Reuse Assessment

Martin-Marietta Aluminum Co. Superfund Site
The Dalles, Oregon

March 2022

Introduction

EPA Region 10 and EPA's Superfund Redevelopment Program (SRP) are supporting a reuse assessment for the Martin-Marietta Aluminum Co. Superfund site in The Dalles, Oregon. SRP helps communities reclaim and reuse formerly contaminated land through site-specific reuse support. This assessment discusses the reuse potential of the site, based on site conditions, community goals, area land uses and regional economic opportunities.

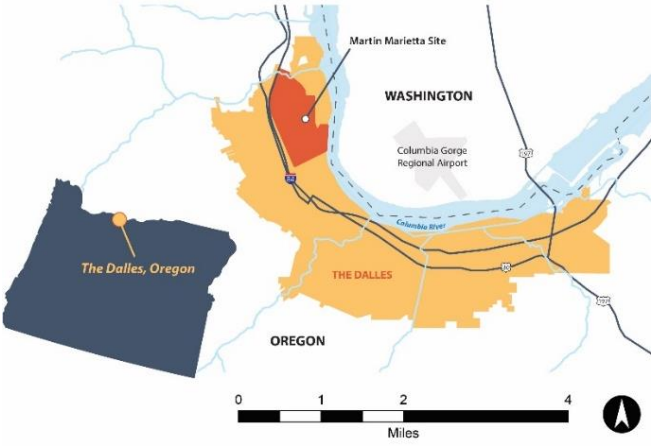

Figure 1. The site's location in The Dalles, Oregon.

Region 10 staff requested SRP assistance with an assessment of the site's reuse potential. Beginning in spring 2021, SRP contractor Skeo worked with the Region 10 site team to collect remedy status information, gather local use and zoning data, and perform reuse analyses. This reuse assessment shares the findings from this work. It covers site history and status information as well as reuse suitability considerations, resources and potential next steps to support the site's reuse.

Site Context

The 350-acre site is in The Dalles, Oregon, west of the Columbia River. The Martin Marietta Corporation (now Lockheed Martin) used the site for aluminum production activities from 1958 to 1984. During operations, spent pot liner waste and hazardous contaminants, including cyanide, fluoride, sodium, polynuclear aromatic hydrocarbons (PAHs) and sulfates, were released into the environment. Facility operations and improper waste burial contaminated site soil and groundwater.

Detection of cyanide compounds in the groundwater prompted the need for remedial action. EPA added the site to the Superfund Program's National Priorities List (NPL) in 1987 and began overseeing the Remedial Investigation by the potentially responsible party Lockheed Martin. EPA selected the site's long-term remedy in the site's 1988 Record of Decision (ROD) and updated it in a 1994 Explanation of Significant Difference (ESD). The goal of the remedy is to prevent dermal (skin) and airborne exposure to contaminants and the spread of contaminated groundwater and surface water. The remedy includes:

- Consolidation of contaminated material into two landfills on site. One landfill is regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The other landfill is regulated by the Resource Conservation and Recovery Act (RCRA).
- Capping of the two landfills.
- Placement of a soil cover over the scrubber sludge ponds (sludge ponds).
- Discontinuation of groundwater well use and connection of affected residences to the local public water supply.

- Collection and treatment of leachate generated by the landfills.
- Recovery and treatment of contaminated groundwater.
- Ongoing groundwater and air quality monitoring.
- Deed restrictions and institutional controls to prevent future groundwater use.

Remedy Status

From 1989 to 1992, the Martin Marietta Corporation cleaned up the site. EPA provided oversight. Cleanup consisted of consolidating waste in a landfill on site and placing a soil cover over a pond area that received liquid waste. In 1996, EPA deleted the site from the NPL. Monitoring activities and remedy optimization are ongoing. Below is a summary of the Site's remedy components and operation and maintenance considerations.

Current Remedy Components

Consolidation and capping of contaminated material in the site's two landfills have finished (see figure 2). The landfill cap surfaces are dirt and grass, with a geosynthetic liner underneath. In 2013, EPA determined the landfill caps protect against airborne contamination. A leachate collection and treatment system is in place around part of the CERCLA landfill's perimeter. Groundwater monitoring is ongoing. There are several monitoring wells in and around the remediated areas (see figure 2). Six-foot-high chain-link fencing and security gates restrict access to the landfills and the sludge ponds. Bilingual (Spanish and English) informational placards are posted to prevent public entry.

