PUTTING SITES TO WORK

How Superfund Redevelopment in Region 9 Is Making a Difference in Communities

2022 DATA

REGION 9 ECONOMIC PROFILE

EPA

Cover page photos:

Del Monte Corp. (Oahu Planation) (Hawaii), Aerojet General Corp. (California), San Fernando Valley (Area 1) (California), Indian Bend Wash Area (Arizona), Carson River Mercury (Nevada), Carson River Mercury (Nevada).

Figure 1. An aerial view of the San Fernando Valley at the San Fernando Valley (Area 3) site (California).

TABLE OF CONTENTS

This page is intentionally blank.

PREFACE

EPA's Superfund Program is a cornerstone of the work that the Agency performs for citizens and communities across the country. The revitalization of places affected by contaminated lands is a key part of Superfund's mission, meeting community needs for thriving economies and improved environmental and public health outcomes. Through EPA's Superfund Redevelopment Program, the Agency contributes to these communities' economic vitality by supporting the return of sites to productive use.

EPA is focused on accelerating work and progress at all Superfund sites across the country, and supporting redevelopment and community revitalization. Using resources from the 2022 Bipartisan Infrastructure Law, EPA is providing necessary funding to enable delayed cleanup efforts at 49 Superfund sites to move forward. More than 60% of these sites are in historically underserved communities. EPA is leading the way to support the return of these and other once-contaminated sites to productive use.

These regional profiles highlight community-led efforts as EPA expedites cleanup and remediation and engages with partners and stakeholders to support redevelopment and community revitalization.

This page is intentionally blank.

INTRODUCTION

EPA's Region 9 office serves Arizona, California, Hawaii, Nevada, the Pacific Islands and 148 tribes. While the Southwest Region is known for its scenic travel destinations and high-tech industry and manufacturing, agriculture and commercial trade are also thriving. Loca governments, state agencies and organizations across the Region work hard to help smaller communities remain vibrant while carefully planning for new growth in major cities and suburbs. The Superfund program in EPA Region 9 is proud to play a role in these efforts.

The cleanup and reuse of Superfund sites often restores value to site properties and amenities to surrounding communities that have been negatively affected by contamination. Site redevelopment can revitalize a local economy with jobs, new businesses, tax revenues and local spending.

Through efforts such as the Superfund Redevelopment Program, EPA Region 9 helps communities reclaim cleaned-up Superfund sites. Factoring the reasonably anticipated future use of Superfund sites into the cleanup process promotes their safe redevelopment. In addition, EPA Region 9 works closely with state and local officials to remove barriers that have kept many Superfund sites vacant or underused. EPA Region 9 works to ensure that businesses on properties being cleaned up under Superfund can continue operating in a way that protects human health and the environment during site investigations and cleanup work. This continuity enables these businesses to remain open and serve as a source of jobs and income for local communities.

Region 9 Sites in Reuse and Continued Use: Business and Job Highlights

Businesses:	*1,126*
Total Annual Sales:	*$14.7 billion*
Number of People Employed:	*41,021*
Total Annual Employee Income:	*$5.4 billion*

Figure 2. A membership warehouse club at the Operating Industries, Inc. site (California).

Superfund sites across Region 9 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 9 Superfund sites provide an estimated 41,021 jobs and contribute an estimated $5.4 billion in annual employment income. Sites in reuse and continued use in Region 9 generate $59.4 million in annual property tax revenues for local governments.[1]

1 Business and property value tax figures represent only a subset of the beneficial effects of sites in reuse or continued use in Region 9. There are 51 Superfund sites in reuse or continued use in Region 9 for which EPA does not have business data, including 23 federal facilities on the Superfund National Priorities List (NPL). Not all sites in reuse involve an on-site business or other land use that would employ people. Several sites without businesses have beneficial effects that are not easily quantified, such as properties providing ecological or recreational benefits (e.g., parks, wetlands, ecological habitat and open space). In addition, there are 76 sites in reuse or continued use in Region 9 for which EPA does not have property value or tax data, including 23 NPL federal facilities.

This profile looks at how redevelopment activities at Superfund sites make a difference in communities across Region 9. In particular, it describes some of the beneficial effects of redevelopment and continued use of current and former Superfund sites. The profile also describes the land values and property taxes associated with Superfund sites returned to use and sites that have remained in use throughout the cleanup process. EPA updates these profiles periodically. The beneficial effects may increase or decrease over time due to changes in:

- The number of sites in reuse or continued use.
- The number of on-site businesses.
- Data availability.
- Changes in business and property value data.

Figures presented represent only a subset of all Superfund sites in reuse or continued use in Region 9.

Figure 3. Business offices at the Synertek, Inc. (left) and Del Amo (right) sites (California).

SUPPORT FOR SUPERFUND REDEVELOPMENT

EPA Region 9 is committed to improving the health and livelihood of Americans by cleaning up and returning land to productive use. In addition to protecting human health and the environment through the Superfund program, Region 9 partners with stakeholders to encourage redevelopment opportunities at Superfund sites. Region 9 helps communities and cleanup managers consider redevelopment during cleanup planning and evaluate remedies already in place to ensure appropriate redevelopment. In addition, EPA participates in partnerships with communities and encourages opportunities to support Superfund redevelopment projects that emphasize environmental and economic sustainability.

Specific redevelopment support efforts in EPA Region 9 include:

- Identifying and evaluating local land use priorities to align with site cleanup plans through the redevelopment planning process.
- Facilitating cleanup and redevelopment discussions to help resolve key issues between parties interested in site redevelopment.
- Supporting targeted projects intended to help Region 9 communities and EPA find the right tools to move site redevelopment forward.
- Making efforts to help address communities' and developers' liability, safety and reuse concerns through development of educational materials, comfort letters, developer agreements and environmental status reports – known as Ready for Reuse Determinations – that provide information about the appropriate use of sites.
- Supporting partnerships with groups committed to putting Superfund sites back into use, such as the U.S. Fish and Wildlife Service.
- Developing reuse fact sheets, websites, webinars and reuse case studies to share opportunities and lessons associated with Superfund Redevelopment.

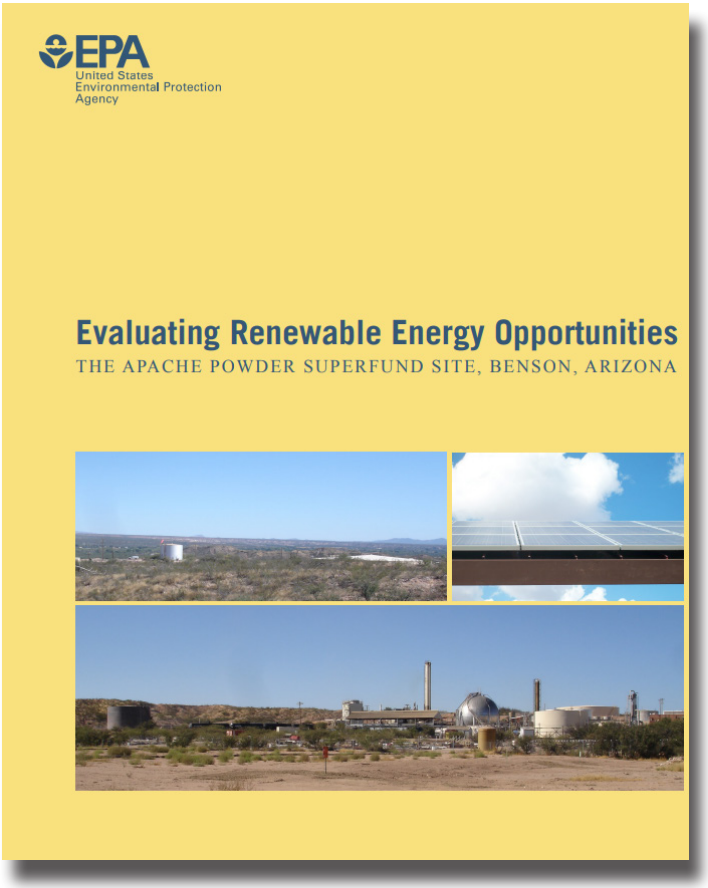


Figure 4. Renewable energy assessment for the Apache Powder site (Arizona).

These efforts have helped build expertise across Region 9, making it easier to both consider future use of Superfund sites prior to cleanup and to identify opportunities for removing reuse barriers. These efforts also help tribes, state agencies, local governments, communities, potentially responsible parties, site owners, developers, and other partners and stakeholders to better understand potential future uses for Superfund sites. This helps stakeholders engage early in the cleanup process, ensuring that Superfund sites are restored as productive assets for communities. Most importantly, these efforts lead to significant returns for communities, including jobs, annual income and tax revenues.

SUPERFUND REDEVELOPMENT: THE BIG PICTURE

EPA can take and oversee immediate action at contaminated sites through short-term cleanup actions, also called removal actions.[2] EPA refers sites warranting long-term cleanup to its remedial program or to state programs. EPA's National Priorities List (NPL) is a list of sites the Agency is targeting for further investigation and possible remediation through the Superfund program. Once EPA places a site on the NPL, the Agency studies the contamination, identifies technologies that could address the material and evaluates alternative cleanup approaches. EPA then proposes a cleanup plan and, after collecting public input, issues a final cleanup plan. The Agency then cleans up the site or oversees cleanup activities. EPA has placed 135 sites in Region 9 on the NPL.

Whenever possible, EPA seeks to integrate redevelopment priorities into site cleanup plans. In Region 9, 97 NPL sites and ten non-NPL Superfund sites are in use. These sites have either new uses in place or uses that remain in place from before cleanup. Many of these sites have been redeveloped for commercial, industrial and residential purposes. Others have been redeveloped for recreational, ecological and agricultural uses. Businesses and other organizations also use some site areas for memorials and parking areas. Many redeveloped sites support multiple uses and have the capacity to support additional uses and further redevelopment. The following sections take a closer look at the beneficial effects of businesses operating on current and former Superfund sites in Region 9.

