

Guidance on the Redevelopment of Superfund and Brownfield Sites as AI Data Centers



Introduction

This guidance has been developed pursuant to [Executive Order 14318, Executive Order on Accelerating Federal Permitting of Data Center Infrastructure](#), wherein EPA was directed to fulfill the following:

“The Administrator of the Environmental Protection Agency shall, consistent with the Environmental Protection Agency’s statutory authorities, expeditiously identify Brownfield Sites and Superfund Sites for use by Qualifying Projects. As part of this effort, within 180 days of the date of this order, the Administrator of the Environmental Protection Agency shall develop guidance to help expedite environmental reviews for qualified reuse and assist State governments and private parties to return such Brownfield Sites and Superfund Sites to productive use as expeditiously as possible.”

This guidance provides introductory information for community stakeholders and potential developers on how Superfund and Brownfield sites may be redeveloped as data centers.

Statutory Basis and Definitions for Superfund and Brownfield Sites

The Environmental Protection Agency’s Office of Land and Emergency Management (OLEM) supports the assessment, cleanup and reuse of Superfund and Brownfield sites under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Both Superfund and Brownfield sites include properties affected by environmental contamination. However, CERCLA defines each type of site differently:

- **Superfund sites** exist nationally due to hazardous substances, pollutants or contaminants being dumped, left out in the open, or otherwise improperly managed. These sites include manufacturing facilities, processing plants, landfills and mining sites that pose potential risks to human health and the environment. In response to these waste issues, Congress established CERCLA (informally called Superfund) in 1980. CERCLA provides EPA with the authority to clean up contaminated sites and requires the parties responsible for the contamination to either perform cleanups or reimburse the government for EPA-led cleanup work. When there is no viable responsible party, Superfund gives EPA the funds and authority to clean up contaminated sites. Superfund sites may be redeveloped for future land use leveraging resources from the Superfund Redevelopment Program (SRP).

- **Brownfield sites** are defined in CERCLA as real properties, “the expansion, development, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant” (CERCLA § 101(39)). These are properties where the current or future use is affected by real or perceived environmental contamination. It is common for a community to have several Brownfield sites due to past land uses, including commercial, industrial, or residential activities.¹ Unlike Superfund sites, EPA does not regulate assessment and cleanup activities at Brownfield sites. Rather, EPA provides funding and technical assistance resources to support community-led efforts to revitalize and reuse brownfields. State and Tribal governments are responsible for establishing and enforcing cleanup standards for addressing environmental contamination at Brownfield sites. States and Tribes oversee cleanup activities at sites enrolled in [state and tribal voluntary cleanup programs](#).

Data Centers as a Redevelopment Opportunity

Within the universe of Superfund sites and Brownfield sites (as defined in CERCLA), certain properties may have features compatible with development as Artificial Intelligence (AI) data centers or other facilities related to AI infrastructure or development. EPA’s [Superfund Redevelopment Program](#) and [Brownfields and Land Revitalization Program](#) have researched data center considerations pertinent to both developers and surrounding communities and have identified criteria applicable to evaluating such sites for data center suitability. These criteria, and the EPA-developed tools available for site identification, provide interested parties with information and resources to explore AI data centers as potential reuse cases for Superfund and Brownfields sites.

Along with existing guidance and resources for Superfund redevelopment (Appendix B) and land revitalization (Appendix C), these resources aim to expedite the return of Superfund and Brownfield sites to productive reuse and enable stakeholders to assess the viability of data centers as potential reuse cases.

Criteria and Considerations for Data Center Development

As AI technology continues to expand, the need for data centers is growing. Many Superfund and Brownfield sites have preexisting infrastructure and industrial zoning that can make data center redevelopment an attractive opportunity. But specific

¹ See [Understanding Brownfields](#) for more information.

considerations must be evaluated in the development of AI data centers on Superfund and Brownfield sites. Importantly:

- data centers must be compatible with site conditions;
- they must have easy access to infrastructural support including energy and fiberoptic cables; and
- they must be compatible with all applicable local, state, and federal regulations.