Soil covers were added to the sludge ponds during the initial phase of cleanup and more soil was added to increase depth in 2015 and 2021. The sludge ponds are vegetated. New wells installed in 2014 identified increasing fluoride levels underneath the sludge ponds. An off-site investigation is ongoing to determine if fluoride extends downgradient; initial results show that it is confined to the sludge ponds.

Operation and Maintenance (O&M) and Monitoring

There are a variety of O&M requirements for the site's remedial components. The potentially responsible party (PRP), Lockheed Martin, conducts the site's O&M activities. EPA provides oversight. If issues are found during O&M activities, Lockheed Martin addresses them. O&M requirements include:

- Annual inspection of the landfills, including inspecting for erosion, slumping, animal burrows and woody vegetation on the landfill cap. The inspection includes checking the condition of fences and gates, gate locks, and warning signs. The condition of drainage system, water ponding, blockage of channels or culverts, silt deposits, and monitoring wells are also inspected.
- Annual inspection of the sludge ponds, including inspecting the soil cover for erosion and animal burrows. If burrows are present, they are filled. The site's O&M Plan also requires test pit or hand auger inspections in each of the sludge ponds every five years to determine if more cover material is needed. The cover must be as least two feet deep in ponds two and three and one foot deep in ponds one and four. The drainage system is inspected for the presence of ponded water and blocked channels. Fences and gates are examined to make sure they are locked and in good order, that warning signs are in place, and that the fencing is clear of trees. The area next to the sludge ponds is inspected to evaluate the need for vegetation control.

Figure 2. Site remedial features.

- Quarterly inspection of the CERCLA leachate collection and treatment system. The system actively captures and treats leachate. It will continue to do so until deemed unnecessary. Treated leachate is discharged to the city's wastewater system.
- Annual groundwater monitoring for cyanide, fluoride and sulfate. Treatment of groundwater ceased in 1994. The purpose of the ongoing monitoring is to make sure no landfill leachate has entered the groundwater. There are 13 perched aquifer groundwater monitoring wells and several dozen deeper aquifer wells. In total there are 41 monitoring wells in the CERLCA groundwater monitoring program and an additional 8 in the RCRA groundwater monitoring program.

Every five years, EPA evaluates whether the remedy is protective of human health and the environment. These evaluations are called five-year reviews (FYRs).

Institutional Controls

EPA requires institutional controls to help maintain the protectiveness of the site's remedy. These include use restrictions, which are in place at all site parcels via deed restriction. The site use restrictions prevent the installation of wells and the use of groundwater as drinking water from the upper aquifer. An additional restriction is in place to prevent digging or disturbance of the surface soils of the landfills and sludge pond areas. Locked fencing is required around the landfills and sludge ponds.

Land Use Considerations

Several key factors inform future land use opportunities at the site. Physical factors, such as remedial features and access considerations, pose the most prominent potential reuse limitations at the site. Zoning and economic incentives help to inform the type and scale of reuse possible. Property ownership and surrounding land use further home in the type of development most useful and realistic for the community.

Ownership

The site includes 17 parcels, which are owned by 11 different parties.[1] All properties at the site are privately owned. Parcels range in size from less than 1 acre to over 100 acres. The average parcel size is 22.6 acres. Figure 3 shows the site parcels and ownership.

Lockheed Martin retains ownership of property that includes the landfills, the leachate management area, the former cathode waste management area and the sludge ponds. Lockheed Martin retains access rights to these areas. Lockheed Martin also retains ownership of all groundwater monitoring wells in the active aluminum plant area.

[1] Parcel owner and acreage data are from the Wasco County, Oregon GIS service. Accessed December 2021. www.co.wasco.or.us/departments/administrative_services/gis_division/index.php.