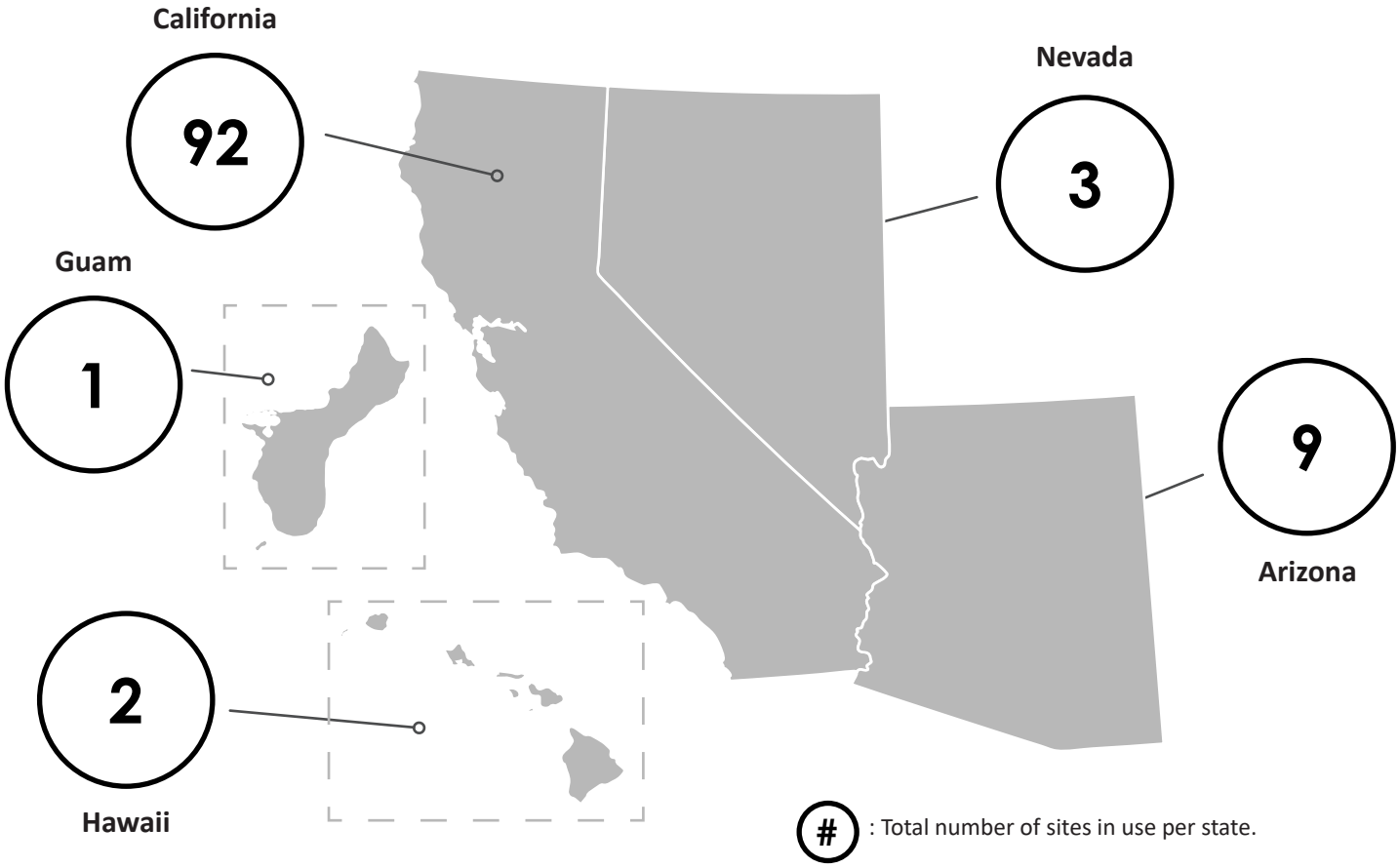


Figure 5. Sites in reuse and continued use in Region 9.

2 Removal actions may be taken at sites on the NPL and sites not on the NPL.

Figure 6. Left: Continued use of the semiconductor manufacturing facility at the Applied Materials site (California). Right: Parking lot solar array provides shade for vehicles at the Tucson International Airport Area site (Arizona).

Sites in Reuse and Continued Use: A Closer Look

Reuse Type	Description	Region 9 Example
In Reuse	*Part or all of a site is being used in a new, different manner than before Superfund involvement. Or, the property was vacant and cleanup was designed to support a new, specific land use.*	*Del Norte Pesticide Storage (California) – this site was once a pesticide storage facility. Today, it hosts the Del Norte County Agriculture Department's offices and related facilities.*
In Continued Use	*Historical uses at a site remain active, and/or the site is still used in the same general manner as when the Superfund process started at the site.*	*Applied Materials (California) – a semiconductor manufacturer remained active on site during cleanup. Today, the company's headquarters are located there.*
In Reuse and Continued Use	*Part of a site is in continued use and part of the site is in reuse.*	*Tucson International Airport Area (Arizona) – Tucson International Airport has remained in operation throughout cleanup. A 2.5-megawatt solar panel installation, completed in 2017, includes solar canopies above parking lots that provide shade for vehicles.*

46 **21** **40** **= 107 SITES IN USE**

30 **3** **23** **= 56 SITES WITH BUSINESSES**

BENEFICIAL EFFECTS OF SUPERFUND SITE REDEVELOPMENT IN REGION 9

Businesses and Jobs

EPA has collected economic data for 1,126 businesses, government agencies and civic organizations operating on 53 NPL sites and three non-NPL sites in reuse and continued use in Region 9. (See the State Redevelopment Profiles for each state's reuse details.) Businesses and organizations at these sites are part of several different sectors, including lodging, professional trade, industrial trade and health care services.

Businesses and organizations at Region 9 Superfund sites include hotels, schools, grocery stores, restaurants, civic and social organizations, freight transportation facilities, health care centers and manufacturing facilities.

Figure 7. The entrance to Tucson International Airport at the Tucson International Airport Area site (Arizona).

The businesses and organizations at these sites generate about $14.7 billion in estimated annual sales and employ about 41,021 people, earning an estimated $5.4 billion in annual employment income. This income injects money into local economies and generates revenue through personal state income taxes. These businesses also help local economies through direct purchases of local supplies and services. On-site businesses that produce retail sales and services also generate tax revenues through the collection of sales taxes, which support state and local governments. Table 1 provides more detailed information.

Table 1. Site and Business Information for Region 9 Sites in Reuse and Continued Use (2022)

	Sites[a]	Sites with Businesses	Businesses[b]	Total Annual Sales	Total Employees	Total Annual Employee Income
In Reuse	*46*	*30*	*260*	*$3.1 billion*	*7,275*	*$993 million*
In Continued Use	*21*	*3*	*3*	*$684 million*	*806*	*$213 million*
In Reuse and in Continued Use	*40*	*23*	*863*	*$11 billion*	*32,940*	*$4.2 billion*
Totals	***107***	***56***	***1,126***	***$14.7 billion***	***41,021***	***$5.4 billion***

[a] 23 sites are federal facilities. Federal facility sites are excluded from all other detailed site and business data presented above.

[b] Also includes other organizations such as government agencies, nonprofit organizations and civic institutions. Business information is not available for all businesses on all Superfund sites in reuse or continued use. Throughout this report, sales and annual employee income may not sum exactly to the totals presented due to rounding.

Property Values and Property Tax Revenues

Properties cleaned up under the Superfund program and returned to use have the potential to increase in value significantly. This increased value can boost property tax revenues, which help pay for local government operations, schools, transit systems and other public services. Site properties at the Sola Optical USA, Inc. site in California are now valued at over $57 million.

Identifying increases in property values and property taxes following cleanup and reuse is challenging. This is due to several factors, including limited data on past property values and the frequency and timing of local property value assessments. Likewise, many factors affect property values, including external economic and neighborhood factors not related to a site's contamination or Superfund status. It is also difficult to isolate the effects of Superfund cleanup and redevelopment using current property values. However, these values do provide insight into the current value of Superfund properties and the potential loss in economic value if the properties were not cleaned up and made available for reuse or continued use.

Region 9 Sites in Reuse and Continued Use: Property Value and Tax Highlights

Total Property Value: ***$5.8 billion***

Total Annual Property Taxes: ***$59.4 million***

Figure 8. Apartment buildings for rent at the Indian Bend Wash Area site (Arizona).

EPA has collected property value and tax data for 31 Superfund sites in reuse and continued use in Region 9.[3] These sites span 825 property parcels and 17,999 acres. They have a total property value of $5.8 billion. The average total property value per acre is $325,000.

Land and improvement property value information is available for all 31 sites. These properties have a total land value of $2.3 billion and a total improvement value of $3.5 billion.[4]

Property tax information is available for 30 sites. The properties generate a combined $59.4 million in local property taxes annually.

Table 2. Property Value and Tax Information for Sites in Reuse and Continued Use in Region 9[a]

Total Land Value (31 sites)[b]	*Total Improvement Value (31 sites)*	*Total Property Value (31 sites)*	*Total Property Value per Acre (31 sites)[c]*	*Total Annual Property Taxes (30 sites)*
$2.3 billion	***$3.5 billion***	***$5.8 billion***	***$325,000***	***$59.4 million***

[a] Results are based on an EPA Superfund Redevelopment Program effort to collect on-site property values and property taxes for a subset of Superfund sites. The property value and tax amounts reflect the latest property value year and tax data year available in county assessor datasets, which varied from 2022 to 2023. Throughout this report, property and tax values may not sum exactly to the totals presented due to rounding.

[b] Land and improvement value for two of the sites is listed as $0.

[c] Based on total property value amount of $5.9 billion divided by total acreage of 17,999 acres.

3 There are 76 additional sites in reuse or continued use in Region 9 for which EPA does not have property value or tax data, including 23 NPL federal facilities.

4 Property values consist of land value and the value of any improvements (buildings and infrastructure) placed on a property. When sites are redeveloped, some or all of these improvements may be new or already in place. In some cases, the breakdown showing the land value and improvement value is not always available; only the total property value may be available.

