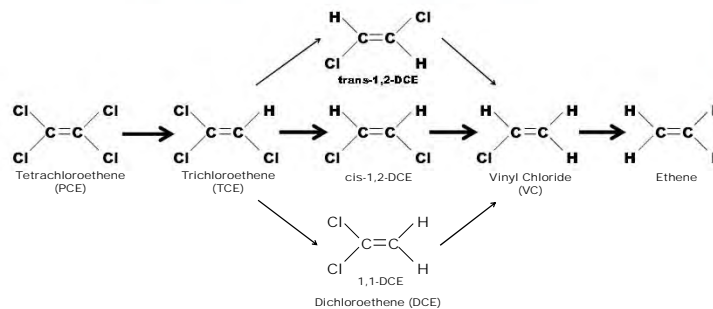
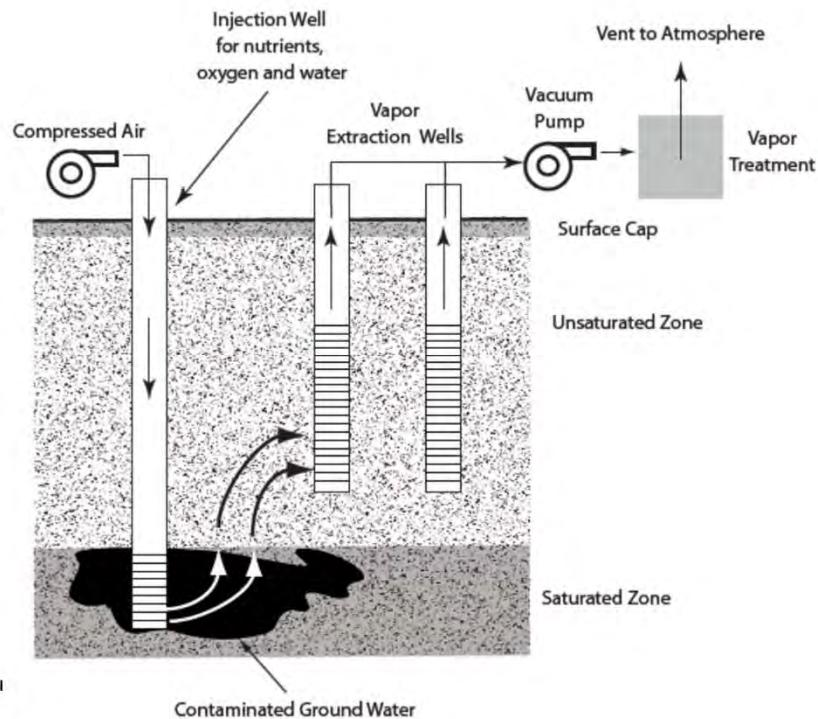
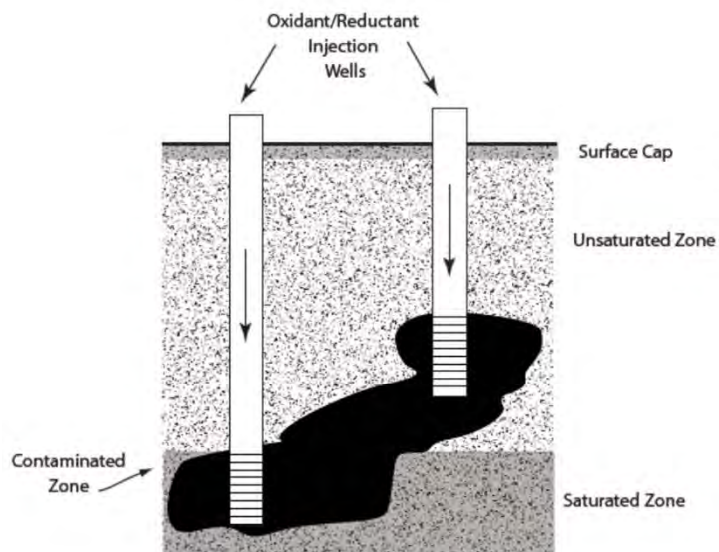