Site Owners

OWNER NAME	MAP IDENTIFIERS	PARCEL ACREAGE[2]	DESCRIPTION
LOCKHEED MARTIN	1, light blue	53.9 acres	Capped, remediated landfills and sludge pond area
DESIGN LLC (GOOGLE)	2, orange	189.8 acres	Former smelter footprint, southern area and northernmost parcel next to existing data centers
SAPA EXTRUSIONS LLC	3, dark brown	28 acres	Active aluminum plant
MALEY LLC	4, light brown	67 acres	Largest contiguous, developable area (no reuse plans in place)
THE DALLES INDUSTRIAL GROUP	5, teal	17.6 acres	Parcels encircling the CERLCA capped landfill area and in continued industrial use, off of River Road
TDITG LLC	6, dark blue	9.7 acres	Thin and small in spatial extent, partially encircles RCRA capped landfill area Larger parcel on Columbia River, surface water present
WM3 INC	7, dark blue	0.8 total acres	Two small parcels to the north, on River Road
BCP LLC	8, dark blue	4.5 acres	Not in use
WEBB WAYNE L & JANA L	9, dark blue	4.8 acres	Two parcels, both in continued industrial use
FORT DALLES RIVERFRONT PROP LLC	10, dark blue	7.6 acres	Not in use

[2] All acreages are rounded to the nearest tenth of an acre.

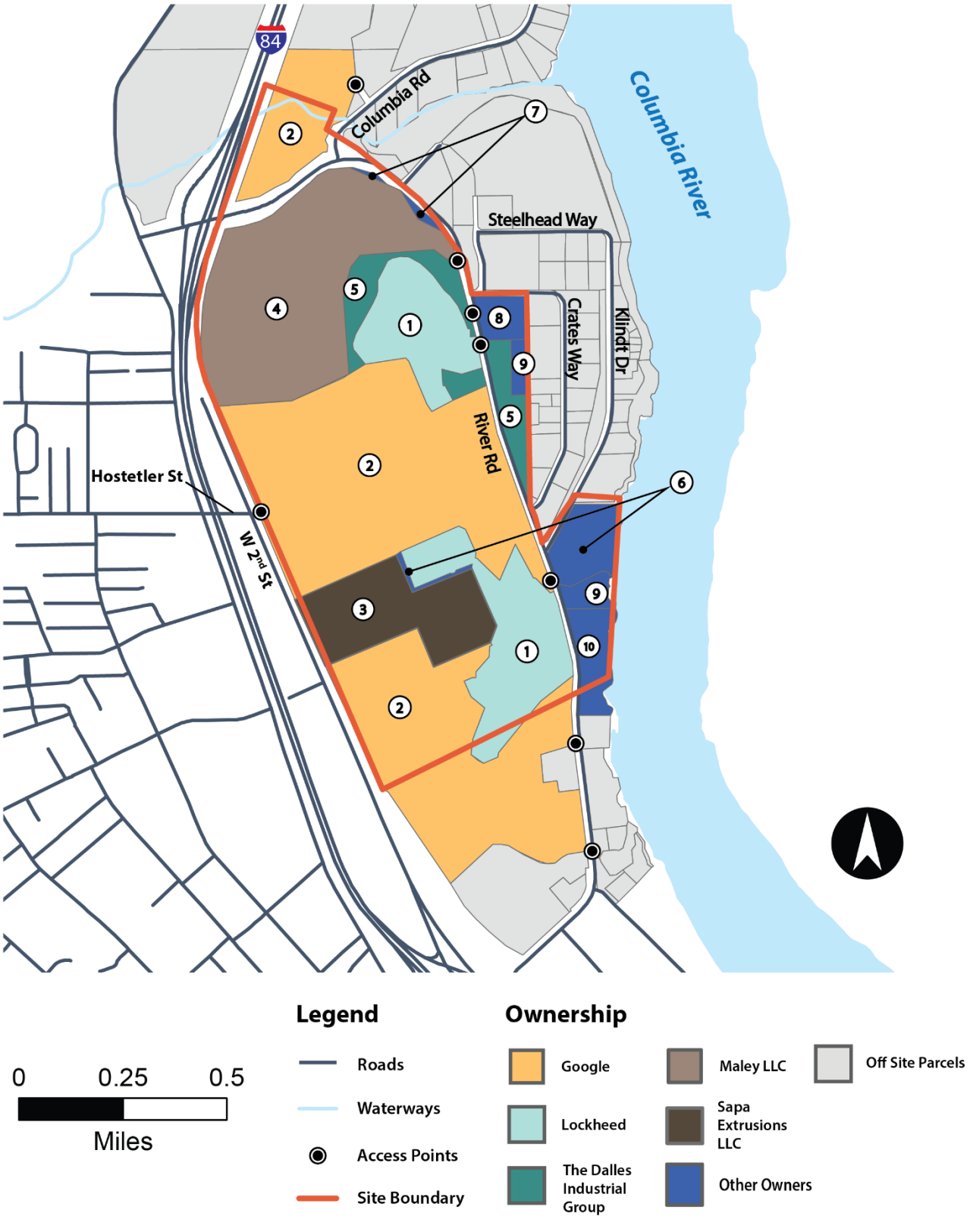

Figure 3. Site owners.

