Superfund Redevelopment Economics Notebook

Economic Information Collection Overview

EPA quantifies the beneficial effects of reuse at Superfund sites. Information collected includes the number of on-site jobs, estimated annual employment income and sales revenue generated by on-site businesses, on-site property values, local property tax revenues, and other beneficial effects that are unique to individual sites.

EPA shares these beneficial effects in four primary ways:

1. **National economic information summaries** that track the numbers of businesses and on-site jobs, employment income from jobs, and sales revenue information for many sites in reuse. This information provides a nationwide overview of the beneficial effects associated with Superfund site reuse.
2. **Regional economic reports** that profile economic and community benefits by EPA Region.
3. **Beneficial economic effects case studies** that highlight detailed reuse, employment and other beneficial effects at the site and community level.
4. **In-depth reuse case studies** that document additional site-specific economic information. Sometimes, this additional detailed information is provided by communities during case study development.

Number of Sites

EPA's Superfund Redevelopment Initiative (SRI) tracks hundreds of Superfund sites in planned and active reuse, as well as Superfund sites in continued use (Table 1). For some of these sites, SRI also collects economic information associated with businesses operating at these sites. These businesses represent a subset of the beneficial effects of sites in reuse or continued use nationwide. As of the end of 2018, there were 251 non-federal facility Superfund sites in reuse or continued use for which EPA does not have business information (Table 1). Those sites are not expected to have uses that support on-site businesses, provide jobs or generate sales revenue. Not all sites in reuse involve an on-site business or other land use that would employ people. Many sites in reuse without businesses have beneficial effects that are not easily quantified, such as properties providing ecological or recreational benefits (parks, wetlands, ecological habitat, sports fields, open space). Not all sites in reuse are well suited for revenue-generating uses. If a site is located in an area that cannot support commercial or industrial uses, redevelopment projects that will support jobs may not be a realistic option. SRI regularly conducts research to identify new sites in reuse that might support new revenue-generating businesses, and to identify previously unknown revenue-generating businesses at sites. Examples of these efforts include:

- *Five-Year Review Site Inspections:* The site inspection process conducted as part of the Five-Year Review process offers an opportunity to include an inventory of reuse types and documents revenue-generating businesses. Economic information for identified businesses is captured as part of the Annual National Economic Information Update.
- *Annual National Economic Information Update:* This annual process systematically reviews sites in reuse without economic information that may now support revenue-generating businesses.

- *New Economic Data Source Identification:* SRI researches online resources to identify new sources and databases that could help capture additional economic information. The ReferenceUSA database, which was added as a new information source in 2016, is one example.
- *SRI Snapshot Updates:* SRI snapshot updates often identify sites that support revenue-generating businesses that were previously unidentified. These updates also often identify new businesses operating on sites in reuse.

Table 1. Economic Information Availability for Superfund Sites (2018)

Sites in Reuse	780[1]
Sites in Reuse with Economic Information	529[2]
Sites without Economic Information	251[3]

National Economic Information

SRI collects and maintains economic information for a subset of Superfund sites in reuse and continued use. This subset includes sites where SRI has identified active businesses. Information collected includes the names of businesses operating at sites, the number of people employed at site businesses, wage and income information, and annual business sales. This economic information is stored in the SUperfund REdevelopment (SURE) information library and updated annually. During each update, referred to as the Annual National Economic Information Update, SRI gathers economic information from high-quality economic databases online that verify their information before posting. Economic information also comes from site stakeholders and businesses, local media, and online resources. Wage values come from the U.S. Bureau of Labor Statistics' Quarterly Census of Employment and Wages (http://www.bls.gov/cew). Those wage values are used to calculate estimated annual income for each site business based on North American Industrial Classification System (NAICS) codes.

To identify new sites that may potentially support revenue-generating businesses, the annual update includes a review of sites in commercial, industrial, recreational, agricultural and residential reuse, as well as sites in planned reuse. SRI uses the information gathered during the Annual National Economic Information Update to track progress in returning sites to beneficial use and to respond to federal and congressional information requests. At the end of each Annual National Economic Information Update, SRI compiles all site-level economic information to calculate an estimate of the beneficial effects of site reuse at the national level (Table 2). In 2018, SRI gathered economic information for 529 sites in reuse; 8,690 businesses at these sites generated $52.4 billion in estimated annual sales and employed over 195,000 people (Table 2).