Responsible siting, thoughtful planning and engagement, careful alignment to site cleanup standards and local regulations, proper maintenance of engineering controls, and incorporating conservation and environmental protection practices are critical for making such projects a success. Further detail on criteria for data center development is provided in Appendix A.

In addition to criteria for data center siting, this guidance incorporates resources for various stakeholders to use in expediting the pathway to Superfund or Brownfield sites reuse. For example, data center developers might use the resources in Appendix B and C to:

- 1) develop criteria for projects,
- 2) identify potential sites for redevelopment,
- 3) learn more about which program might be right for developer purposes, and
- 4) determine next steps in the planning process.

Meanwhile, state, Tribal and local governments and community representatives who are interested in bringing data center development to their area might use the resources to:

- 1) learn about state, local and Tribal engagement in the site reuse process,
- 2) identify benefits to involvement with the [Superfund](#) or [Brownfields](#) programs, and
- 3) best prepare sites in your community for investment.

Given the specific reuse considerations unique to the Superfund and Brownfields programs, redevelopment resources are organized by site type, and further background is provided on both the Superfund Redevelopment Program and the Brownfield and Land Revitalization Program in Appendices B and C.

Legal and Liability Considerations

The redevelopment of Superfund and Brownfield sites may pose federal environmental liability concerns, including liability for contamination.

EPA's Superfund Redevelopment Program has robust resources available to guide potential developers regarding liability issues associated with purchasing Superfund sites, including information related to obtaining Bona Fide Prospective Purchaser status. EPA's Superfund Redevelopment Program works closely with the Office of Site Remediation Enforcement, which has developed resources to address Superfund liability concerns and promote the reuse of contaminated sites. These resources are available to prospective AI data center developers to help inform them as to liability issues related to owning or operating at Superfund sites. The [Revitalization Handbook - Addressing Liability Concerns at Contaminated Properties](#) summarizes the federal statutory provisions and EPA's cleanup enforcement documents that address the potential liability concerns of parties involved in the assessment, cleanup, and revitalization of contaminated sites. The EPA's [Addressing Liability Concerns to Support Cleanup and Reuse of Contaminated Lands](#) web page also discusses cleanup enforcement tools.

Likewise, EPA clarifies liability protections available under CERCLA for persons who adhere to [All Appropriate Inquiries](#) (AAI)² and [continuing obligations](#) when redeveloping Brownfield sites.

Conclusion

Superfund and Brownfield sites may be strong potential candidates for reuse as data centers due to their preexisting infrastructure, likely industrial zoning and proximity to energy lines. Local site conditions and applicable regulations will determine whether a site is suitable for this type of redevelopment. Community stakeholders and developers can begin to evaluate sites for potential data center redevelopment by reviewing and discussing the criteria below.

While the data center industry is rapidly evolving and expanding, Superfund and Brownfield sites have already supported data center redevelopment in the past, and EPA can draw from these experiences in guiding future work and supporting communities. With proper planning and engagement with all stakeholders, reuse as a data center can help revive a Superfund or Brownfield site to become a local economic asset.

² Performing AAI is the process of evaluating a property's environmental conditions and assessing potential liability for any contamination.

Appendix A: Criteria for Data Center Consideration

The table below summarizes initial criteria to consider when evaluating whether a Superfund or Brownfield site can be redeveloped into a data center.