BENEFICIAL EFFECTS FROM ENHANCED RECREATIONAL AND ECOLOGICAL AMENITIES

In addition to hosting commercial developments, retail centers and industrial facilities, many Region 9 sites in reuse and continued use provide recreational and ecological benefits. Green space and habitat reuses help attract visitors and residents and indirectly contribute to local economies.

Figure 9. The on-site portion of the Los Coyotes County Club golf course at the McColl site (California).

Careful planning can enable the integration of green spaces and habitat into site cleanup plans, resulting in the transformation of contaminated properties into valuable community and wildlife assets. Green spaces are integral components of sustainable communities – they help protect the environment and human health while providing other social and economic benefits. Parks, community gardens and other public green spaces create opportunities for people to gather, exercise and connect with nature. The creation of green spaces and habitat at once-contaminated properties serves to reintroduce ecosystems and biodiversity into urban and suburban landscapes by providing corridors for migrating species and preserving habitat. They can also mitigate stormwater runoff problems by slowly absorbing and naturally filtering stormwater, resulting in improved water quality due to decreased runoff and erosion.

Parks, natural areas and scenic landscapes also have great economic value – supporting regional economies through tourism, agriculture and other activities. Economic impacts of recreation activities can include outdoor recreation spending and reduced public costs related to healthcare and infrastructure. In 2021, outdoor recreation contributed $862 billion to the U.S. economy, supporting 4.5 million jobs and 1.9% of the total gross domestic product (GDP). Outdoor recreation's contribution to the GDP grew 18.9% compared to the overall economy that grew 5.9% in 2021.[5] Protected green space can also increase the property values of nearby homes by providing amenities that draw people to live and work in the community. Many sites in Region 9 provide recreational and ecological benefits.

5 State of the Outdoor Market, Fall 2022. Outdoor Industry Association. Available at https://outdoorindustry.org/wp-content/uploads/2022/12/OIA-State-of-the-Outdoor-Market-Report-Fall-2022.pdf

CELTOR CHEMICAL WORKS
Ongoing Cleanup Sustains Tribal Lifeway Resources

The Celtor Chemical Works Superfund site is located within the Hoopa Valley Indian Reservation in Humboldt County, California. The U.S. Bureau of Indian Affairs and the U.S. Department of the Interior held the site property in trust for many years. From 1957 to 1963, the trustees leased the site to the Celtor Chemical Corporation for commercial sulfide ore processing. The 26-acre area is the location of a former ore concentrating facility that processed sulfide ore. Waste from the milling operations generated acidic runoff and resulted in high metals concentrations in soil at the site.

Figure 10. Kayaker on the Trinity River along the Celtor Chemical Works Superfund site (California).

EPA added the site to the NPL in 1983. Cleanup consisted of excavation and off-site disposal of contaminated soil and wastes from milling operations. After cleanup, EPA took the site off the NPL in 2003. However, in 2016, more tailings were discovered at the site. This finding prompted a new investigation. This investigation has been ongoing since 2017.

The Hoopa Valley Tribe has lived in its valley for over 10,000 years and has always depended on the migration and spawning runs of steelhead trout and chinook and coho salmon in the Trinity River for much of its food supply. The Trinity River is also where the Hoopa Valley Tribe holds its ceremonial Boat Dance and where people immerse themselves after using sweat houses built next to the river. The site is in use for cultural and recreational purposes, including willow gathering, fishing and picnicking. Selective cutting and selling of timber, primarily Douglas fir, is the Hoopa Valley Tribe's primary source of revenue.

JIBBOOM JUNKYARD
Former Salvage Facility Is Now a Recreation Destination

From 1950 to 1965, a metal salvaging facility was active at the 9-acre Jibboom Junkyard Superfund site in Sacramento, California. Salvage activities contaminated the area with various pesticides/herbicides and volatile organic compounds (VOCs). EPA added the site to the NPL in 1983. Cleanup included removal and disposal of contaminated soil and backfilling with clean soil. The soil cleanup prevented contamination of groundwater. After cleanup, EPA took the site off the NPL in 1991.

Figure 11. Commuters frequently access the bike trail next to the Jibboom Junkyard Superfund site (California).

In 1965, after the facility closed down, the California Department of Transportation purchased the 9-acre parcel and extended part of Interstate 5 across a 7-acre area at the site. In 2005, Sacramento City Council approved the Jibboom Street Park Master Plan, which included redeveloping the remaining vacant 2-acre part of the site into a riverfront park along the Sacramento River Parkway bike trail. EPA worked closely with local officials to consider any potential site impacts from development plans and changing land uses. EPA reviewed cleanup standards as well as groundwater and soil data from the site and surrounding areas. EPA determined that the site's remedy in that area was compatible with unrestricted use.

Jibboom Street Park opened on site in 2007, and the city renamed it Robert T. Matsui Waterfront Park in 2008. Today, the park includes walkways, a fountain plaza, interpretive signs, benches, open space and landscaping. Primary users of the bike trail next to the site include commuters as well as recreation seekers of all ages. In 2022, the city of Sacramento announced a partnership with the Sacramento Tree Foundation to construct a new addition to the park known as the Hanami Line, which will include over 100 cherry blossom trees, public art, drought-tolerant landscaping, seating and an area for hosting festivals. Looking forward, future development will continue to foster riverfront connectivity and regular use of this destination location along the Sacramento River.

Why Are Wetlands Economically Important?

Superfund site reuse can support wetland habitat, as seen at several sites in Region 9. At the South Bay Asbestos Area site in California, EPA assisted with wetlands restoration for the Environmental Education Center at the Don Edwards San Francisco Bay National Wildlife Refuge.

Wetlands provide a variety of benefits. The combination of shallow water, high levels of nutrients and primary productivity is ideal for organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects. Wetlands are extremely effective in removing pollutants from water and acting as filters for future drinking water. Wetlands play a role in reducing the frequency and intensity of floods. They can store large amounts of carbon. They also provide recreational amenities.

Figure 12. The Don Edwards San Francisco Bay National Wildlife Refuge at the South Bay Asbestos Area site (California).

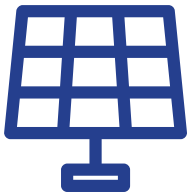
These benefits also have economic value. Replacing wetlands' water treatment services with manmade facilities, for example, would be expensive. Worldwide, wetlands provide an estimated $47.2 trillion in ecosystem services. To learn more, see:

- EPA's *Economic Benefits of Wetlands*: www.epa.gov/sites/default/files/2021-01/documents/economic_benefits_of_wetlands.pdf
- EPA's *Ecosystem Services at Superfund Sites: Reuse and the Benefit to Community:* semspub.epa.gov/src/document/HQ/100003256
- EPA's *Why Are Wetlands Important?*: www.epa.gov/wetlands/why-are-wetlands-important
- EPA's *Functions and Values of Wetlands*: www.epa.gov/sites/default/files/2021-01/documents/functions_values_of_wetlands.pdf

BENEFICIAL EFFECTS FROM ALTERNATIVE ENERGY PROJECTS

Alternative energy projects provide a range of beneficial effects. They support construction and operations jobs, spur local investment for manufacturing and materials, create benefits for landowners in the form of land lease and right-of-way payments, lower energy costs, and reduce greenhouse gas emissions. They also help hedge against energy price and supply volatility, support local business competitiveness and technology supply chain development, provide outreach and public relations opportunities for site owners and communities, and contribute to broader economic development planning. Alternative energy projects at Superfund sites and other contaminated lands help support White House priorities to strengthen resilience to climate change and increase access to clean energy sources. These projects also can help communities reclaim and return contaminated lands to productive uses, while supporting EPA's mission to protect human health and the environment.

As of September 2022, EPA is tracking 14 alternative energy projects at 14 Superfund sites in Region 9. These projects have an installed capacity of about 25.8 megawatts. Seven of these projects offset on-site energy demands of cleanup efforts or directly power site-related cleanup activities.



14

Solar Projects

Alternative energy projects tracked in **Region 9** generate an estimated **43,135 megawatt hours** each year.[6]
This is equivalent to...

30,569 metric tons of carbon dioxide

3,853 homes' energy use for one year

6,803 gas-powered vehicles driven for one year

6 Equivalencies were calculated using power production. Production values were not available for one project in Region 9. Estimated power production for solar projects was calculated using facility capacity (megawatts) with the National Renewable Energy Laboratory's PVWatts Calculator pvwatts.nrel.gov. To learn more about equivalencies, visit www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

ENVIRONMENTAL JUSTICE AND ECONOMIC REVITALIZATION

Communities with environmental justice concerns are disproportionately affected by environmental pollution and hazards and typically include marginalized, underserved, low-income groups and people of color, including tribal and indigenous people. Superfund cleanups and redevelopment are opportunities to evaluate how to reduce impacts on these communities and, through meaningful community involvement efforts, engage communities in productive dialogue to increase local benefits through reuse opportunities that meet community needs.

In 2021, President Biden issued two executive orders – Executive Order 13985 (Advancing Racial Equity and Support for Underserved Communities Through the Federal Government) and Executive Order 14008 (Tackling the Climate Crisis at Home and Abroad). The executive orders directed federal agencies to develop and implement policies and strategies that strengthen compliance and enforcement, incorporate environmental justice considerations in their work, increase community engagement, and ensure that at least 40% of the benefits from federal investments in climate and clean energy flow to underserved communities.