[1] The query included sites of all NPL status as of November 2018. It did not include federal facilities. Reuse status included reused and in continued use. Reuse type included all types of reuse.
[2] 2018 SUperfund REdevelopment (SURE) information library economic update summary.
[3] This query of November 2018 SURE information library information removed sites with economic information in the 2018 SURE update. This total includes sites that could potentially generate economic activity and sites in recreational and ecological use, that are unlikely to support businesses.

Table 2. National Economic Information for Superfund Sites in Reuse Since 2011[4]

Year	Sites in Reuse with Economic Information	Number of Businesses	Actual Annual Sales	Adjusted Annual Sales*	Jobs	Actual Annual Employment Income	Adjusted Annual Employment Income*
2011	135	271	$8.8 billion	$9.8 billion	24,308	$1.6 billion	$1.8 billion
2012	276	972	$20.0 billion	$21.8 billion	46,475	$3.3 billion	$3.6 billion
2013	363	2,216	$32.6 billion	$35.2 billion	70,270	$4.9 billion	$5.3 billion
2014	450	3,474	$31.5 billion	$33.4 billion	89,646	$6.0 billion	$6.4 billion
2015	454	3,908	$29.0 billion	$30.8 billion	108,445	$7.8 billion	$8.3 billion
2016	458	4,720	$34.0 billion	$35.6 billion	131,635	$9.2 billion	$9.6 billion
2017	487	6,622	$43.6 billion	$44.7 billion	156,352	$11.2 billion	$11.4 billion
2018	529	8,690	$52.4 billion	$52.4 billion	195,465	$13.3 billion	$13.3 billion

* Adjusted to 2018 USD using the Consumer Price Index (CUUR0000SA0, not seasonally adjusted, U.S. city annual average).

All economic information undergoes a thorough, multi-step QA/QC review prior to finalization. Unexpectedly high numbers of employees or sales revenue for businesses are reviewed and removed from the SURE information library if the figures cannot be verified. Sources for all economic information are provided in the information library. Copies of economic information obtained from databases are maintained to support and verify the information and associated calculations.

Looking forward, SRI is focused on tracking the sites that move into reuse each year, updating information for existing sites as business information and economic factors change over time, and updating jobs, income and sales information for known businesses at sites on an annual basis.

Regional Economic Information

Regional economic reports provide an opportunity to highlight reuse outcomes in each of the 10 EPA Regions. The reports summarize and synthesize economic information collected for Superfund sites in each Region. They emphasize the efforts of the Superfund program and share the positive impacts of reuse and continued use of Superfund sites in each Region. They highlight the impacts of businesses operating at current and former Superfund sites and changes in property values and property taxes associated with sites that have been cleaned up and returned to use. The reports help document reuse outcomes for EPA Regions and identify success stories to highlight for SRI anniversaries. SRI updates these reports periodically (Table 3).

[4] This information is available in the SURE information library and posted on SRI's Redevelopment Economics at Superfund Sites webpage.

Table 3. Regional Economic Reports[5]

Region	Current Report	Planned Update
Region 1	September 2018	2019
Region 2	September 2018	2019
Region 3	September 2018	2019
Region 4	September 2018	2019
Region 5	September 2018	2019
Region 6	October 2018	2019
Region 7	September 2018	2019
Region 8	September 2018	2019
Region 9	September 2018	2019
Region 10	September 2018	2019

Methodology

To develop these reports, SRI extracts, analyzes, reviews and updates details in the SURE information library. SRI also reviews recent beneficial economic effects case studies and in-depth case studies for additional information. Property values for each Region are evaluated and updated. QA/QC procedures ensure that all aggregated information is well integrated and presented accurately. In some cases, sites highlighted in a regional economic report may not have extensive prior documentation. In these cases, SRI conducts additional research and develops new highlight content for the report.