# Remediation By Source Removal



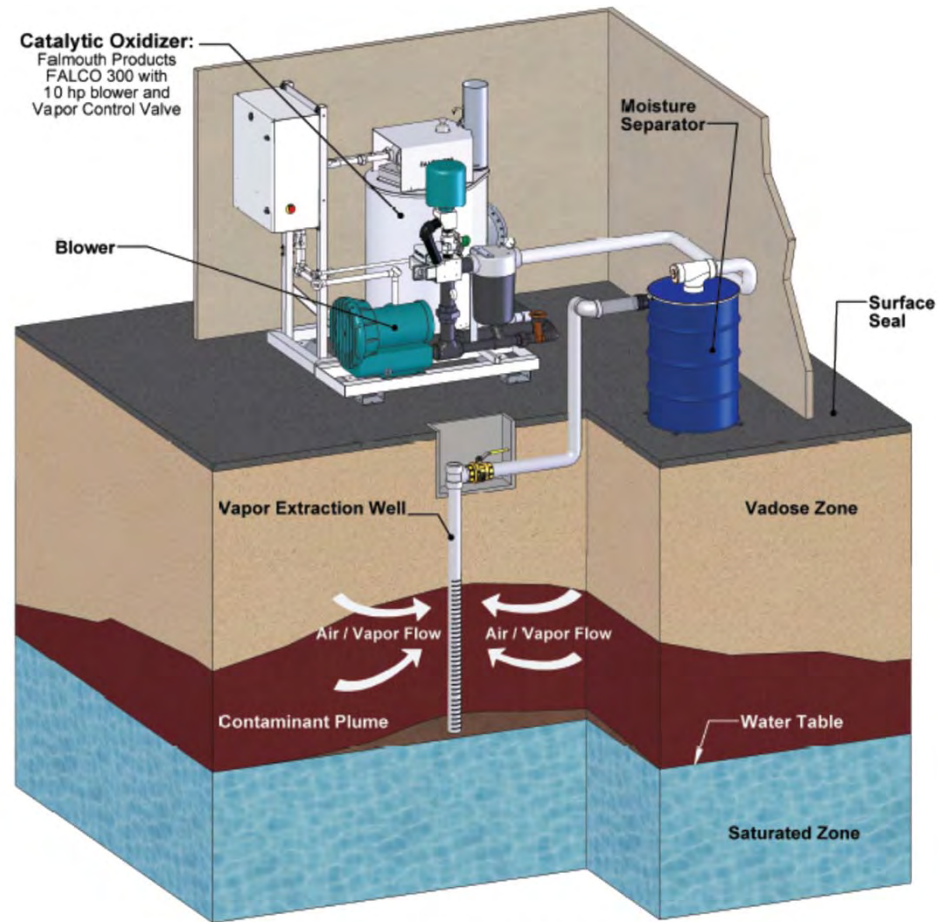


# “In Situ” Remediation



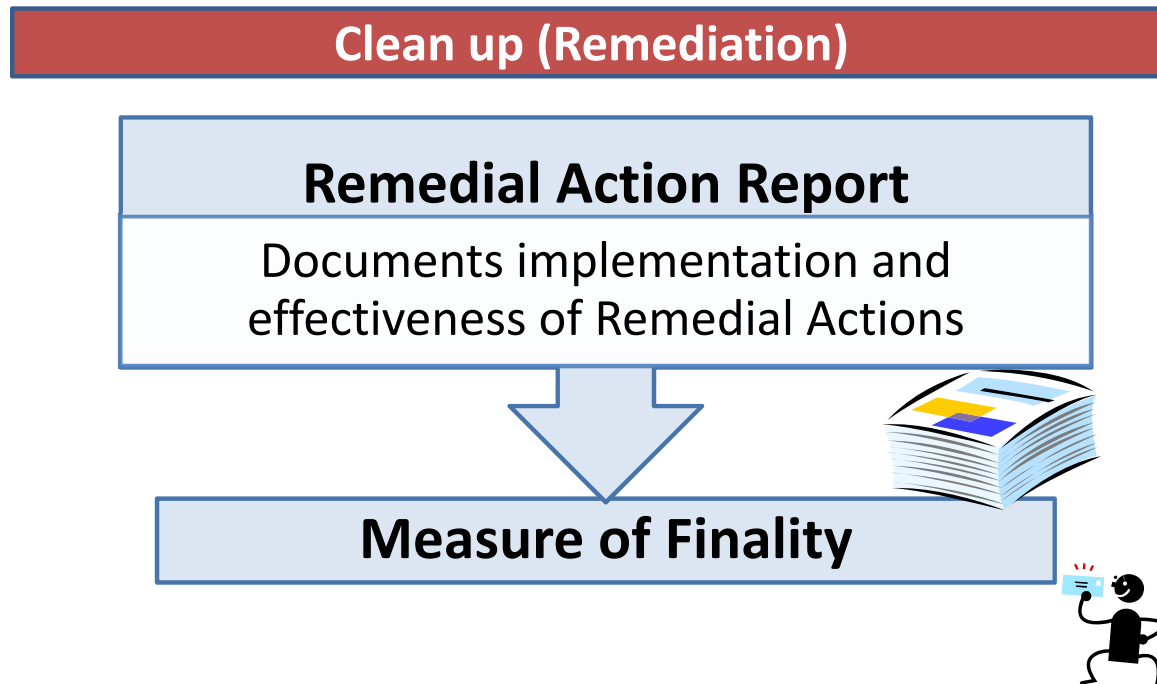