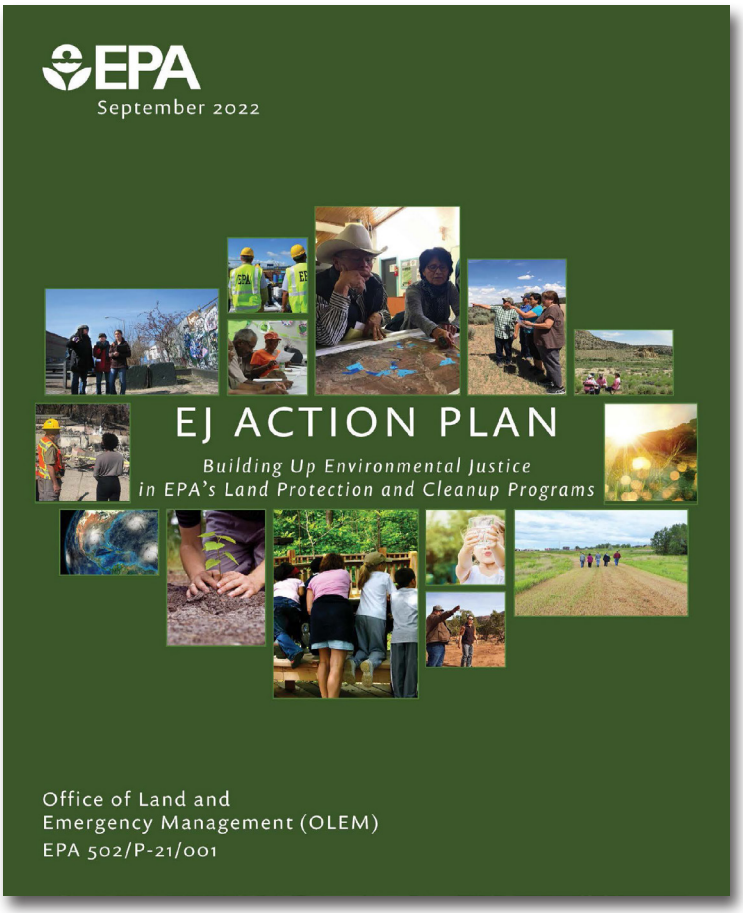


Figure 13. EPA's EJ Action Plan aims to address cleanup issues in overburdened communities across the country.

EPA has taken this charge to heart and, in September 2022, issued the *EJ Action Plan: Building Up Environmental Justice in EPA's Land Protection and Cleanup Programs (EJ Action Plan)*, intended to address land cleanup issues in overburdened communities across the country. The plan includes strategies to enhance nearly two dozen projects while addressing the need for stronger compliance, increased environmental justice considerations in EPA regulations, and improved community engagement. The plan also complements the recommendations for integrating environmental justice into the cleanup and redevelopment of Superfund and other contaminated sites highlighted in the May 2021 National Environmental Justice Advisory Council (NEJAC) report, *Superfund Remediation and Redevelopment for Environmental Justice Communities*.

In addition, EPA is using a $1 billion investment from the Bipartisan Infrastructure Law to fund new cleanup projects at 49 Superfund sites across the country. Many of these sites have been part of a backlog of Superfund sites awaiting funding for cleanup, some of which have been waiting for over four years. This historic investment will finance cleanup at two sites in Region 9.

CLIMATE ADAPTATION AT SUPERFUND SITES

Remedies at contaminated sites may be vulnerable to the impacts of climate change and extreme weather events. EPA's Superfund program has developed an approach that raises awareness of these vulnerabilities and applies climate change and weather science as a standard operating practice in cleanup projects. The approach involves periodic screening of Superfund remedy vulnerabilities, prioritizing the Superfund program's steps to adapt to a changing climate, and identifying measures to assure the climate resilience of Superfund sites. EPA is working to ensure that its programs, policies, rulemaking processes, enforcement and compliance assurance activities, and operations consider the current and future impacts of climate change and how those impacts may disproportionately affect overburdened and underserved communities.

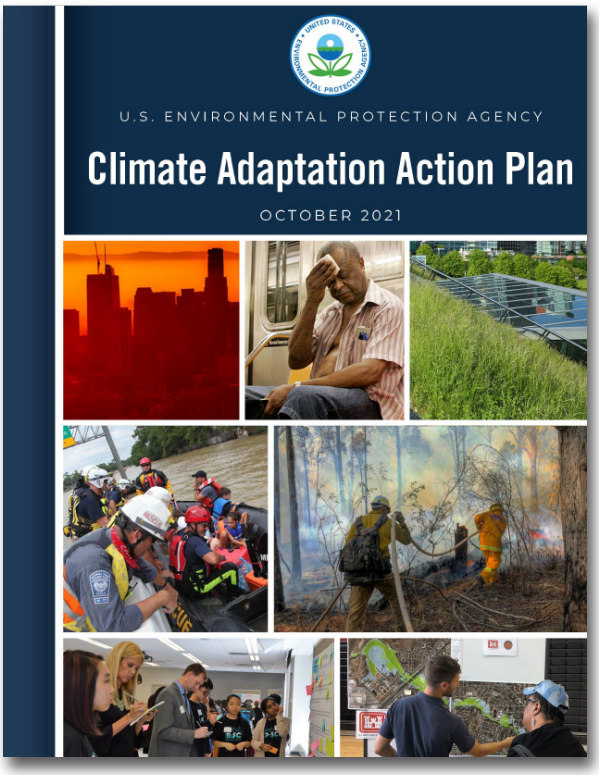


Figure 14. In January 2021, President Biden signed Executive Order 14008, requiring federal agencies to develop climate action plans that describe their climate vulnerabilities and steps to increase resilience to the impacts of climate change. In October 2021, EPA released its updated Climate Adaptation Action Plan, which includes five climate adaptation priority actions that the Agency is taking to increase human and ecosystem resilience as disruptive impacts associated with climate change increase.

EPA's Superfund program has done studies to identify potential vulnerabilities of cleanup actions and evaluate strategies to mitigate these vulnerabilities. In 2012, EPA did a preliminary vulnerability assessment of all NPL sites. EPA found that a significant number of the sites were susceptible to flooding associated with sea-level risk or floodplain proximity. A 2018 EPA study assessed the status of remedies in place at 251 Superfund sites in EPA Regions 2, 4 and 6 that were exposed to tropical-force winds or flooding associated with three major hurricane events the previous year. It found that climate resiliencies built into the remedies implemented at these sites were critical to successfully maintaining long-term protectiveness. These studies have helped inform climate adaptation planning for the Superfund program.

Strategies for mitigating vulnerabilities and increasing remedy resilience in light of climate change may apply to existing or planned remediation systems. The strategies also may be applied to cleanups conducted under other regulatory programs or through voluntary efforts to increase remedy resilience to the potential effects of climate change.

Examples of climate adaptation measures that increase resiliency include:

- Vegetating landfill cap covers with native plants provides a ground cover that is tolerant of local seasonal temperature and precipitation extremes and mniimizes the need for maintenance, such as mowing and watering.
- Designing and constructing capping systems to withstand significant storm and flood events.
- Raising the elevation of critical electrical instrumentation for remedial components and using water-tight materials to construct and protect remedial components.
- Restoring wetlands to reduce wave action in floodplain and intertidal zones to minimize erosion from storm events.
- Integrating specifications regarding tolerance of extreme weather and other natural hazards into building and remedial infrastructure designs.
- Routinely reassessing site vulnerability to wildfires and implementing resilience measures as recommended by firefighting agencies.

OPPORTUNITY ZONE TAX INCENTIVES AS SUPERFUND REDEVELOPMENT TOOLS

Opportunity Zones are a powerful tool to encourage economic revitalization in distressed communities by incentivizing long-term, sustainable investment in redevelopment and stimulating economic growth. State governors have designated 8,764 Opportunity Zones across the country in geographic areas that suffer double the national poverty rate. Socio-economic metrics show that Opportunity Zones are among the highest-need communities in the nation. The U.S. Department of the Treasury estimates that Opportunity Zones may attract up to $100 billion in investments, which strengthens the financial viability of redevelopment projects at Superfund sites located in Opportunity Zones.

Redevelopment of current or former Superfund sites may qualify for Opportunity Zone tax benefits. Nationally, there are 343 NPL sites located entirely or partially in Opportunity Zones. Estimates indicate there are thousands of Superfund removal sites in Opportunity Zones across the nation. In Region 9, there are 34 NPL sites located entirely or partially in an Opportunity Zone. Redevelopment investments that meet appropriate qualifying criteria may be eligible for Opportunity Zone tax benefits. EPA and the U.S. Department of Housing and Urban Development (HUD) have tools and resources to help local leaders achieve equitable outcomes in Opportunity Zone development projects.

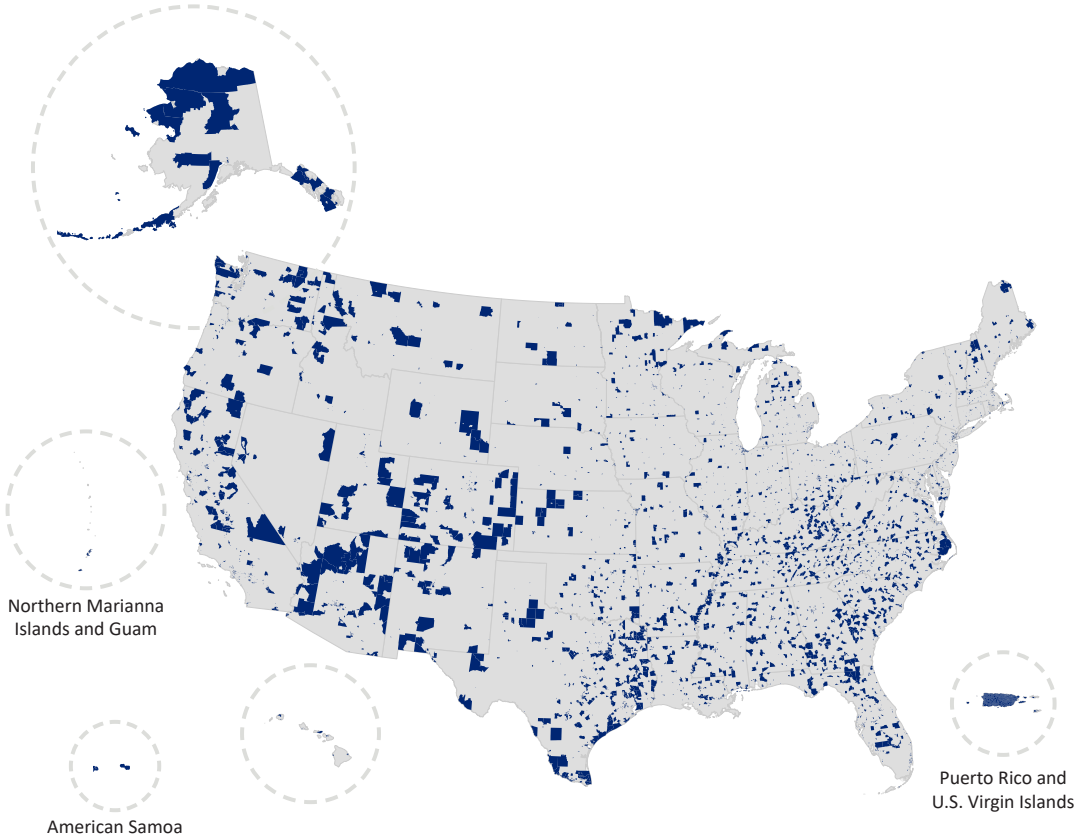


Figure 15. About 8,764 Opportunity Zones were established in all 50 states, the District of Columbia, and the five U.S. territories.