Key Findings[6]

Region 1

Superfund sites across Region 1 are now the locations of office and business parks, shopping centers, supermarkets, restaurants, homes, condominiums, apartments, and hotels. Other sites support public uses, including a commuter train and bus station. Many sites continue to host industrial operations, including manufacturing facilities. Some sites now support energy projects. Other sites host soccer fields, hiking trails, an ice-skating arena and a model airplane flying field. On-site businesses and organizations at current and former Region 1 Superfund sites provide an estimated 10,934 jobs and contribute an estimated $692 million in annual employment income. Sites in reuse and continued use in Region 1 generate $17 million in annual property tax revenues for local governments.

Region 2

Superfund sites across Region 2 are now industrial facilities, shopping centers, medical facilities and neighborhoods. Many sites host large-scale retail centers and department stores. Other sites are now home to natural areas, train lines and recreation facilities. On-site businesses and organizations at current and former Region 2 Superfund sites provide an estimated 15,861 jobs and contribute an estimated $792 million in annual employment income. Sites in reuse and continued use in Region 2 generate $23.8 million in annual property tax revenues for local governments.

[5] Current regional economic reports are available on SRI's Redevelopment Economics at Superfund Sites web page.
[6] Regional summaries are gathered from draft 2019 regional economic reports and include final 2018 economic information.

Region 3

Superfund sites across Region 3 are now the location of business parks, shops and public-service facilities. Many sites continue to encompass industrial operations such as large-scale manufacturing facilities and warehouses. Other sites now support natural areas, recreation trails and athletic fields. On-site businesses and organizations at current and former Region 3 Superfund sites provide an estimated 15,741 jobs and contribute an estimated $1.1 billion in annual employment income. Sites in reuse and continued use in Region 3 generate $3.7 million in annual property tax revenues for local governments.

Region 4

Superfund sites across Region 4 are home to industrial and commercial parks, retail centers, car dealerships, government offices, and neighborhoods. Many sites continue to host industrial operations such as large-scale manufacturing facilities. Other sites support natural areas, parks and recreation facilities. On-site businesses and organizations at current and former Region 4 Superfund sites provide an estimated 19,334 jobs and contribute an estimated $1.2 billion in annual employment income. Sites in reuse and continued use in Region 4 generate $10.2 million in annual property tax revenues for local governments.

Region 5

Superfund sites across Region 5 are home to commercial and industrial parks, retail centers, condominiums and single-family homes. Many sites continue to host industrial operations, including large-scale manufacturing facilities. Some sites now support alternative energy projects. Others have been transformed into ecological preserves, parks and recreation complexes. On-site businesses and organizations at current and former Region 5 Superfund sites provide an estimated 15,676 jobs and contribute an estimated $1.1 billion in annual employment income. Sites in reuse and continued use in Region 5 generate $11 million in annual property tax revenues for local governments.

Region 6

Superfund sites across Region 6 are home to manufacturers, financial service providers, computer system specialists, freight transportation logistics companies, restaurants, hotels and a range of other uses. Public services at Superfund sites in Region 6 offer housing assistance, recycling facilities, public health assistance, sanitation support and safety training. One site supports a plant that converts landfill gas into clean-burning diesel fuel and other products. Another site hosts a state-of-the-art municipal marina. Sites also host ecological preserves and wildlife habitat. On-site businesses and organizations at current and former Region 6 Superfund sites provide an estimated 4,608 jobs and contribute an estimated $224 million in annual employment income. Sites in reuse and continued use in Region 6 generate $5.3 million in annual property tax revenues for local governments.

Region 7

Superfund sites across Region 7 support industrial parks, shopping centers and agricultural operations such as manufacturing facilities, grain storage facilities and crop cultivation. Others are now home to natural areas, parks and recreation facilities. One site now hosts an upscale apartment complex. On-site businesses and organizations at current and former Region 7 Superfund sites provide an estimated 22,832 jobs and contribute an estimated $1.2 billion in annual employment income. Sites in reuse and continued use in Region 7 generate $45.8 million in annual property tax revenues for local governments.

