Brownfields and Public Health: Connecting Communities for Health

Alaska State and Tribal Response Programs

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EPA United States Environmental Protection Agency

Today's Talk

- Existing Brownfield and Public Health ways of thinking
  - Risk or Hazard
  - Exposure to Hazard
- New Ways Brownfield Programs Can Connect with Public Health
- What is Health? Reviewing a broader definition
- Brownfields Public Health Examples
- Brownfields to healthfields Story map

What is a Brownfield?

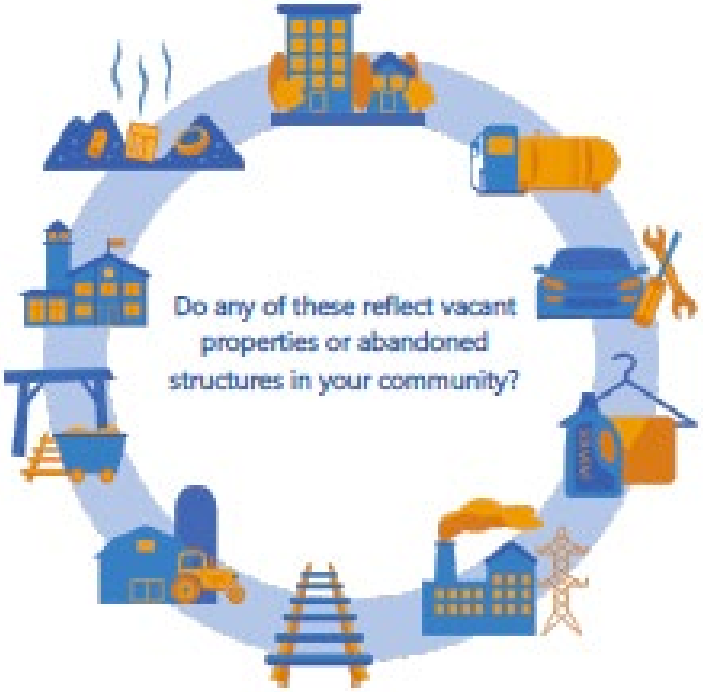
- "...real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."

The Small Business Liability Relief and Brownfields Revitalization Act, signed January 11, 2002.

Types of Properties Often Reported as Brownfields

Brownfield examples

- Gas stations and auto repair
- Dry cleaners
- Mines and railroads
- Historic buildings (schools, hotels, hospitals)
- Agriculture and pesticide mix areas
- Landfills, dumps and illegal dumping areas
- Manufacturing and power plants



Common sources of contamination

Land Use	Common Contaminants
Agriculture, green space	Nitrates, pesticides/herbicides
Gas stations, tanks, parking lots	Petroleum products, PAHs
Dry cleaner	Solvents
Existing buildings	Asbestos, lead paint, PCB caulks
Junk yards	Metals, petroleum products, solvents
Machine shops and metal works	Metals, petroleum products, solvents, cyanide
High-traffic areas	PAHs, lead
Garbage burning	PAHs, dioxins, lead
Wood preserving	Phenols, dioxins, methane, metals, solvents,

“presence or potential presence of a hazardous substance, pollutant or contaminant”

Presence

- Potential risk
- Examine level and extent of risk
- Consider potential exposures
- Remove and/or reduce risk
- Remove and/or reduce exposure
- (Direct exposure)
- Fear, uncertainty, stress solved by quantifying risk?

Potential Presence

- Potential risk
- Examine level and extent of risk
- Consider potential exposures
- Remove and/or reduce risk
- Remove and/or reduce exposure
- (Direct exposure)
- Fear, uncertainty, stress solved by quantifying risk?

How are brownfields addressed?

If a brownfield property is contaminated, contaminant levels and their distribution and tribal, state or local rules for planned reuse drive required cleanup actions.