PHOENIX-GOODYEAR AIRPORT AREA AND SAN FERNANDO VALLEY (AREA 1)

Groundwater Reuse Provides Valuable Resource in Face of Climate Change

Reusing treated water for drinking water is especially important in the Pacific Southwest, where states are facing some of the worst droughts in U.S. history and populations continue to grow rapidly. In recent years, EPA has made it a priority to reuse and recycle treated wastewater or groundwater for beneficial purposes on Superfund and other contaminated sites. These uses include agricultural and landscape irrigation, industrial processes, household utilities and drinking water. Treated wastewater and groundwater at Superfund sites not only provide localities with access to additional water resources, but they also reduce the need to divert water from sensitive ecosystems.

Having these water supplies available locally means that water does not need to be transported over long distances, reducing energy costs as well as carbon emissions. Reuse of these resources can also help prevent groundwater overdraft, which can lead to increased costs for deeper drilling and pumping and ultimately the loss of groundwater supply. Accessing groundwater from greater depths can mean more salts and minerals, decreasing water quality and increasing treatment costs, particularly for potable uses. Below are examples from two Superfund sites in Region 9 where reuse of treated groundwater is having beneficial impacts.

Figure 16. A separator system to remove contaminants from groundwater.

Phoenix-Goodyear Airport Area

The Phoenix-Goodyear Airport (PGA) Area Superfund site is in Maricopa County, Arizona, about 17 miles west of downtown Phoenix. The site is in one of five Active Management Areas – Prescott, Phoenix, Pinal, Tucson and Santa Cruz – required by the state of Arizona to maintain groundwater resources by replacing excess water demand with renewable sources by 2025. The site includes two areas – PGA-North and PGA-South. PGA-North is the location of the former Unidynamics facility. This part of the site includes three parcels formerly owned by the Crane Company. The city of Goodyear zoned the parcels for commercial and industrial use, and the parcels are undergoing development. PGA-South includes the Phoenix-Goodyear Airport and adjacent commercial and industrial properties. The City of Phoenix owns the airport property, and JRC Goodyear owns the commercial and industrial properties. PGA-South is the site of the former Litchfield Naval Air Facility. In 1981, the state identified contaminated groundwater and soil near the airport. Contamination came from the maintenance and operation of military aircraft at the naval air facility and the manufacturing of military explosives at the Unidynamics facility. EPA added the site to the NPL in 1983.

Cleanup includes treating groundwater, extracting soil vapor, and removing and capping contaminated soil. Cleanup is ongoing. The airport and associated businesses continue to operate on site. A manufacturer of prefabricated homes is located next to the airport. Other airport tenants include two airline flight schools and an aircraft maintenance company.

In an arid place where fresh water is in short supply and the community continues to grow, the need to conserve existing water resources and employ innovative methods to recycle water has never been more important. Thanks to cooperation and open communication between EPA, Arizona Department of Environmental Quality (ADEQ), site potentially responsible parties (PRPs), the city of Goodyear and local businesses, groundwater cleanup efforts at the PGA site have resulted in the beneficial reuse of billions of gallons of treated groundwater annually.

Before a drop of treated PGA groundwater is reused, EPA, ADEQ, the city of Goodyear and site PRPs make sure the water is safe for human health and the environment. All requests to use the treated groundwater must be reviewed and approved by EPA. The PRPs first present such requests to EPA and then work with EPA to analyze the groundwater to make sure it will be safe for the desired use. Following EPA approval, the PRPs and entities requesting to use the treated groundwater move forward with plans to make the reuse a reality.

The city of Goodyear has been a champion of these reuse efforts. In 2012, the city and Crane Co., one of the site's PRPs, entered into an Environmental Access and Remediated Groundwater Reuse Agreement. It allows the PRP access and permission to install, operate and maintain any necessary remedial components, such as groundwater treatment systems, piping and extraction/injection wells, on any city property. These partnerships help the PRPs carry out necessary cleanup activities more efficiently and support the beneficial reuse of treated groundwater. At the same time, this water reuse provides the city and the community with an ample supply of a valuable resource, free of charge.

The city of Goodyear and site PRPs continue to seek out opportunities to optimize the efficiency of the groundwater remedy while also providing clean, treated groundwater for local beneficial uses. Crane Co., generates over 150 million gallons of treated groundwater for beneficial reuse annually, and other PRPs, such as the Goodyear Tire and Rubber Co., also provide treated groundwater for beneficial reuse.

Figure 17. The Palm Valley Golf Club fills this pond with treated groundwater and uses it to irrigate the golf course at the PGA Area Superfund site (Arizona).

San Fernando Valley (Area 1)

The San Fernando Valley (Area 1) Superfund site (SFV Area 1) is one of four Superfund sites in California's San Fernando Valley that EPA added to the NPL in 1986. The site covers about 20 square miles and includes the areas of North Hollywood and Burbank. The San Fernando Valley groundwater basin provides drinking water to residents of the cities of Los Angeles, Burbank and Glendale. Contamination of area groundwater resulted from a range of industrial operations. EPA oversees the cleanup of groundwater contaminated with volatile organic compounds and metals. This heavily developed urban area is mainly a mix of residential, commercial and industrial land uses.

In 2014, California passed its Sustainable Groundwater Management Act providing for the sustainable management of groundwater through sustainability plans for groundwater basins. During average hydrologic conditions, groundwater provides close to 40% of the water in California for urban, rural and agricultural uses. This percentage increases during dry years when surface water is not as plentiful. For many areas of the state, groundwater is the only water supply available year-round.

Two groundwater pump-and-treat systems have operated in the North Hollywood and Burbank areas since 1989 and 1996, respectively. Today, treated groundwater from the site provides billions of gallons of clean water to the surrounding community for various uses. In addition, the former Lockheed Martin facility now supports a diverse array of commercial and industrial businesses, including the Burbank Empire Center retail complex, Burbank Airport Commerce Center industrial park and entertainment industry-related businesses.

Before the groundwater treatment remedy started operating in 1996, Burbank Water and Power was forced to use imported treated water for 100% of its water supply. Purchasing the necessary water from the Metropolitan Water District (MWD) of Southern California would cost an estimated $5.9 million per year. Lockheed Martin paid for construction of the Burbank groundwater treatment system and continues to pay for its operation. The facility treats over 9 million gallons of water per day.

While the site remedy calls for treating groundwater and delivering it for use, Burbank must first acquire rights to pump, treat and distribute the water. Los Angeles, not Burbank, owns native rights to the groundwater beneath the city of Burbank. Burbank Water and Power obtains water rights to the contaminated groundwater either by untreated water purchases or through an import return credit. Untreated water is spread on the ground in the upper San Fernando Valley, where it percolates into the groundwater aquifer for storage. Burbank receives a 20% groundwater credit of up to 4,000 acre-feet per year for the water distributed each year within Burbank, because some of this water is used for irrigation and other purposes that allow it to percolate back down to the groundwater aquifer.

Long-time agricultural uses in the area have created high levels of nitrates in the groundwater. Accordingly, once the water is treated, Burbank Water and Power mixes it with treated water purchased from the MWD to reduce the nitrate levels. The municipal water demand, the blending requirement and other factors constrain the total amount of groundwater that can be used. Conversely, the Superfund remedy specifies that a certain amount of the site groundwater must be pumped and treated in order to prevent migration of the contamination plume.

Figure 18. Burbank Water and Power administrative offices at the San Fernando Valley (Area 1) Superfund site (California).

MIDDLEFIELD-ELLIS-WHISMAN STUDY AREA
Addressing Vapor Intrusion Risks to Support Sustained Economic Growth

The Middlefield-Ellis-Whisman (MEW) Superfund Study Area is in Mountain View, California. The MEW Study Area includes three NPL sites: the Fairchild Semiconductor Corp. (Mountain View Plant) Superfund site, the Intel Corp. (Mountain View Plant) Superfund site and the Raytheon Company Superfund site. Several other facilities and portions of the Naval Air Station Moffett Field federal facility Superfund site are also part of the MEW Study Area. From the 1960s to 1980s, several facilities, including semiconductor, electronics manufacturing, and metal finishing companies operated in the MEW area. These facilities used solvents, primarily trichloroethene (TCE), which were released to the subsurface during operations, handling and from leaks in tanks and piping.

Cleanup of the three individual NPL sites is being addressed collectively under the umbrella of the MEW Study Area. While the sites are considered separate sites, EPA establishes remedies and assesses remedy protectiveness for the sites together, in MEW Study Area decision documents and five-year reviews.

In 1989, EPA selected a cleanup remedy to address soil and groundwater contamination across the MEW Study Area. In 2010, EPA selected a remedy to address the subsurface to indoor air pathway (vapor intrusion) for existing buildings and new buildings within the Vapor Intrusion Study Area. The Vapor Intrusion Study Area is the area where TCE concentrations in shallow groundwater are greater than 5 micrograms per liter. Vapor intrusion control systems are constructed in all new residential and commercial buildings and air sampling is conducted in existing buildings with improvements or renovations prior to occupancy to confirm that the indoor air levels are safe. In buildings where TCE from subsurface vapor intrusion exceed the indoor air cleanup levels, newly implemented vapor intrusion mitigation measures and/or building vapor intrusion control systems address the potential risk. Vapor intrusion mitigation measures may include sealing cracks and penetrations in foundations, floor drains and conduits, operation of air treatment systems, and modification of the building ventilation systems. Vapor intrusion control systems have been installed in all new construction projects overlying TCE Shallow Zone contamination. The MEW responsible party companies, the Navy, NASA and EPA continue to implement the vapor intrusion remedy in the Vapor Intrusion Study Area. Groundwater treatment and monitoring are ongoing and vapor intrusion monitoring and mitigation continues.