Site Characteristic Criteria	Considerations for Data Center Development
Size & Topography	<ul style="list-style-type: none"> • A minimum of 100 acres is typically needed for a 100 mega-watt (MW) campus-style data center. Data centers generating fewer MW may be accommodated on smaller sites. • Additional land for power generation, substations, cooling, stormwater management, parking, security, and phased expansion is usually desired. • Rectangular sites with slopes less than ~2-5% are generally preferred. 5-10% are riskier and slopes greater than 15-20% are not generally pursued.
Population & Location	<ul style="list-style-type: none"> • Ideally less than one hour from a metropolitan area, as proximity to reliable workforce and customers is important for ensuring service reliability and user experience. • Accessibility for construction and maintenance of data center.
Energy	<ul style="list-style-type: none"> • Power: High demand for power requires sufficient grid capacity, substation access, redundancy, and favorable tariffs. Onsite generation and backup sources often needed to ensure uninterrupted power supply. • Often, data centers are built directly next to or together with substations or power plants. • Multiple power sources (hydro, nuclear, fossil) could be beneficial. • Some data centers utilize renewable energy, such as solar, with solar arrays or turbines built on-site or located within a few miles.
Water	<ul style="list-style-type: none"> • Operations require substantial cooling, which may use millions of gallons per MW per year. Access to reclaimed or reliable water source is necessary. • 1-10 miles from municipal water supply (with dedicated pipelines and large contractual agreements). • Some data centers are directly adjacent to or less than 1 mile from major rivers/lakes or treatment plants (especially true for hyperscale sites in water-rich areas).

Fiber Optic Cable/Connectivity	<ul style="list-style-type: none"> • Redundant high-capacity connections via diverse routes required. • Proximity to major internet exchanges, fiber optic networks, and telecommunications infrastructure (often less than 1 mile) ensures low latency and high bandwidth. Cities with robust telecom infrastructure are preferred.
Other Infrastructure Considerations:	<ul style="list-style-type: none"> • Transportation: Road, rail, or river access needed for delivering heavy freight and supplying fuel to site. • Supply chain: Access to steel, cooling, and information technology (IT) equipment. • Security: Assess physical and cyber risk profile.
Environmental Conditions	<ul style="list-style-type: none"> • Habitat and wetlands: Avoid building on sensitive areas. • Soil: Strong bearing capacity is essential.
Flood risks	<ul style="list-style-type: none"> • Most large data centers are built outside of the 100-year flood zone, some prioritizing being >100 yards from 100-year flood zone (or even outside the 500-year flood zone).
Other natural disaster risks	<ul style="list-style-type: none"> • Areas with low risk of natural disasters (earthquakes, hurricanes, floods, tornadoes) are preferred for business continuity. Natural hazard risks should be evaluated before construction; increased risks will increase costs and insurance.
Regional climate	<ul style="list-style-type: none"> • Data centers in areas with cooler climates reduce use of resources and costs associated with cooling, which can account for 30-40% of energy consumption. However, modern cooling technologies make warmer locations more viable.
Remedy compatibility	<ul style="list-style-type: none"> • Contamination: Site must be remediated as needed for safe reuse. Construction activities may disturb capped soils, groundwater, or otherwise enable migration of contaminants. • Superfund sites: Compatibility with status/progress of EPA remedy implementation and operation and maintenance activities and requirements. • Brownfield sites: Environmental compliance with state or Tribal regulators to understand where cleanup remedies exist on the site and compatibility with site reuse as a data center. • Compatibility with Engineering and/or Institutional Controls. • Worker protection: Health/safety plans required.
EPA construction complete status (Superfund sites)	<ul style="list-style-type: none"> • Physical construction of remedy complete (any necessary physical construction is complete, whether final cleanup levels or other requirements have been achieved; or EPA has determined that the response action should be limited to measures that do not involve construction; or the site qualifies for deletion from the NPL).