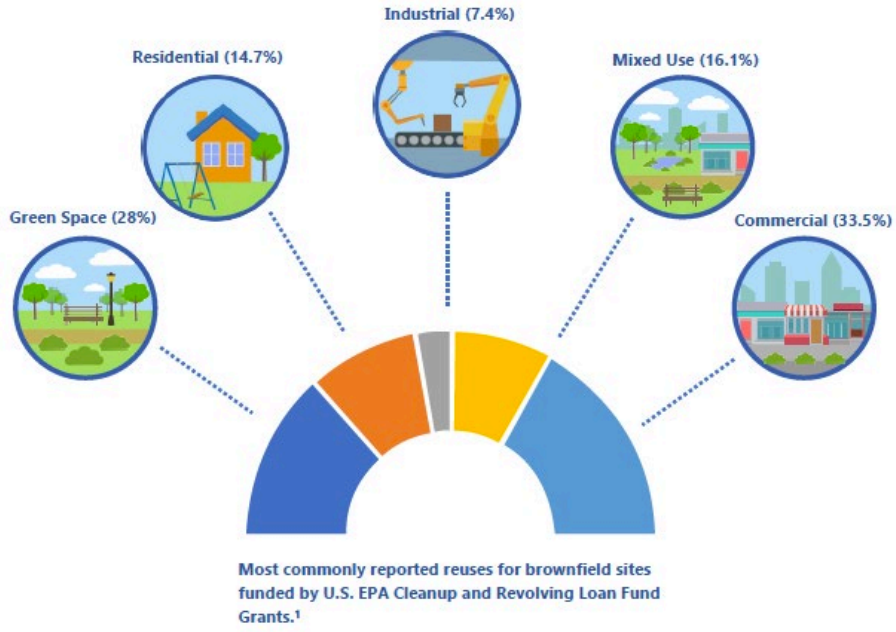
Source: https://www.epa.gov/sites/production/files/2019-10/documents/cleaning_up_brownfield_sites.pdf

Brownfields Redevelopment & Types of Reuse

Reuse Vision (& Tribal, State/Local rules help drive cleanup)

- Industrial
- Commercial
- Residential
- Mixed Use
- Recreational
- Special Use

(local rules)