# Groundwater Treatment

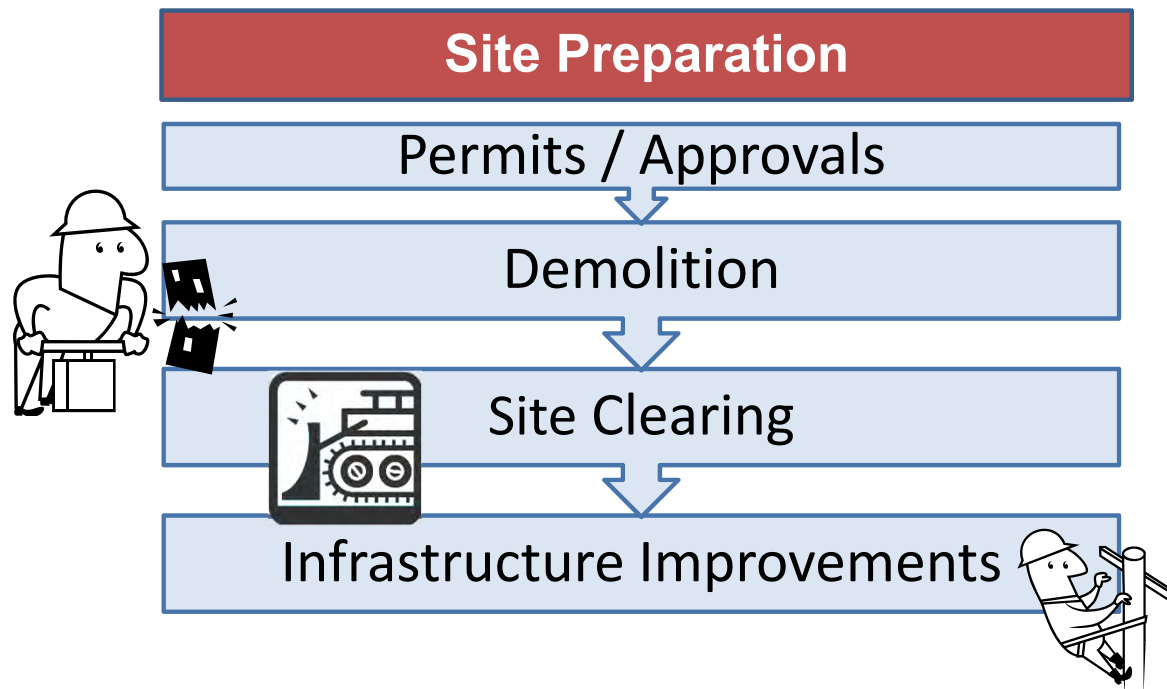


**SOIL VAPOR EXTRACTION (SVE)**

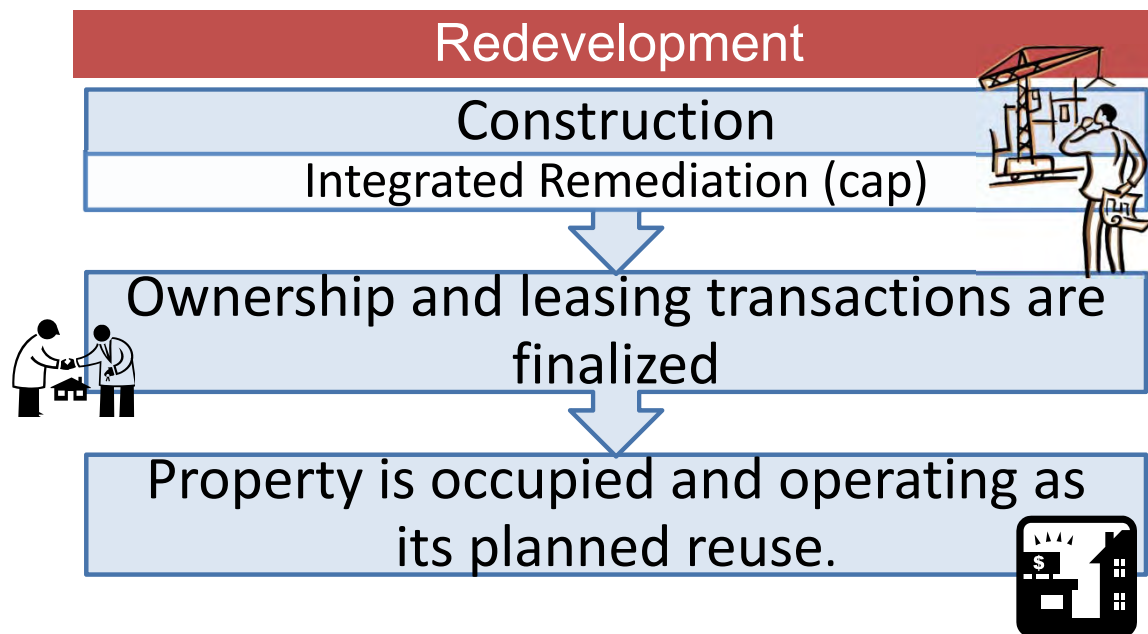
# What is Typically Involved with Redeveloping a Brownfield?



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# Steps in the Brownfield Redevelopment Process