Access

U.S. Interstate 84 and a railway border the site to the west. River Road, a smaller, two-lane road, borders the site to the east. A paved road runs along the edge of all property parcels at the site, except for the small, thin parcel that rings the RCRA landfill. Site access points are limited. On the western side of the site, one access point crosses the interstate and the railroad tracks at the intersection of Hostetler Street and West Second Street, providing access to the active aluminum plant. All other interior access to site parcels is from River Road and Columbia Road. The interior access roads are private gravel roads.

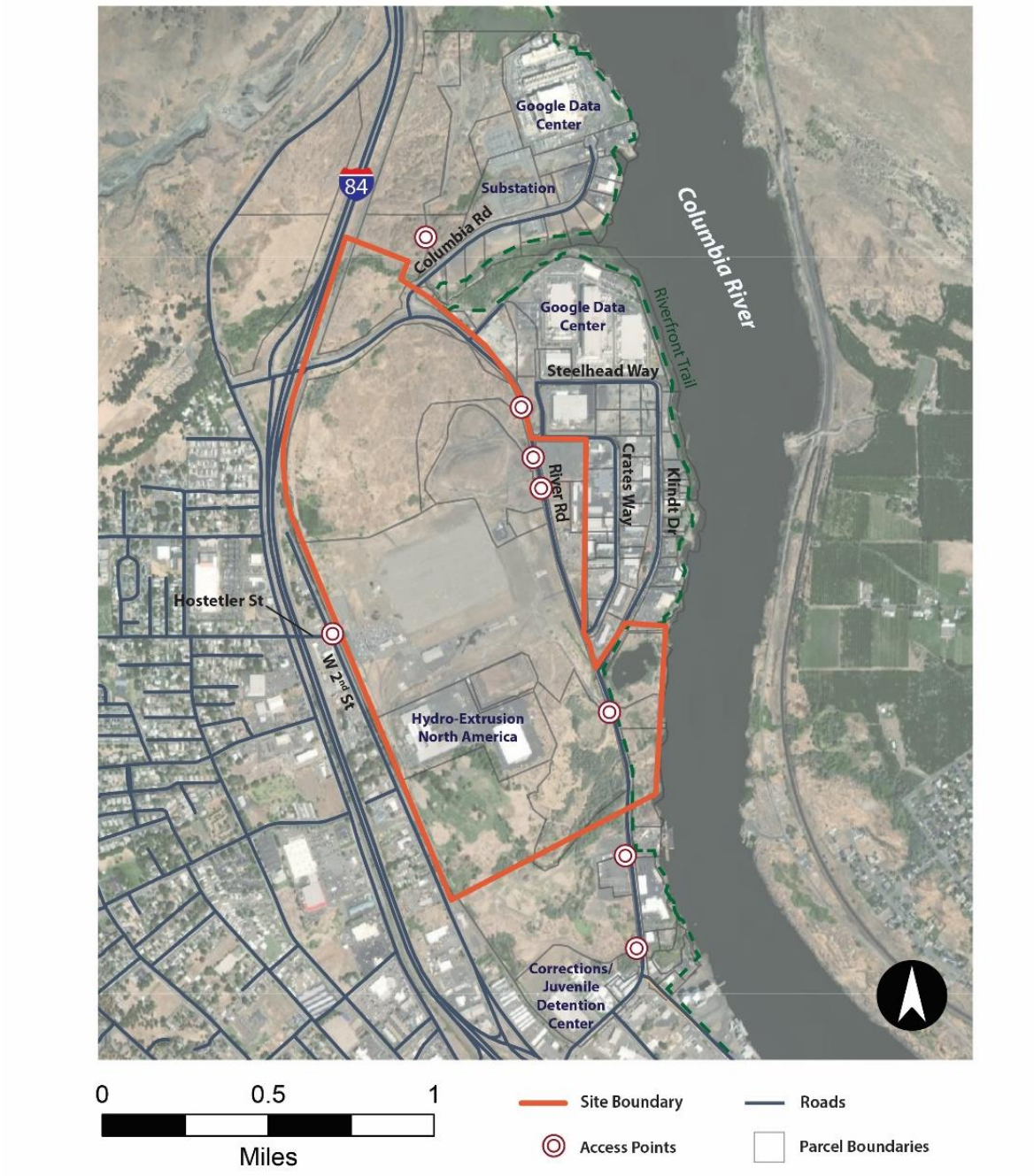

Figure 4. Site access.