Region 8

Superfund sites across the Rocky Mountain and Plains Region are now industrial parks, shopping centers, hospitals and neighborhoods. Many sites continue to host industrial operations such as large-scale manufacturing facilities. Others are now ecological preserves, parks and recreation complexes. On-site businesses and organizations at current and former Region 8 Superfund sites provide an estimated 35,005 jobs and contribute an estimated $1.8 billion in annual employment income. Sites in reuse and continued use in Region 8 generate $55 million in annual property tax revenues for local governments.

Region 9

Superfund sites across Region 9 are now home to industrial parks, shopping centers, office buildings and neighborhoods. Many sites continue to host industrial operations such as large-scale manufacturing facilities. Some sites continue to host military facilities. Others are now parks and recreation areas. On-site businesses and organizations at current and former Region 9 Superfund sites provide an estimated 39,226 jobs and contribute an estimated $4.2 billion in annual employment income. Sites in reuse and continued use in Region 9 generate $42.6 million in annual property tax revenues for local governments.

Region 10

Superfund sites across Region 10 are home to industrial parks, large port operations, resorts, public service providers and neighborhoods. Many sites continue to host industrial operations such as large-scale manufacturing facilities as well as military facilities. Others are now natural areas, parks and recreation facilities. On-site businesses and organizations at current and former Region 10 Superfund sites provide an estimated 16,248 jobs and contribute an estimated $965 million in annual employment income. Sites in reuse and continued use in Region 10 generate $5.1 million in annual property tax revenues for local governments.

Local Economic Information

SRI's beneficial economic effects case studies gather highly detailed information related to reuse, employment and other beneficial effects at individual sites. SRI also highlights economic information provided by communities during the development of in-depth reuse case studies. Beneficial economic effects case studies include economic information about companies operating at sites and capture unique economic benefits provided by particular uses, such as alternative energy facilities. As of April 2019, SRI has published 69 case studies (Table 4); another sixteen case studies are currently undergoing final review and finalization or are in development (Table 5). Additional case study candidates for development in 2019 and beyond are currently under consideration.

SRI works with the Regions and EPA site teams to identify contacts, obtain site photos and capture site details that may not be otherwise available. Time commitments for Regional staff are kept to a minimum – their involvement with site selection and initial information collection helps ensure that the case studies are high quality and comprehensive.

Research may include a site visit to more fully document site businesses, interview stakeholders, research county deed records, photograph site facilities, and facilitate the development of site and vicinity maps.

Table 4. Beneficial Economic Effects Case Studies Published to Date[7]

Site	Year
Abex Corporation	2011
Aidex Corporation	2015
Airco Plating	2016
American Cyanamid Co.	2018
Benfield Industries	2012
Big River Mine Tailings/St. Joe Minerals Corp.	2018
BMI-Textron and Trans Circuits, Inc.	2014
Boise Cascade/Onan Corp./Medtronics	2017
Bunker Hill Mining and Metallurgical Complex	2017
Calhoun Park Area	2014
California Gulch	2014
Coalinga Asbestos Mine	2015
Davie Landfill	2014
Del Amo	2013
Ecosystem Services at Superfund Sites	2017
E.I. du Pont de Nemours & Co., Inc. (Newport Pigment Plant Landfill)	2014
FMC Corp. (Yakima Pit)	2014
Fort Devens	2018
General Electric Co./Shepherd Farm	2017
General Mills/Henkel Corp.	2014
Goldisc Recordings, Inc.	2015
Havertown PCP	2017
Highway 71/72 Refinery	2015
Industri-Plex	2014
Iron Horse Park	2017
Joslyn Manufacturing & Supply Co.	2016
Kansas City Structural Steel	2015
Kearsarge Metallurgical Corp.	2016
Kennecott (South Zone)	2017
Koppers Coke	2012
Lexington County Landfill	2014
Liberty Industrial Finishing	2014
Lindsay Manufacturing Co.	2017
Macalloy Corporation	2012
Materials Technology Laboratory (US Army)	2018
Midvale Slag	2015
Murray Smelter	2012
Naval Industrial Reserve Ordnance Plant (NIROP)/FMC Corp. (Fridley Plant)	2016
North Penn Area 12	2014

[7] Reports available on SRI's Redevelopment Economics at Superfund Sites web page as of June 2019.