## How long will the cleanup take?

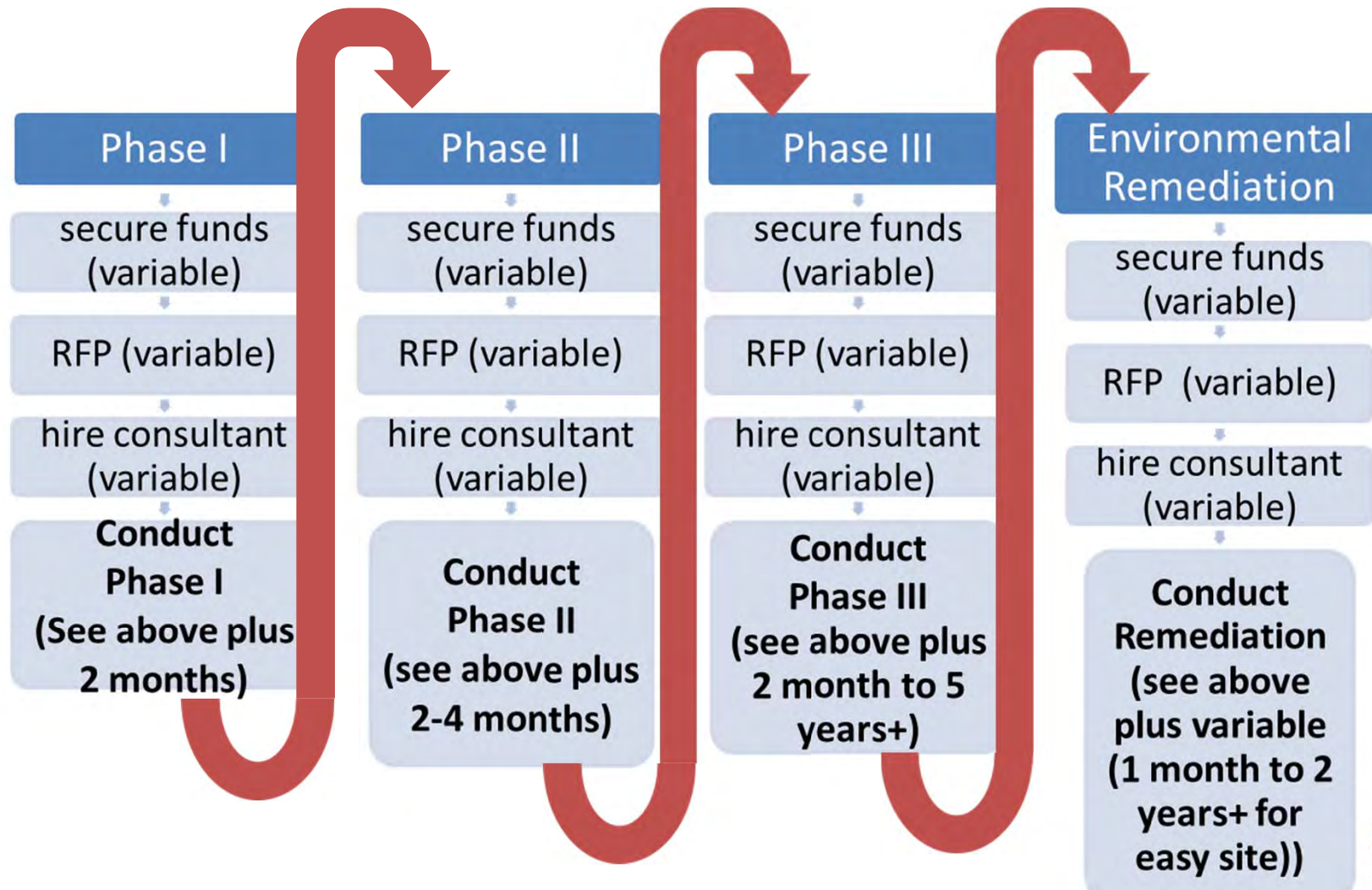
It depends:

- level, type, amount, and extent of contamination
- cleanup standards
- availability of funding





# Steps in the Brownfield Redevelopment Process



## Steps in the Brownfield Redevelopment Process

**How much will it cost to investigate and remediate the site?**

It depends:

- level, type, amount, and extent of contamination
- cleanup standards
  - Phase I \$5,000
  - Phase II \$5,000 to well over \$100,000
  - Phase III??? \$5,000 - \$300,000+
  - Remediation \$20,000 - \$1Million+



# Financing Brownfield Redevelopment

- Technical Assistance
- Tax Incentives
- Local Financing Tools
- Low Interest Loans
- Loan Guarantees
- Federal Grants



# Types of EPA Brownfield Funding

- Assessment Grant
  - Property-Specific
  - Community –Wide
  - Coalition
- Cleanup Grant
- Revolving Loan Fund (RLF)
- Environmental Workforce Development and Job Training Grants
- Area Wide Planning Grant
- Targeted Brownfield Assessments (TBA's)



# Assessment Grant

- Community-wide
  - \$200K for Haz Sub OR Petroleum
    - Maximum \$300K total
- Coalition Assessment Grant - \$600K
- Site Specific - \$200K
  - Additional \$150K w/ waiver
- Government entities or government-related
- 3 year project periods
  - Phase I: record reviews, site visit
  - Phase II: sampling, analysis
  - Phase III: cleanup/remediation planning
- Sometimes it's all they need





# Cleanup Grant

- \$200,000 per site (requires a 20% cost share) up to three sites
- Government entities and nonprofit organizations
- Applicant must own the property
- 3 year project periods
  - Conduct actual cleanup of contamination
    - Indoor contaminants
    - Soil and groundwater