The MEW Area remains zoned as primarily a commercial office, research and development and residential area that currently hosts large computer software companies and start-up businesses. New tenants occupy new office developments and existing buildings on site. New residential and commercial office developments have been built with vapor intrusion control systems. The Fairchild Semiconductor Corp. (Mountain View Plant) site properties are now in reuse as an office complex for a major multi-national technology company and hosts other commercial office buildings. The Intel Corp. (Mountain View Plant) site properties are currently planned for residential redevelopment. The Raytheon Company site properties have recently been sold and will host multiple commercial office businesses.

Figure 19. On-site electric vehicle charging is an added incentive for employees at businesses at the MEW Study Area (California).

SOLA OPTICAL USA, INC.
Cleanup Success Translates into Sustainable Business Park

The 35-acre Sola Optical USA, Inc. Superfund site is in Petaluma, California, about 30 miles north of San Francisco. From 1978 to 2001, Sola Optical made eyeglass lenses at the site. The company used solvents in its manufacturing operations and stored the solvents in underground storage tanks. In 1982, the company found that solvents had contaminated soil and groundwater near the tanks. Early cleanup efforts in 1985 included removal of the tanks and contaminated soil, and installation of a groundwater treatment system. EPA added the site to the NPL in 1990.

The site's long-term remedy included continued groundwater treatment and groundwater use restrictions. Sola Optical treated groundwater from 1988 to 1997 and continued to monitor groundwater until 2012, when EPA confirmed that groundwater had achieved cleanup standards. EPA took the site off the NPL in 2013. At that time, the area was in reuse, with commercial tenants located in the original site buildings.

In 2000, developer RNM Cader bought 11 undeveloped acres in the southwest part of the site. The developer improved the area in 2005, adding building pads and parking lots for office-focused projects. Soon thereafter, however, the Great Recession halted redevelopment. In 2014, New York Life Investments acquired the partially developed property with plans for light industrial use. The 11-acre parcel was redeveloped as Cader Corporate Center in fall 2016. The center's three buildings provide over 268,000 square feet of light industrial, manufacturing, storage and distribution, and office space. The buildings incorporate sustainable design elements, including skylights and energy-efficient lighting, an advanced ventilation system, drought-tolerant landscaping and 16,200 square feet of solar panels that help offset the center's energy use. Tenants are incentivized to adopt energy-efficient and sustainable practices, with electric vehicle charging stations, recycling facilities, subsidized public transit, bike parking and shower facilities available for employees who bike to work.

Kland, LLC owns the 24-acre former Sola Manufacturing portion of the site and leases the 107,000-square-foot former Sola Optical building to Petaluma Poultry for its administrative offices and truck parking.

Figure 20. Entrance to Cader Corporate Center at the Sola Optical USA, Inc. Superfund site (California).

REDEVELOPMENT ON THE HORIZON IN REGION 9

CARSON RIVER MERCURY
Addressing Near Term Risk, Pursuing a Sustainable Future

The Carson River Mercury Superfund site includes 236 former mill sites and 130 miles of the Carson River in Lyon, Storey, Carson, Washoe and Churchill counties in western Nevada. It also includes tribal lands of the Paiute-Shoshone Tribe of the Fallon Reservation and Colony, Nevada, and the Washoe Tribe of Nevada & California. Contamination at the site resulted from the use of imported mercury during gold and silver mining in the late 1800s. Workers used mercury until the end of the century, when they switched to cyanide heap leaching. About 7,500 tons of mercury contaminated the Carson River and land next to the river from the historical mining processes. EPA added the site to the NPL in 1990.

Cleanup included the removal of contaminated soil from five high-risk residential areas in Dayton and Silver City contaminated by former historical mills or tailing piles. EPA also restored infrastructure and landscaping disturbed by cleanup activities. Many of the historic mill sites are located in the Virginia City Historic District, which depends heavily on tourism. Areas surrounding the Carson River are mostly agricultural, although the area is experiencing rapid housing growth to support high-tech businesses along the nearby USA Parkway (e.g., a Tesla battery plant). In 2007, EPA's Superfund Redevelopment Program (SRP) supported a regional seed project exploring ways to clean up contaminated soil and put protective measures in place to allow for residential development in a rapidly growing area. EPA and the Nevada Division of Environmental Protection (NDEP) continue to work with developers and homeowners in affected towns to identify and prevent unacceptable risk of exposure from mercury contamination. NDEP, in collaboration with EPA, coordinates closely with county building and planning departments on the site's cleanup plan. In 2023, the site was added to those selected by EPA to receive cleanup funding under the Bipartisan Infrastructure Law (BIL). With this funding, EPA is already initiating work on backlogged remedial construction projects and accelerating cleanups at NPL sites.

Mercury is also widespread in the sediment and adjacent floodplain in the Carson River as well as in agricultural drains and canals. It is also in Lahontan Reservoir, Carson Lake, Little Washoe Lake, Big Washoe Lake, Indian Lakes, and Stillwater National Wildlife Refuge and Fallon National Wildlife Refuge. This mercury-contaminated sediment result in high levels of mercury in nearby fish and wildlife, which poses health risks if people eat them. EPA is using an interim remedy decision for the river and adjacent floodplain areas to protect people and the environment now, while continuing to work toward a final decision to address widespread mercury contamination in the industrial, commercial, agricultural and public-service sectors that share the floodplain.

In 2021, EPA's SRP began providing technical assistance to develop a renewable energy situation assessment for the site. It includes a solar screening to identify areas for utility-scale and small-scale solar power generation. EPA is collaborating with state and federal agencies and The Nature Conservancy to identify areas most suitable for solar and other renewable energy development at the site. Several areas at the site have been identified as potentially suitable for solar. The Nature Conservancy will further explore these areas as part of a statewide effort called Mining the Sun. This collaborative effort with the Nevada Mining Association focuses on opportunities to build renewable energy plants at historic mining sites in Nevada.

Figure 21. Vacant, undeveloped land that could potentially host solar power projects at the Carson River Mercury Superfund site (Nevada).

SAN GABRIEL VALLEY (AREA 4), PUENTE VALLEY OPERABLE UNIT

Ongoing Commercial and Industrial Development during Groundwater Cleanup

The San Gabriel Valley Superfund sites include four areas of contaminated groundwater in the 170-square-mile San Gabriel Valley in southern California (San Gabriel Valley Areas 1 through 4). In 1979, state-mandated testing of local drinking water supplies found several areas of contamination in the San Gabriel Valley's water supply. Decades of improper chemical handling and waste disposal practices at hundreds of industrial sites throughout the San Gabriel Valley resulted in widespread groundwater contamination. In 1984, EPA placed the four main areas of groundwater contamination on the NPL.

The San Gabriel Valley (Area 4), site (also known as the Puente Valley Operable Unit) includes the Main San Gabriel Basin and the Puente Basin. The site is located mostly in the cities of Industry and La Puente and in some unincorporated parts of eastern Los Angeles County. EPA plans call for three groundwater pump-and-treat systems to prevent the migration of VOC-contaminated groundwater and protect the water supply in the "mouth of the valley" portion of the Puente Valley. Initial construction of the systems began in 2006. Completion of the systems was delayed until EPA and the implementing parties could maximize the beneficial use of treated groundwater.

In 2019, EPA's Superfund Job Training Initiative provided career development opportunities for 20 trainees living near the site. The percentages of limited English-speaking households and persons with less than high school education levels within 1 mile of the site are twice the state average, making job skill development and training of particular interest in the area. EPA partnered with the San Gabriel Basin Water Quality Authority, the city of La Puente, Hacienda La Puente Adult Education, and America's Job Center of California to create the program. It provided local job seekers with skills, certifications and hands-on training for construction and cleanup. EPA's goal was to offer workforce development skills to communities so that people can take advantage of site-related employment opportunities.

A 2022 Explanation of Significant Differences updated the site's 1998 cleanup plan to allow for treated groundwater to be re-injected back into shallow groundwater. This change maximizes the beneficial use and conservation of groundwater at this site, while also reducing the overall costs of groundwater treatment by $10 million. Construction of two groundwater treatment systems is complete and testing is underway. The third system is in the design phase. EPA anticipates that all three cleanup systems will be operating in 2025. Once all three systems are operating, groundwater cleanup is expected to take between 15 and 30 years. Water utilities in the area currently provide clean water that meets all state and federal drinking water standards.

Source properties that may have contributed to groundwater contamination will be investigated and cleaned up while allowing for continued use and reuse. Commercial and industrial development of properties above the groundwater plume is ongoing. For example, one of the properties, the CT Industry Center, a 600,000-square-foot, five-building warehouse and distribution facility, is located on a former source property. Offering excellent transportation infrastructure access, the development completely sold out and is fully occupied. At other former source properties, site preparation work is ongoing allowing for additional redevelopment opportunities. Looking ahead, EPA will continue to work with developers and future tenants to make sure site uses remain compatible with the groundwater remedy.

Figure 22. New construction at the San Gabriel Valley (Area 4) site (California).

CONCLUSION

EPA works closely with its partners at Superfund sites across Region 9 to make sure sites can safely be reused or remain in continued use during and following cleanup. EPA also works with businesses and organizations at Superfund sites throughout the cleanup process to make sure they can remain open.

The businesses and organizations at these sites provide jobs and income for communities and generate local and state taxes. Cleanup and redevelopment also helps stabilize and boost property values. There are 97 NPL sites and ten non-NPL Superfund sites in Region 9 that have either new uses in place or uses that have remained in place since before cleanup. Future uses are planned for many more Superfund sites in Region 9. EPA remains committed to working with all stakeholders to support Superfund redevelopment opportunities in Region 9.