Site	Year
North Ridge Estates	2018
Northwest Pipe & Casing/Hall Process Company	2015
Onondaga Lake	2018
Pacific Sound Resources	2013
Pease Air Force Base	2018
Peterson/Puritan, Inc.	2014
Phoenix-Goodyear Airport Area	2015
PJP Landfill	2016
PMC Groundwater	2014
Raymark Industries, Inc.	2016
Reynolds Metals Company	2015
Roebling Steel Company	2016
RSR Corporation	2015
Sherwood Medical Co.	2015
SMS Instruments, Inc.	2014
Sola Optical USA, Inc.	2016
Solitron Microwave	2012
South Andover	2011
South Bay Asbestos Area	2015
South Point Plant	2014
Southside Sanitary Landfill	2011
State Marine of Port Arthur/Palmer Barge Line	2017
Strother Field Industrial Park	2015
Tucson International Airport Area	2016
Universal Oil Products (Chemical Division)	2013
Vasquez Boulevard and I-70	2017
Vertac, Inc.	2012
Waste Disposal, Inc.	2014
Wells G&H	2018
Welsbach and General Gas Mantle	2015

Table 5. Beneficial Economic Effects Case Studies in Development

Site	Development Year	Status
Brunswick Naval Air Station	2018	Undergoing final review and finalization
Davisville Naval Construction Battalion Center	2018	Undergoing final review and finalization
Eastland Woolen Mill	2018	Undergoing final review and finalization
Loring Air Force Base	2018	Undergoing final review and finalization
Martin-Marietta, Sodyeco, Inc.	2018	Undergoing final review and finalization
San Fernando Valley Area 1	2018	Undergoing final review and finalization
Tinkham Garage	2018	Undergoing final review and finalization
Waite Park Wells	2018	Undergoing final review and finalization
Blackburn & Union Privileges	2019	In development
Cherokee County	2019	In development
Denver Radium Site	2019	In development
Flat Creek IMM	2019	In development
Operating Industries, Inc. Landfill	2019	In development
Portland Cement (Kiln Dust 2 & 3)	2019	In development
Reynolds Metals Company	2019	In development
South Point Plant	2019	In development

Additional Economic Efforts

General Economic Support

SRI often responds to quick turnaround requests from EPA management and EPA Regions for information related to the economics of remediating and reusing Superfund sites. These urgent requests are often related to policy and budget discussions. In addition, general economic support also includes the collection of additional economic information for sites in reuse and the support of other opportunities to investigate and share the beneficial effects of Superfund site reuse.

Property Values

SRI collects and maintains property value and tax information for a subset of Superfund sites in reuse and continued use. The primary information collected includes parcel numbers, acreage, land use/zoning type, land value, improvement value and annual tax information. The information informs SRI's regional economic reports and beneficial economic effects case studies as well as responses to federal and congressional information requests. Local governments provide the property value and tax information. SRI uses the information gathered to examine the beneficial effects of returning sites to productive use. As of 2018, SRI has collected property value and/or property tax information for 284 Superfund sites (Table 7).

Table 7. Property Value Information[8]

Region	Information Date	Sites with Property Value and/or Property Tax Information	Total Property Value	Total Annual Taxes[9]
1	September 2018	19	$684 million	$15.4 million
2	September 2018	39	$917 million	$27 million
3	September 2018	30	$67 million	$986,000
4	September 2018	67	$733 million	$9.9 million
5	September 2018	54	$403 million	$10 million
6	October 2018	13	$433 million	$4.2 million
7	September 2018	12	$53 million	$1.2 million
8	September 2018	15	$3.2 billion	$23 million
9	September 2018	20	$2.3 billion	$25 million
10	September 2018	15	$574 million	$3.9 million

[8] Property value information gathered from regional reports accessed on SRI's Redevelopment Economics at Superfund Sites web page in June 2019. These totals do not include data for federal facilities sites.
[9] Property tax information was not available for all sites with property value information.