Zoning

Site parcels are zoned for industrial use, except for one parcel on the northern side of the site, which is zoned for commercial and light industrial uses (see figure 5). Surrounding areas are also zoned for industrial uses. Residential and commercial areas are east and south of the site, not far from the town center. There is a steep-sloped agricultural parcel northwest of the site, across Interstate 84.

The section below describes the zoning designations at the site in more detail. The following descriptions are adapted from the city's municipal code.[3]

Industrial

Industrial zoning is intended to establish areas that provide for a variety of commercial and industrial uses. All uses in the industrial zone shall comply with federal and state health, safety, environmental and pollution standards, and be designed to minimize conflict between industry and other land uses.

Commercial/Light Industrial (CLI)

CLI zones provide areas for commercial and certain light industrial uses. New development shall be designed to promote clustering of businesses where appropriate, and use of common access and traffic controls. Where appropriate, safe and convenient pedestrian and bicycle circulation between a particular use and the adjoining street/sidewalk shall also be provided. This district also accommodates business parks that provide for a mixture of commercial and light industrial uses in campus-like settings where business activities are conducted indoors.

Development Policies

The site is located in two incentive zones: the city's Enterprise Zone (EZ) and the U.S. Office of Housing and Urban Development's (HUD's) Qualified Opportunity Zone (HUD QOZ). The EZ incentivizes business development via property tax credits. It could encourage redevelopment investments on site parcels. Requirements are based on increases in employment; benefits are set up in a tier system. The HUD QOZ is a federal program that identifies economically stressed areas and lowers barriers to development by providing income tax benefits for new investments. The two incentive zones can be layered together to maximize redevelopment investment opportunities for site parcels.

City of The Dalles – Enterprise Zone (EZ)

The entire site area is in the EZ. Any investment on site is eligible for property tax abatements, assuming that job creation and employment requirements are met. See table describing requirement on the following page.

[3] City of The Dalles Municipal Code. Accessed January 3, 2022. http://qcode.us/codes/thedalles/?view=desktop&topic=10-10_5.

Tier System

Standard	
Requirements	**Benefits**
• Time commitment: three years. • Employer must increase its employment by at least 10%. • Requires county assessor and zone manager approval.	• Tax abatement on the added value of real property development for the entire commitment period.

Extended*	
Requirements	**Benefits**
• Time commitment: four to five years. • Employer must increase its employment by at least 10%. • Additional compensation and wage requirements must be met to qualify.	• Tax abatement on the added value of real property development for the entire commitment period.

Long-term*	
Requirements	**Benefits**
• Time commitment: seven to 15 years. • Minimum requirements based on location and size of investment.	• Tax abatement on the added value of real property development for the entire commitment period.

**Extended and long-term agreements require the approval of relevant municipal and governmental sponsors.*

HUD-Qualified Opportunity Zone (QOZ)

The entire site area is located in two QOZs, which are identical in their functions and benefits. There are no requirements for QOZ benefits, aside from investments being made in a designated QOZ. QOZs are part of a federal program designed to spur economic development by providing income tax incentives for new investments in businesses operating in one or more QOZs.[4]

Benefits

1. An investor can defer tax on any prior eligible gain to the extent that a corresponding amount is timely invested in a Qualified Opportunity Fund (QOF). The deferral lasts until the earlier of the date on which the investment in the QOF is sold or exchanged, or December 31, 2026. If the QOF investment is held for at least five years, there is a 10% exclusion of the deferred gain. If the investment is held for at least seven years, the 10% exclusion becomes 15%.

2. If the investor holds the investment in the QOF for at least 10 years, the investor is eligible for an adjustment in the basis of the QOF investment to its fair market value on the date that the QOF investment is sold or exchanged. As a result of this basis adjustment, the appreciation in the QOF investment is never taxed. A similar rule applies to exclude a QOF investor's share of gain and loss from the sales of QOF assets.

[4] QOZ information is available from the Internal Revenue Service at https://ww.irs.gov/credits-deductions/opportunity-zones-frequently-asked-questions.