The redevelopment of Superfund sites takes time and is often a learning process for project partners. Ongoing coordination among EPA, tribes, state agencies, local governments, communities, potentially responsible parties, site owners, developers, and nearby residents and business owners is essential. EPA tools, including reuse assessments and plans, comfort letters and partial deletions of sites from the NPL, often serve as the foundation for moving forward. At some sites, parties may need to take additional actions to ensure reuses are compatible with site remedies.

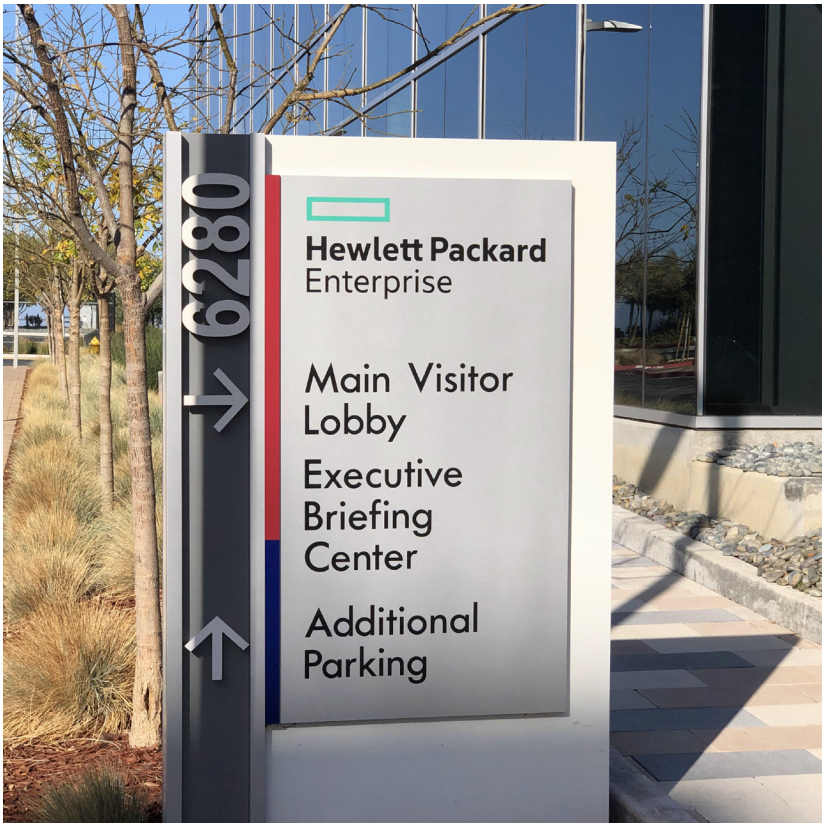


Figure 23. Technology company sign at the Hewlett-Packard (620-640 Page Mill Road) site (California).

Across Region 9, Superfund sites are now home to major commercial and industrial facilities, mid-size developments and small businesses providing services to surrounding communities. EPA is committed to working with all stakeholders to support the restoration and renewal of these sites as long-term assets.

EPA Superfund Redevelopment Resources

EPA Region 9 Superfund Redevelopment Coordinator
Taylor Barrett| (415) 972-3117 | barrett.taylor@epa.gov

Superfund Sites in Reuse: find more information about Superfund sites in reuse
www.epa.gov/superfund-redevelopment/find-sites-reuse

EPA Superfund Redevelopment Program Website: tools, resources and more information about Superfund site reuse
www.epa.gov/superfund-redevelopment

EPA Office of Site Remediation Enforcement Website: tools that address landowner liability concerns
www.epa.gov/enforcement/landowner-liability-protections

This page is intentionally blank.

STATE REDEVELOPMENT PROFILES





ARIZONA REDEVELOPMENT PROFILE

EPA partners with the Arizona Department of Environmental Quality to oversee the investigation and cleanup of Superfund sites in Arizona. Arizona has nine Superfund sites with either new uses in place or uses that have remained in place since before cleanup. The sections below present economic data, property values and tax data for sites in reuse or continued use in Arizona.

Businesses and Jobs

EPA has collected economic data for 207 businesses and organizations operating on five sites in reuse or continued use in Arizona.

Table 3. Detailed Site and Business Information for Sites in Reuse and Continued Use in Arizona (2022)

	Sites[a]	Sites with Businesses	Businesses	Total Annual Sales	Total Employees	Total Annual Employee Income
In Reuse	*2*	*1*	*74*	*$309 million*	*1,385*	*$107 million*
In Continued Use	*3*	*0*	*-*	*-*	*-*	*-*
In Reuse and in Continued Use	*4*	*4*	*133*	*$4.8 billion*	*13,232*	*$1.4 billion*
Totals	***9***	***5***	***207***	***$5.1 billion***	***14,617***	***$1.5 billion***

[a] Three sites are federal facilities. Federal facility sites are excluded from all other detailed site and business data presented above.

Property Values and Property Tax Revenues

EPA has collected property value data for three Superfund sites in reuse or continued use in Arizona. These sites span 217 property parcels and 4,895 acres.

Table 4. Property Value and Tax Information for Sites in Reuse and Continued Use in Arizona[a]

Total Land Value (3 sites)	Total Improvement Value (3 sites)	Total Property Value (3 sites)	Total Annual Property Taxes (3 sites)
$342 million	*$411 million*	*$753 million*	*$2 million*

[a] The property value and tax amounts reflect the latest property value year and tax data year available in county assessor datasets, which varied from 2022 to 2023 for all data collected.

Figure 24. Motorola, Inc. (52nd Street Plant) (Arizona).

Did You Know?

Soil and groundwater contamination were first discovered at the Motorola, Inc. (52nd Street Plant) site in 1982. Today, the source areas remain in use as aerospace manufacturing and semiconductor manufacturing support facilities. Cleanup allows commercial, industrial and residential uses to continue at non-source areas of the site. Site businesses employ over 1,800 people and provide over $229 million in estimated annual employee income.

CALIFORNIA REDEVELOPMENT PROFILE

EPA partners with the California Department of Toxic Substances Control to oversee the investigation and cleanup of Superfund sites in California. California has 92 Superfund sites with either new uses in place or uses that have remained in place since before cleanup. The sections below present economic data, property values and tax data for sites in reuse or continued use in California.

Businesses and Jobs

EPA has collected economic data for 837 businesses and organizations operating on 49 sites in reuse or continued use in California.

Table 5. Detailed Site and Business Information for Sites in Reuse and Continued Use in California (2022)

	Sites[a]	Sites with Businesses	Businesses	Total Annual Sales	Total Employees	Total Annual Employee Income
In Reuse	*43*	*28*	*167*	*$2.7 billion*	*5,676*	*$872 million*
In Continued Use	*15*	*3*	*3*	*$684 million*	*806*	*$213 million*
In Reuse and in Continued Use	*34*	*18*	*667*	*$6.2 billion*	*19,338*	*$2.7 billion*
Totals	***92***	***49***	***837***	***$9.6 billion***	***25,820***	***$3.8 billion***

[a] 18 sites are federal facilities. Federal facility sites are excluded from all other detailed site and business data presented above.

Property Values and Property Tax Revenues

EPA has collected property value data for 27 Superfund sites in reuse or continued use in California. These sites span 570 property parcels and 8,117 acres.

Table 6. Property Value and Tax Information for Sites in Reuse and Continued Use in California[a]

Total Land Value (27 sites)	Total Improvement Value (27 sites)	Total Property Value (27 sites)	Total Annual Property Taxes (26 sites)
$1.9 billion	*$3.1 billion*	*$5 billion*	*$57 million*

[a] The property value and tax amounts reflect the latest property value year and tax data year available in county assessor datasets, which varied from 2022 to 2023.

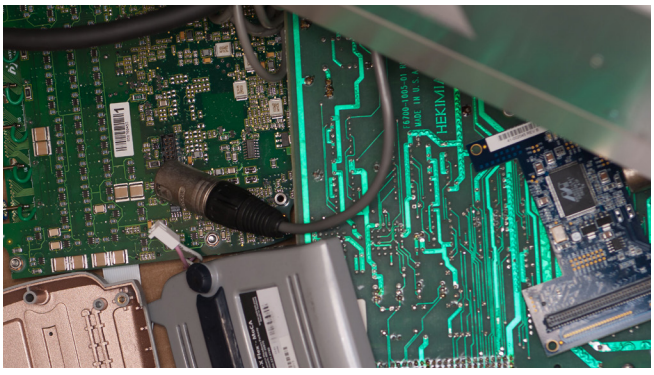


Figure 25. Applied Materials (California).

Did You Know?

Applied Materials began making semiconductor wafers in the building in 1974. Sampling identified contaminated soil and groundwater in 1983. The company ended its research and manufacturing activities, and converted the building into offices and education facilities. Its corporate headquarters are now located on site and employ about 800 people, generating over $212 million in estimated annual employee income.

HAWAII REDEVELOPMENT PROFILE

EPA partners with the Hawaii State Department of Health to oversee the investigation and cleanup of Superfund sites in Hawaii. Hawaii has two Superfund sites with either new uses in place or uses that have remained in place since before cleanup. The sections below present economic data, property values and tax data for sites in reuse or continued use in Hawaii.

Businesses and Jobs

EPA has collected economic data for 19 businesses and organizations operating on one site in reuse in Hawaii.

Table 7. Detailed Site and Business Information for Sites in Reuse and Continued Use in Hawaii (2022)

	Sites[a]	Sites with Businesses	Businesses	Total Annual Sales	Total Employees	Total Annual Employee Income
In Reuse	*1*	*1*	*19*	*$23 million*	*214*	*$15 million*
In Continued Use	*1*	*0*	*-*	*-*	*-*	*-*
In Reuse and in Continued Use	*0*	*-*	*-*	*-*	*-*	*-*
Total	***2***	***1***	***19***	***$23 million***	***214***	***$15 million***

[a] One site is a federal facility. Federal facility sites are excluded from all other detailed site and business data presented above.

Property Values and Property Tax Revenues

EPA has collected property value data for one Superfund site in reuse in Hawaii. This site spans 38 property parcels and 4,987 acres.