Groundwater discharge as part of site remedy	<ul style="list-style-type: none"> • Typically involves the extraction and treatment of contaminated groundwater, followed by the discharge of the treated water. • Potential for reuse of treated groundwater for data center cooling.
Regulatory & Legal Factors	<ul style="list-style-type: none"> • Federal environmental liability issues for AI data centers located on Superfund sites should be recognized and appropriately addressed in the beginning stages of development. • State and Tribal issues also need to be considered, as appropriate. • Federal, state, and Tribal permitting processes and local zoning requirements for environmental, health, and safety standards are additional requirements needed for siting AI data centers. • Documentation for brownfield sites may require “No Further Action” letters from state or Tribal regulator. • All Appropriate Inquiries (AAI) must be conducted before owning or operating a brownfield site. • Permitting: Understand the permitting process and how it will affect project timelines. Identify whether local zoning or code changes will be needed. • Noise, vibration, and emissions: Must meet health and safety standards.
Parcel configuration, land ownership, and real estate	<ul style="list-style-type: none"> • Large, flat parcels with room for expansion, appropriate zoning, and reasonable costs are essential. • Identify contiguous parcels under the same ownership to simplify a lease agreement or land purchase.
Site reuse or reuse planning status	<ul style="list-style-type: none"> • Understand how much of the site is developable (e.g., which portions of the site are in reuse, not in reuse, vacant, or already occupied by infrastructure or remedy, etc.). (See Brownfields guidance on this here) • Site reuse plans need to be developed with community input and aligned with local environmental, market and infrastructure conditions. (See Brownfields guidance on this here)
Benefits and Costs to Community & Surrounding Areas	<ul style="list-style-type: none"> • Communities may raise concerns about competition for water and energy resources, increased noise and traffic, availability of housing, schools, or emergency services, and impacts to air and water quality. • Construction typically requires thousands of workers, but operations typically require a small number of skilled staff. • Transparent engagement, advisory groups, and public dialogue are essential. • Opportunities exist for workforce training partnerships and local infrastructure investments that offset impacts, and remediation of legacy issues that removes community burdens.
Community support	<ul style="list-style-type: none"> • Community/local support or opposition to data center development. • Engagement to address community concerns and highlight project benefits. • This can result in stakeholders identifying new ideas that gain community support, minimize conflict, and reduce delays in project completion.

Financial incentive	<ul style="list-style-type: none"> • Tax exemptions, property abatements, and/or subsidies are available in different forms in the following states: AL, AZ, GA, IA, IL, IN, KS, KY, MI, MN, MO, MS, NC, ND, NE, NV, NY, OH, OK, SC, TN, TX, UT, VA, WA, WV, and WY.
State & Local Incentives	<ul style="list-style-type: none"> • Many states and localities offer sales tax exemptions, property tax abatements, or infrastructure grants. Incentives can be tied to workforce training, renewable energy, or infrastructure upgrades.

Appendix B: Superfund Redevelopment Guidance and Resources

The Superfund Redevelopment Program (SRP) provides technical assistance and resources to developers, landowners, prospective purchasers, and communities, thereby facilitating the return of Superfund sites to safe and productive reuse in a manner consistent with local interests. SRP offers land use planning support, ready for reuse determinations, and resources for prospective purchasers and developers to assist in the redevelopment of formerly contaminated land. These resources assist in the identification of viable reuse opportunities that are compatible with both the site remedy and local interest, while providing information and tools to developers as they manage concerns about Superfund liability. SRP does not, and cannot, control, determine, or designate land use for particular sites, but rather provides facilitative support for locally driven decision-making.

The Superfund Redevelopment Program has developed a vast and growing repository of guidance documents and resources to support stakeholders in pursuing redevelopment opportunities efficiently and effectively. These resources are all applicable to the specific reuse case of AI data centers.