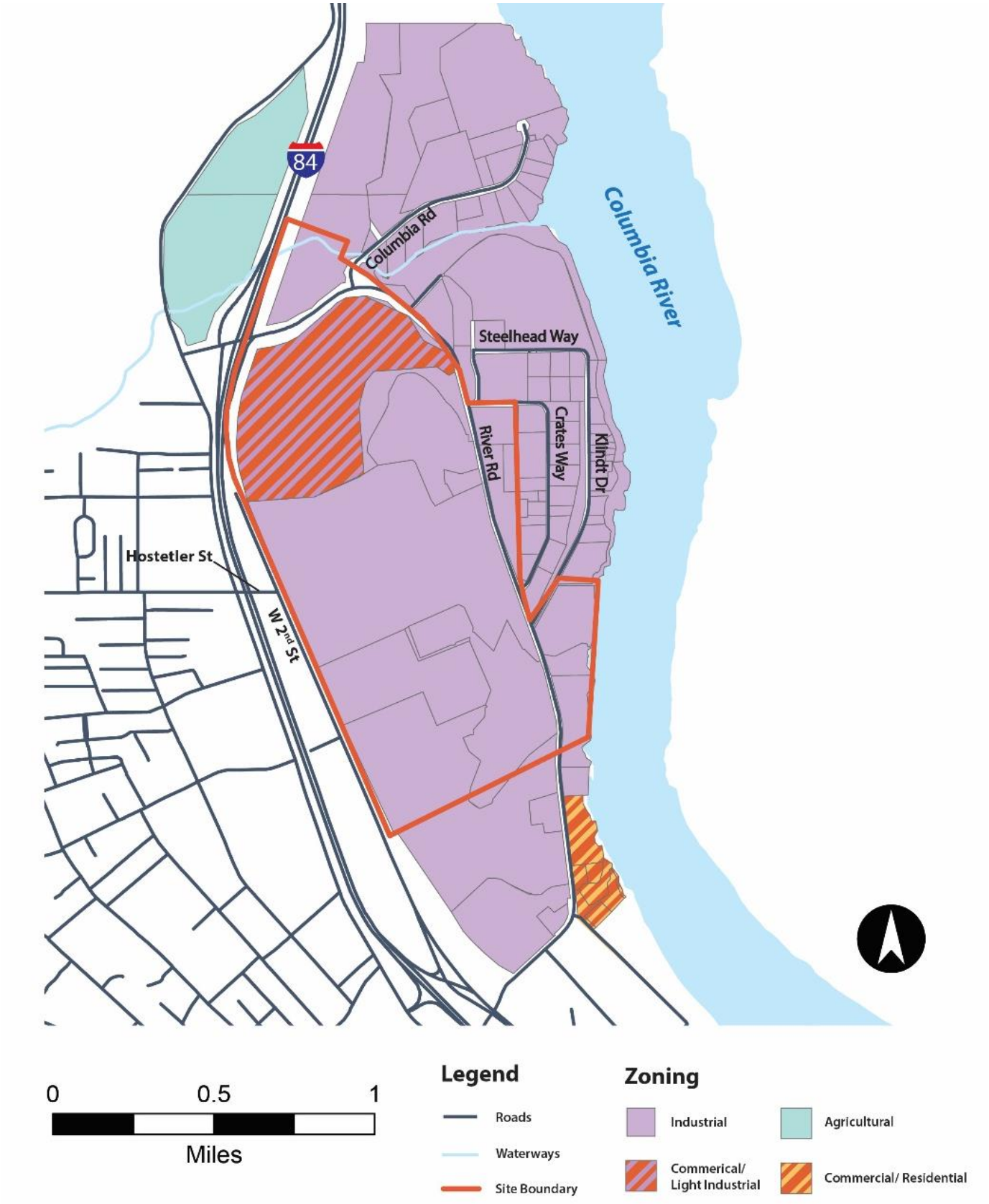

Figure 5. Site zoning.