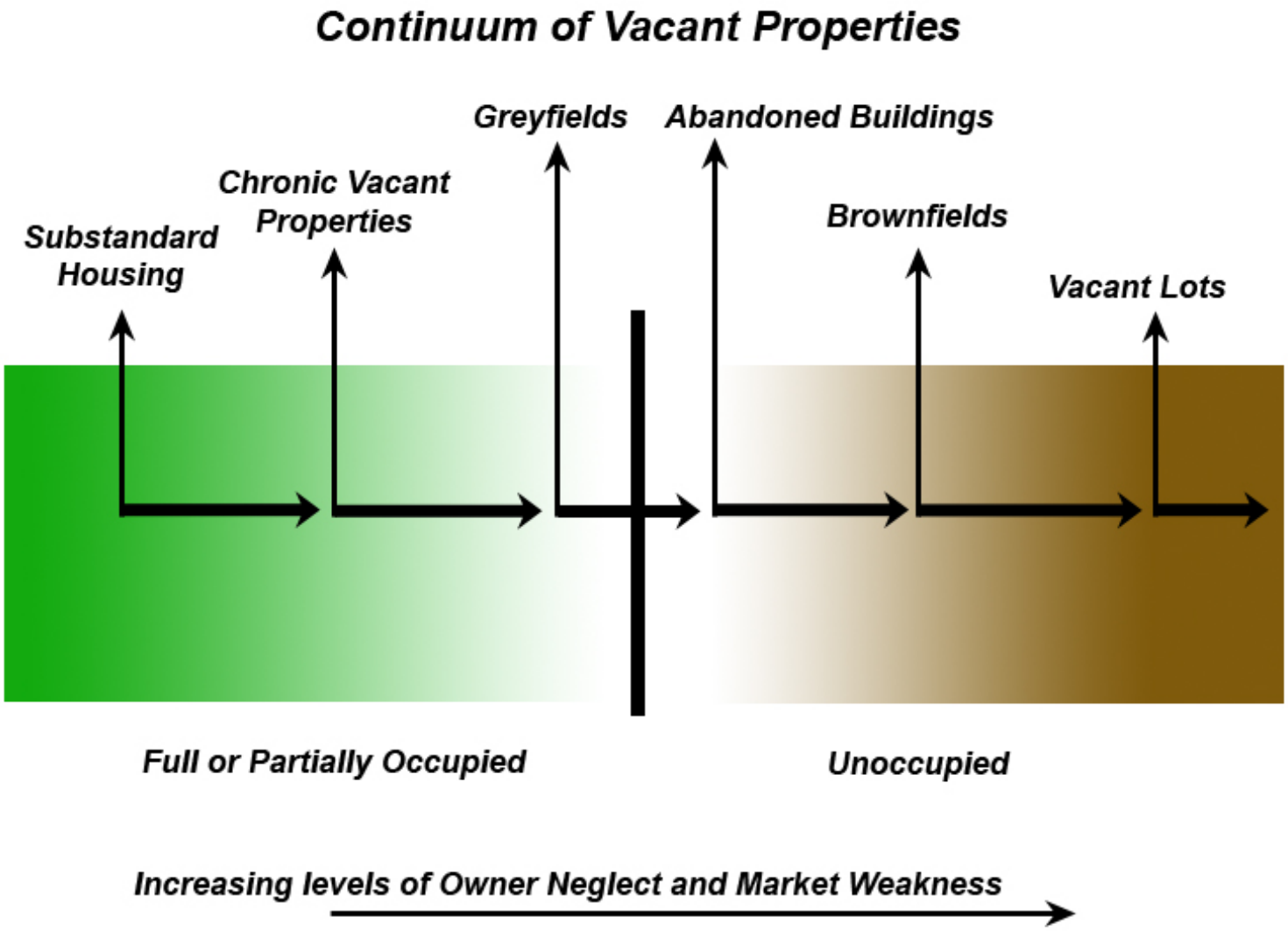


Source: https://www.epa.gov/sites/production/files/2019-10/documents/reuse_possibilities_for_brownfield_sites.pdf

World Health Organization definition is …

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or Infirmity".

Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946, and entered into force on 7 April 1948.

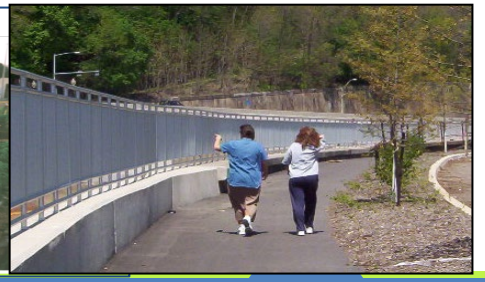


Source: National Vacant Properties Campaign

Brownfields and Public Health Children and their environment

- Brownfields, a neglected built environment, missing in plain sight!
- Is the brownfield near children's built environment – near homes, schools, or playground that may attract them?
- Can school age children help? Can brownfields be included in their science and cultural education or art projects? Can they help create the vision for reuse?
  - parks, green space, safe public places,
  - food access – gardens, farms, safe foraging areas, food production
  - affordable housing
  - streets, sidewalks and safe places
  - community spaces that allow gathering – culture, sports fields and exercise areas
  - other ideas?



What about the “presence or potential presence of “

Presence and Potential Presence of …?

Other disinvestment –

- Poor quality housing or limited affordable housing
- Unemployment or underemployment
- Low household income
- High poverty
- Quality of life
- Educational options
- Social settings and connections
- Safety
- Life and job prospects
- +
- Brownfield site(s) to remove and/or reduce risk
- Remove and/or reduce exposure
- (Direct exposure)
- Fear, uncertainty, stress solved by quantifying risk

How can a Public Health focus enrich brownfield redevelopment and reuse?

- Can a focus on the people and their health bring new options to reuse discussions?
- Can community feel greater confidence by seeing and hearing their needs being addressed?
- Can the foundation for incremental public health and quality of life improvements be built with each public outreach and brownfield activity?
- Can the brownfield planning process open up lines of conversations about community needs?
- Not all needs maybe addressed with a brownfield project but can start the conversations that will bring a solution closer.

EPA's Brownfields Program

Missoula, Montana Sawmill Site

How are we helping Communities Create

A Healthier New Now!