- [Redevelopment Tools and Resources for Site Owners, Developers, and Prospective Purchasers](#) – This EPA webpage provides tools and resources that can assist site owners, developers and prospective purchasers with site-related information and decision-making when considering data centers at Superfund sites.
- [Top 10 Questions to Ask When Buying a Superfund Site](#) (also available in Spanish) – This document addresses many of the most common questions prospective purchasers have when considering property acquisitions at Superfund sites.
- [Redevelopment Mapper for Superfund and Brownfield Sites](#)– EPA’s Redevelopment Mapper provides the key information for stakeholders and land managers to help them make timely business decisions, address reuse barriers and plan for the future use of Superfund and Brownfield sites. It includes site information, community context and links to relevant resources. Use this mapping application to explore development opportunities at Superfund sites.
- [Prospective Purchaser Inquiry Process](#) – EPA’s Regions offer a Prospective Purchaser Inquiry Process, a free information service available to prospective

purchasers, sellers, lessees and other stakeholders interested or involved in the redevelopment of a current or former Superfund site.

- [Superfund Reuse Planning Support and Technical Assistance](#) – EPA’s Superfund Redevelopment Program provides technical assistance services to support the productive reuse and redevelopment of Superfund sites.
- [Redevelopment Opportunities](#) – This EPA webpage provides developers, prospective purchasers and other parties interested in redevelopment of Superfund sites with more information about sites that may be ready for reuse.
- [Ready for Reuse \(RfR\) Determination](#) – EPA’s Ready for Reuse (RfR) Determination provides a technical determination that a site is “ready for reuse” and will remain protective of human health and the environment for that use, so long as any use limitations established by EPA continue to be met.

Appendix C: Brownfields and Land Revitalization Guides and Tools

EPA's Brownfields and Land Revitalization Program provides [grants](#) and [technical assistance](#) to help communities assess, clean up, and sustainably reuse Brownfield sites. The program distributes funds appropriated annually by Congress through competitive grants, non-competitive funding, and technical assistance. EPA's support to communities struggling with Brownfield sites helps them pursue safe site reuses consistent with their local land use goals and decisions. When a property once again becomes an asset to the community, the redevelopment often brings about new opportunities to protect public health, improve the environment and grow the local economy.

The following guides and tools can help a community through the site reuse planning and pre-development stages of the Brownfield site redevelopment process.

- [Local Officials' Guides](#) – This website offers several documents to help mayors, council members, and other local leaders find practical resources to plan and drive brownfields cleanup and reuse.
- [How States, Tribes and EPA Work Together](#) – This website explains how states and Tribal Nations are responsible for developing Brownfields cleanup standards and policy and conducting or overseeing assessment and cleanup of Brownfield sites in their jurisdictions. EPA provides funding to help establish or enhance state and tribal response programs.
- [Forecasting Benefits and Public Returns for Brownfield Redevelopment](#) – This document is a getting-started guide to understanding the potential for economic benefits and public returns in Brownfields reuse.
- [15 specific planning activities](#) – This website can help a community's site reuse goals align with local economic, infrastructure, social and environmental conditions, and determine which reuses are feasible for the site.
- The [Preparing Your Plan for Site Reuse](#) guide helps a community evaluate the financial feasibility of different Brownfields revitalization scenarios.
- The [Anatomy of Brownfields Redevelopment](#) guide explains the Brownfields cleanup and reuse process from the real estate development perspective.
- The [Creating a Brownfields Investment Package](#) guide explains how to compile relevant site information into a highly visual communications and marketing document.
- [EPA's Redevelopment Mapper for Superfund and Brownfield Sites](#) provides the key information for stakeholders and land managers to help them make timely business decisions, address reuse barriers and plan for the future use of Superfund and

Brownfield sites. It includes Brownfield sites in [EPA's ACRES database](#)³ that are over 100 acres with no reported redevelopment. Properties reported in ACRES that are smaller than 100 acres and those with redevelopment activity can be found in [EPA's Cleanups in My Community](#) tool.

³ Note that EPA does not maintain a list of every Brownfield site within the U.S. [EPA's ACRES database](#) includes information on properties assessed and cleaned up with the use of EPA Brownfields funding (as reported by EPA Brownfield Grant recipients). [State or Tribal Brownfields Response Programs](#) may also retain maps or inventories of known brownfield sites within their jurisdictions. This information may be publicly available on state and Tribal websites.