Table 8. Property Value and Tax Information for Sites in Reuse and Continued Use in Hawaii[a]

Total Land Value (1 site)	Total Improvement Value (1 site)	Total Property Value (1 site)	Total Annual Property Taxes (1 site)
$120 million	*$22 million*	*$142 million*	*$272,000*

[a] The property value and tax amounts reflect the latest property value year and tax data year available in county assessor datasets, which varied from 2022 to 2023.

Figure 26. Del Monte Corp. (Oahu Plantation) (Hawaii). Imagery © 2023 Google.

Did You Know?

From 1946 to 2006, Del Monte Corporation grew and processed pineapples at the Del Monte Corp. (Oahu Plantation) Superfund site in Kunia Village, Hawaii. Kunia Loa Ridge Farmlands now owns more than half of the site and resells small plots to farmers to grow tropical fruits and raise livestock. Seed corn and coffee production also takes place on part of the site. In 2011, a beauty products company moved its headquarters and manufacturing operations on site. Public service and non-profit entities also operate on site.

NEVADA REDEVELOPMENT PROFILE

EPA partners with the Nevada Division of Environmental Protection to oversee the investigation and cleanup of Superfund sites in Nevada. Nevada has three Superfund sites with either new uses in place or uses that have remained in place since before cleanup. The sections below present economic data, property values and tax data for sites in reuse or continued use in Nevada.

Businesses and Jobs

EPA has collected economic data for 63 businesses and organizations operating on one site in reuse and continued use in Nevada.

Table 9. Detailed Site and Business Information for Sites in Reuse and Continued Use in Nevada (2022)

	Sites	Sites with Businesses	Businesses	Total Annual Sales	Total Employees	Total Annual Employee Income
In Reuse	*0*	-	-	-	-	-
In Continued Use	*1*	*0*	-	-	-	-
In Reuse and in Continued Use	*2*	*1*	*63*	*$34 million*	*370*	*$19 million*
Total	***3***	***1***	***63***	***$34 million***	***370***	***$19 million***

Property Values and Property Tax Revenues

Property value and tax data were not available for the three sites in reuse and continued use in Nevada.

Figure 27. Carson River Mercury site (Nevada).

Did You Know?

Gold and silver mining contaminated soil, sediment and surface water at the Carson River Mercury Superfund site, which stretches across several counties. Site investigations and cleanup are ongoing. The site remains in continued industrial, commercial, agricultural and residential use. Site businesses employ more than 350 people and generate over $34 million in estimated annual sales.

GUAM REDEVELOPMENT PROFILE

EPA partners with the Guam Environmental Protection Agency to oversee the investigation and cleanup of Superfund sites in Guam. Guam as one Superfund site, the Andersen Air Force Base site, with uses that have remained in place since before cleanup. EPA has not collected economic data or property value data for this site; it is a federal facility in continued military use.

Figure 28. Andersen Air Force Base (Guam).[7]

Did You Know?

Since 1940, the Andersen Air Force Base site has served as a support facility for U.S. Strategic Air Command operations in Yigo, Guam. Improper disposal techniques resulted in the contamination of groundwater under the site. The site remains an active U.S. Air Force base. Parts of the base are designated wildlife and marine preserves that protect about 23 endangered species.

7 *U.S. and allied aircraft conduct an elephant walk at Andersen Air Force Base, Guam, July 19, 2023 by Tech. Sgt. Michael Cossaboom, U.S. Air Force.*

REUSE INFORMATION SOURCES

Write-ups of sites in reuse or continued use included in this profile are based on available EPA resources, including Superfund Redevelopment Program case studies as well as other resources. Links to EPA's Superfund Redevelopment Program case studies and other resources are included below.

EPA Resources

Carson River Mercury. EPA Site Profile. www.epa.gov/superfund/carsonrivermercury

Carson River Mercury. 2023. Site Redevelopment Profile. semspub.epa.gov/src/document/HQ/100003162

Celtor Chemical Works. EPA Site Profile. www.epa.gov/superfund/celtorchemical

Celtor Chemical Works. 2021. Community Involvement Plan. semspub.epa.gov/src/document/09/100023245

Fairchild Semiconductor Corp. (Mountain View Plant). 2004. Fact Sheet. semspub.epa.gov/src/document/09/2400039

Jibboom Junkyard. EPA Site Profile. www.epa.gov/superfund/jibboomjunkyard

Jibboom Junkyard. 2018. Site Redevelopment Profile. semspub.epa.gov/src/document/HQ/403551

MEW Study Area. EPA Site Profile. cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0904966

MEW Study Area. 2015. Neighborhood Meeting Presentation. semspub.epa.gov/src/document/09/100001982

MEW Study Area. 2019. Fourth Five-Year Review Report. semspub.epa.gov/src/document/09/100018492

Phoenix-Goodyear Airport Area. EPA Site Profile. www.epa.gov/superfund/phoenix-goodyearairport

Phoenix-Goodyear Airport Area. 2015. Beneficial Effects Economic Case Study. semspub.epa.gov/src/document/09/1156429

San Fernando Valley (Area 1). EPA Site Profile. www.epa.gov/superfund/sanfernandonorthhollywood

San Gabriel Valley (Area 4). EPA Site Profile. www.epa.gov/superfund/sangabrielpuentevalley

San Gabriel Valley (Area 4). 2021. Third Five-Year Review Report. semspub.epa.gov/src/document/09/100025465

San Gabriel Valley (Area 4). 2022. Site Redevelopment Profile. semspub.epa.gov/src/document/HQ/100003164

Sola Optical USA, Inc. EPA Site Profile. www.epa.gov/superfund/solaoptical

Other Resources

Phoenix-Goodyear Airport Area. 2017. Arizona Groundwater Code Active Management Areas. new.azwater.gov/sites/default/files/media/AMAFACTSHEET2016%20%281%29_0.pdf

Phoenix-Goodyear Airport Area. 2018. Overview of the Arizona Groundwater Management Code. new.azwater.gov/sites/default/files/media/Arizona%20Groundwater_Code_1.pdf

San Gabriel Valley (Area 4).Industry Center - CT Realty. ctrinvestors.com/property/industry-center/

San Gabriel Valley (Area 4). 2016. California's Groundwater: Bulletin 118, Interim Update 2016. cawaterlibrary.net/wp-content/uploads/2017/05/Bulletin_118_Interim_Update_2016.pdf

San Gabriel Valley (Area 4). 2022. Drought-ravaged L.A. seeks surprising source of water: A contaminated Superfund site. www.latimes.com/california/story/2022-12-12/los-angeles-looks-to-a-contaminated-aquifer-for-new-water

Sola Optical USA, Inc. 2016. Petaluma's Cader Corporate Center wins Top Projects award. www.northbaybusinessjournal.com/article/industry-news/petalumas-cader-corporate-center-wins-top-projects-award/

BUSINESS, JOBS, SALES AND INCOME INFORMATION

Information on the number of employees and sales volume for on-site businesses comes from the Hoovers/Dun & Bradstreet (D&B) (www.dnb.com) database. EPA also gathers information on businesses and corporations from D&B. D&B maintains a database of over 330 million businesses worldwide.

When Hoovers/D&B research was unable to identify employment and sales volume for on-site businesses, EPA used the ReferenceSolutions database (thereferencegroup.com). In cases where ReferenceUSA did not include employment and sales volume for on-site businesses, EPA used the Manta database (www.manta.com). The databases include data reported by businesses. Accordingly, some reported values might be underestimates or overestimates. In some instances, business and employment information came from local newspaper articles and discussions with local officials and business representatives. While sales values typically exceed estimated totals of annual income, sales can sometimes be lower than estimated income. This can be attributed to a number of business conditions and/or data reporting.

EPA obtained wage and income information from the U.S. Bureau of Labor Statistics (BLS). Part of the U.S. Department of Labor, the BLS is the principal federal agency responsible for measuring labor market activity, working conditions and price changes in the economy. All BLS data meet high standards of accuracy, statistical quality and impartiality.

EPA used the BLS Quarterly Census of Employment and Wages database to obtain average weekly wage data for site businesses. Average weekly wage data were identified by matching the North American Industry Classification System (NAICS) codes for each type of business with weekly wage data for corresponding businesses in site counties. If weekly wage data were not available at the county level, EPA sought wage data by state or national level, respectively. In cases where wage data were not available for the six-digit NAICS code, EPA used higher-level (less-detailed) NAICS codes to obtain the wage data.

To estimate the annual income earned from jobs at site businesses, EPA multiplied the average weekly wage figure by the number of weeks in a year (52) and by the number of jobs (employees) for each business.

Business and employment data used for this profile were collected in 2022. Estimated annual employment income was calculated using 2022 jobs data and BLS average weekly wage data for those jobs from 2021 (the latest available wage data at the time of this profile). Federal facility sites are included in calculations of total sites in reuse or continued use only. Federal facility sites are excluded from all other calculations (i.e., number of sites with businesses, number of businesses, total jobs, total income and total annual sales). All sales and income figures presented have been rounded for the convenience of the reader. Throughout this report, sales and annual employee income may not sum exactly to the totals presented due to rounding.

PROPERTY VALUE AND TAX INFORMATION

EPA collected on-site property values and property taxes included in this profile for a subset of Superfund sites by comparing available site boundary information with available parcel boundary information and gathering information for selected parcels from county assessor datasets. The property value and tax amounts reflect the latest property value year and tax data year available in county assessor datasets, which varied from 2022 to 2023. Throughout this report, property and tax values may not sum exactly to the totals presented due to rounding.

Back cover photos: ***Sola Optical USA Inc. (California), Del Monte Corp. (Oahu Planation) (Hawaii), Phoenix-Goodyear Airport (PGA) Area (Arizona), Fairchild Semiconductor Corp. (Mountain View Plant) (California), Aerojet General Corp. (California).***

Any mention of trade names, manufacturers or products in this document and its appendices does not constitute an endorsement by the United States Government or the U.S. Environmental Protection Agency. EPA and its employees do not endorse any commercial products, services or entities.


United States Environmental Protection Agency

Region 9
75 Hawthorne St.
San Francisco, CA 94105

October 2023
www.epa.gov/aboutepa/epa-region-9-pacific-southwest