Then…

Now

EPA's Brownfields & Land Revitalization Program

Grants:

- Assessment
- Environmental Workforce Development and Job Training
- Cleanup and Revolving Loan Fund
- Multipurpose Grants
- State & Tribal Response
- Research, training, technical assistance

Technical Assistance:

- Targeted Brownfields Assessment (TBA)
- Technical Assistance to Brownfield Communities




Deconstruction, Demolition, and Removal → Cleanup, Remediation, and Waste Management → Design and Construction for Reuse → Sustainable Use and Long Term Stewardship

Reuses that can build community and improve public health

Reuse

The Brownfield Program:
Technical Assistance to Brownfield Communities (TAB) Grants

- Provide geographically-based technical assistance on brownfield issues through 2021.
- Available to help communities and guide them through assessment, cleanup and redevelopment process.
- TAB grantees can offer assistance with:
  - developing a brownfield program,
  - establishing site inventories,
  - reviewing historical site information,
  - designing an investigation or sampling analysis plan,
  - planning for cleanup and redevelopment,
  - community engagement,
  - workshops, webinars and geographic based meetings such as meet the funders,
  - preparing grant proposals.
- TAB Providers:
  - New Jersey Institute of Technology (NJIT) — EPA Regions 1, 3, and 4
  - Kansas State University (KSU) — EPA Regions 5, 6, 7, 8, and the national grant
  - Center for Creative Land Recycling (CCLR) — EPA Regions 2, 9, and 10

Brownfield Area Benefits Estimator (BABE) and Brownfield Tracker

- **University of Louisville**
  - The research is to develop a Brownfields Communities Benefits Assessment Toolkit that communities can use to see where it makes the most economic and environmental sense to invest their brownfield resources.
  - The tools also highlight reuses valued by communities, such as access to food, parks and greenspace and affordable housing.
  - Project and Tool page - https://louisville.edu/cepm/publications/tool-kits/brownfields-community-benefits-assessment-guide
  - Benefits Estimator Tool - https://brownfieldbenefits.com/index.html?
  - You can download and add Alaska DEC and Tribal inventory to tool
  - You may use the mobile tool on your phone to add sites (need to download ESRI Survey 123 to use and enable geolocations).
  - https://survey123.arcgis.com/share/d090411f3d984670a5e821566796f3b9?open=menu

Cumulative Benefits of Brownfield Reuse (as of October 1, 2020)

- Brownfield Properties Assessed **32, 515**
- Jobs Leveraged **170,724**
- Dollars Leveraged **$33.650 BN**
- Acres Ready for Reuse **132,513**

- Through fiscal year 2020, on average, **$20.13** was leveraged for each $**1** EPA Brownfields dollar and **10.3 jobs** leveraged per **$100,000** of EPA brownfields funds expended on assessment, cleanup, and revolving loan fund cooperative agreements.
- A 2020 study* comparing brownfield redevelopment compared to greenfield development found for every 1.0 acres in brownfield redevelopment saved **1.3 to 4.6 acres** getting developed and a **25% to 33%** reduction in vehicle miles travelled and **7.3 to 9.7 fewer VMT per capita per day**.
- An Earlier pilot study in five cities found a **32 to 57** percent reduction in vehicle miles traveled when development occurred at a brownfield site rather than a greenfield and an estimated **47 to 62** percent reduction of stormwater runoff for brownfield site development as opposed to greenfield development.
- A 2015 study concluded that cleaning up brownfield properties leads to residential property value increases of **5 - 15.2%** within 1.29 miles of the sites. **

* Source: U.S. Environmental Protection Agency, 2020, *Environmental Benefits of Brownfields Redevelopment – A Nationwide Assessment,* EPA 560-R-20-001, https://www.epa.gov/sites/production/files/2021-01/documents/environmental_benefits_of_brownfields_redevelopment_final_560-r-20-001_-_508_compliant_0.pdf.

** Source: Haninger, K., L. Ma, and C. Timmins. 2017. The Value of Brownfield Remediation. *Journal of the Association of Environmental and Resource Economists, 4(1): 197-241*.

Asia Pacific Development Center (APDC)
Denver, CO

Scrap yard/ auto repair

Dry cleaner with known release

Former gas station

Auto repair

Heavy traffic

Asia Pacific Development Center (APDC)

- Phase II assessment tested for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, petroleum products, metals and soil pH.

- Results came back clean, which helped facilitate the new community garden.