# Revolving Loan Fund Grants

- \$1 million grants (requires a 20% cost share)
- Governmental entities
- 5 year project periods
  - Low interest loan fund for cleanups (50%)
  - Subgrants for cleanups (50%)
  - Can loan to private parties



# Job Training Grant

- \$200,000 grants
- Governmental entities and nonprofits
- Must have another BF grant
- 2 year project periods
  - For training and placing underemployed or undereducated residents
  - In communities clearly impacted by brownfields
  - HAZWOPER, OSHA health and safety, outreach



# Targeted Brownfields Assessments (TBA's)

- EPA can perform direct brownfields site assessments in communities
- Offered to applicants who were not awarded
- Criteria
  - Site should be for public or non-profit use
  - Strong community support
  - Property owner(s) must allow access
  - Demonstrated commitments to cleanup and reuse site
- On-line application form
  - [www.epa.gov/reg3hwmd/bfs/regional/index](http://www.epa.gov/reg3hwmd/bfs/regional/index)



[www.mcccenergy.org/news/richmondbuild-epa-grant/](http://www.mcccenergy.org/news/richmondbuild-epa-grant/)

# Brownfield Area Wide Planning Grants

- Perform the research needed to develop an area-wide **plan (not for implementation)**
- Designed to provide support for:
  - Fine-tuning an ongoing planning process for brownfields
  - Developing area-wide plans for brownfields
- **Determine next steps and identify resources to implement the plan**





# Area Wide Planning Grant

- \$200, 000 award
- Government entities or government-related
- 2 year project periods
  - Community involvement
  - Evaluate existing environmental conditions, local market potential, and area infrastructure improvements needed
  - Develop strategies for brownfields site cleanup/reuse;
- Identify resources or leveraging opportunities to implement their plans.

# Other Federal Funding Programs

## Grants

- HUD's Community Development Block Grants (for projects locally determined)
- EDA public works and economic adjustments
- DOT (various system construction, preservation, rehabilitation programs)
- Army Corps of Engineers (cost-shared services)
- USDA community facility, business and industry grants

# Other Federal Funding Programs

## Loans

- EDA capital for local revolving loan funds
- HUD funds for locally determined CDBG loans and “floats”
- EPA capitalized revolving loan funds
- SBA’s microloans
- SBA’s Section 504 development company debentures
- EPA capitalized clean water revolving loan funds (priorities set/ programs run by each state)
- HUD’s Section 108 loans/guarantees
- SBA’s Section 7(a) and Low-Doc programs
- USDA business, intermediary, development loans

# Other Federal Funding Programs

## Federal Investment Incentive Program

- EB5 Investments

## Equity capital & loan guarantees

- SBA Small Business Investment Cos.
- SBA Section 7(a) guarantees
- DOE energy facility guarantees

## Tax incentives and tax-exempt financing

- Historic rehabilitation tax credit?
- Low-income housing tax credits
- New Markets Tax Credits
- Industrial development bonds
- Energy efficiency construction credits
- Opportunity Zones?