Somerville, MA

Vacant lot

Community garden

- Vacant since 1950s, became an illegal dump
- City acquired in 2003, found PCBs, VOCs, Metals, coal/wood ash
- EPA BF Cleanup helped remediate lot to garden in 2007 - ~$400,000
- Groundwork Somerville, City, HUD and others contributed to garden creation

Philadelphia, PA

48.6 acre Brownfield

- Used for auto salvage, Tire and scrap disposal

- 1,234 tons of metal debris, 926 tons of garbage, and 400,000 tires removed to recycle

- $4 million in cleanup, $218 million investment

Former Bush Recycling, Florence, SC

- Former metal ‘recycling’ junkyard for 50 years in downtown.
- A 2003 Brownfield grant helped assess the top 2 feet of soil contamination and a 2006 SC DHEC targeted assessment focused on soil and groundwater.
- SC DHEC found VOCs and PAHs above screening levels, one Aroclor 1016 exceedance and two Aroclor 1254 detections at the site.
- A 2006 EPA Cleanup grant and SC DHEC $1 million cleanup loan helped remove the top 2 ft of soil (12,500 tons) with SC DHEC oversight.

Hope Health Medical Plaza, Florence, SC

2014 Mayor convinces health center to locate on Bush Recycling site.

City acquires property with foundation assistance.

EPA and State grants and assistance help the City assess, clean and donate the site.
for center which opens in 2016.

Robert L. Cole Community Lake / Park, Tampa, FL

- **Challenges**
  - Former Landfill Site
  - Community Needs Open/Green Space
  - Community Support
    - Project Named Community Legend, Robert L. Cole
  - $1.1 million in Tax Increment Funding
  - University of South Florida (USF) design
- **Results**
  - Multi-Use Community Park / Lake
  - Recreational Opportunities – Boardwalk, Walking Trail, Exercise Stations and Observation Tower, Pier
  - USF and Local Elementary Schools Partner on Water Quality Research Project
  - Public Art / Culture – Historic African Americans Quotes Engraved in Walking Trail

Open Space / Green Space Address Health Issues through Opportunities for Physical Activity

Community Partners

East Tampa Revitalization Partnership

Ed Johnson – *City of Tampa*

Trent Green – *University of South Florida*

Our House
Little Rock, Arkansas

Before—Abandoned Building

After—Childcare Facility for Homeless

Asbestos & Lead Abatement

Sub-grant from Pulaski County RLF

$3.8-million in leveraged renovations

Green Infrastructure & Revitalization, Columbia, MO

- Daylight stream and landscape

Before: Former bulk oil facility

After: Award-winning park with rain garden

Fort Peck Assiniboine and Sioux Tribes, Fort Peck Airfield, Poplar, Montana

- A former crop-dusting and county airport for over 40 years, the former Fort Peck Airfield closed in 2011.
- Petroleum contamination from from underground storage tanks and runoff from a jet fueling area kept the site unused until the Tribes, EPA and a non-profit partner joined forces.
- Phase I and II environmental site assessments revealed herbicides, insecticides, fuels and oils, lubricants and solvents. Lead-based paint was also identified on school walls and in nearby soils.
- An EPA cleanup grant of $200,000 helped the Tribes remove the petroleum, lead and pesticide contaminated soils and collect and test soils from each soil removal area.
- The Make It Right Foundation helped to build 20 LEED Platinum energy efficient homes with help from the National Renewable Energy Lab (NREL) study of high-performance home energy use.
- Planned as a sustainable village, the Tribes also built a greenhouse and basketball courts and have plans to add a wellness center. The project also created local jobs with road improvement and other projects.
- Learn more at: Making Things Right and Brownfield Success Stories.

The Make It Right Foundation built 20 high-efficiency homes at the former airfield.

Former Fremont Garden, Sacramento, California

- Garden for >30 years
- Tested when portion of garden proposed for different land use, found lead, PAHs, pesticides > EPA and California Standards
- 1,900 yd3 soil from 24-48 inches removed
- $423,000 leveraged for cleanup/ garden

Brownfield to Healthfields
Creating Healthier Places

Questions?

Thank You

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https://www.epa.gov/brownfields