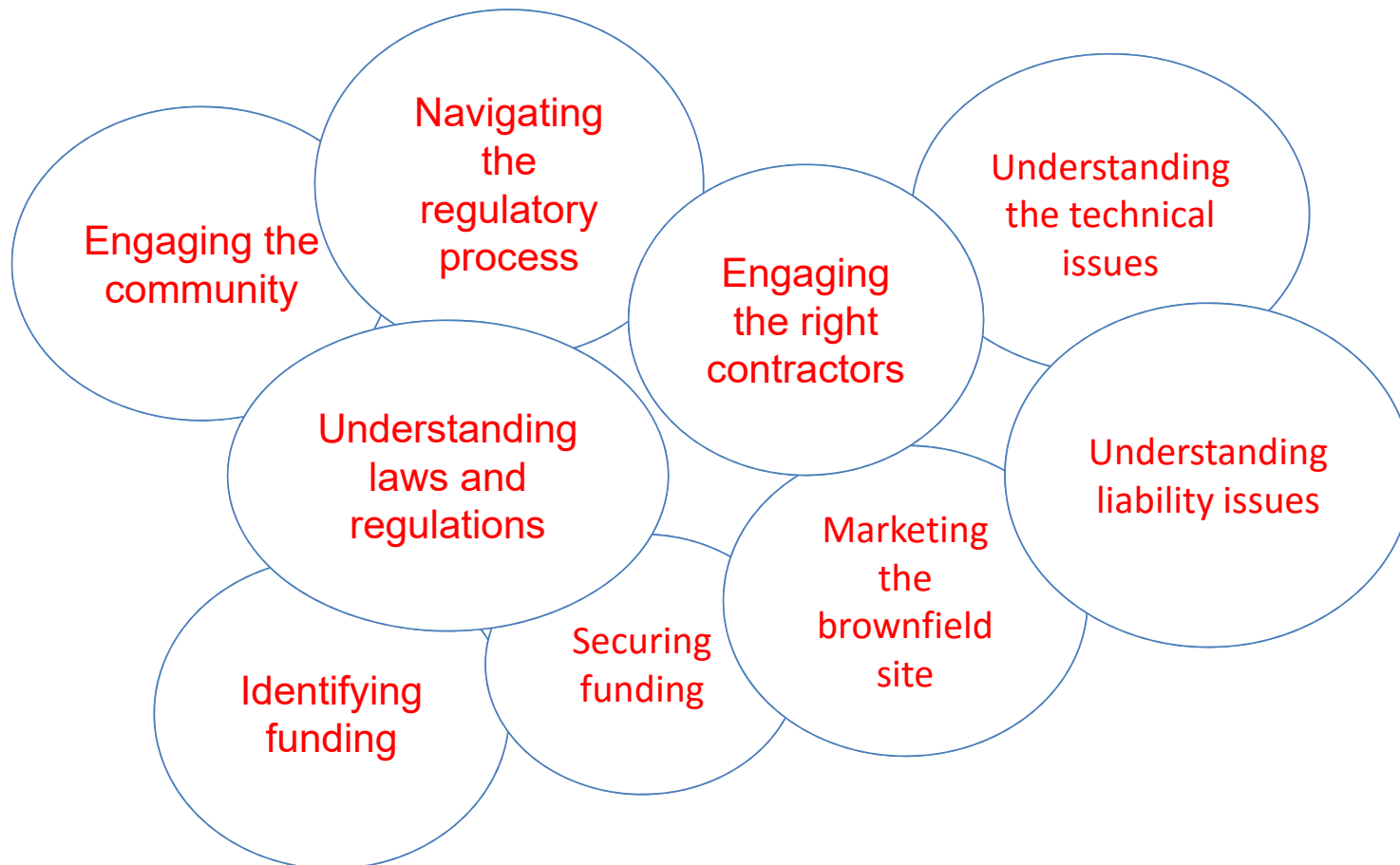
# Brownfields – Economic Development Tool

- Brownfields are **opportunities**
- Tap into funding not available to other sites
- Brownfield redevelopment can be the catalyst that will stimulate other redevelopment efforts
  - Reducing Blight / Stigma can attract developers
  - Surrounding property owners tend to reinvest
- Increase in tax rates
- Employment opportunities





# HELP!!!



## NJIT Technical Assistance to Brownfield Communities (TAB)

**TAB provides assistance\* throughout the *entire* brownfields redevelopment process.**

**Assistance is provided through...**

- ❖ Resource Center
- ❖ Educational Forums
- ❖ One-on-one Technical Assistance

*\*Specific TAB assistance varies by provider.*



## NJIT Technical Assistance to Brownfield Communities (TAB)

### NJIT TAB Resource Center

[www.njit.edu/tab](http://www.njit.edu/tab)

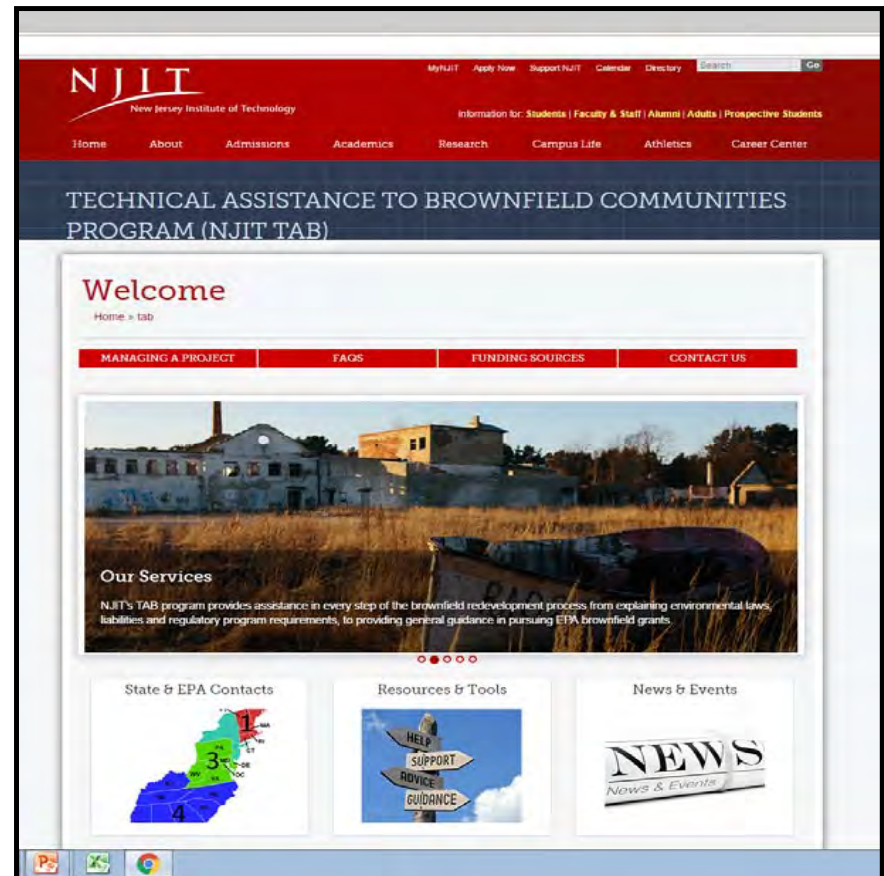
- ❖ info on all aspects of assessing and cleaning up a brownfield site
- ❖ news and upcoming events

### Resources and Tools

- ❖ Federal and state funding sources
- ❖ state brownfield programs
- ❖ state and EPA contacts
- ❖ previously recorded webinars
- ❖ downloads of workshop and seminar presentations
- ❖ PCB brochures; GI decision tree
- ❖ how-to videos (*coming soon*)

### NJIT TAB Hotline

973-642-4165    [tab@njit.edu](mailto:tab@njit.edu)



## NJIT Technical Assistance to Brownfield Communities (TAB)

### NJIT TAB Educational Forums

**Conferences:** pre-conference workshops, learning labs, panel sessions, office hours

**Workshops:** 2 to 4 hour interactive sessions on brownfield related topics

**Seminars:** deeper dive into specific brownfield related topics

**Brownfield Boot Camps:** 4 to 7 hour more intensive, deep dive into specific brownfield related topics

**Webinars:** range from introducing the TAB program to specific brownfield topics

**All-Grantee Meetings:** work with state agencies and EPA



## NJIT Technical Assistance to Brownfield Communities (TAB)

### One-on-One Technical Assistance

*Every community is different and every community's needs are different.*

***NJIT TAB** addresses the commonly faced challenges, as well as the unique challenges - one community at a time.*

*Brownfields Redevelopment Spectrum*



*The type and depth of assistance NJIT TAB provides is tailored to the needs of the community.*



## TAB Provider Contacts

### EPA Regions 1, 3, 4



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### EPA Regions 2, 9, 10



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### EPA Regions 5, 6, 7, 8



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# Upcoming Events



[BrownfieldCoalitionNE.org](http://BrownfieldCoalitionNE.org)



[SouthFloridaCDC.org](http://SouthFloridaCDC.org)

Winning & Managing Grants Webinar: March 1, 2018 2:00 PM

<https://register.gotowebinar.com/register/2219529535114880771>

# Thank You

Elizabeth Limbrick, LSRP - NJIT TAB

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[www.njit.edu/tab](http://www.njit.edu/tab)