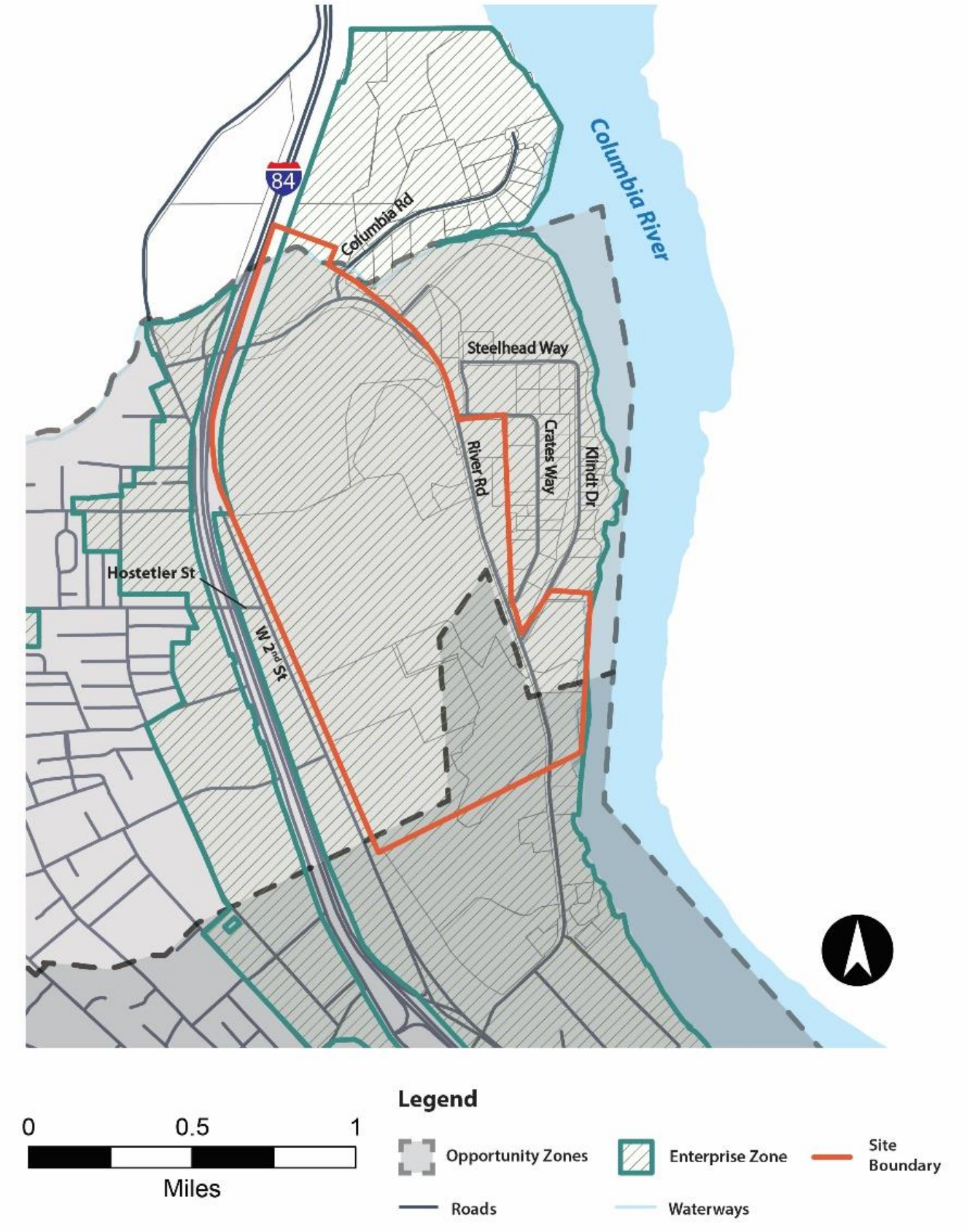

Figure 6. Incentive zones on site.

Existing and Surrounding Uses

In 2008, the aluminum reduction smelter and many associated buildings and structures were demolished and removed. The alloy plant remains in operation. Northwest Aluminum Specialties runs the plant. The Northwest Aluminum Specialties building, a leased warehouse and the administration building remain on site. On the eastern part of the site, a light industrial park located between River Road and the Columbia River has filled in much of the site area and surrounding land, stretching toward the Columbia River and northward. Since 2013, density and land uses have increased in areas around the site. Two Google data centers have been built next to the site, to the northeast. The parcels owned by Google adjacent to the current aluminum production facility is reserved for reuse by Google, based on discussions between EPA and Google. Reuse type and scale is unknown.

A Riverfront Trail runs along the Columbia River parallel to the site and Kiwanis Park is located at Klindt's Cove, near the southeast corner of the site (see figure 7). Adjacent parcels on the site's southeast side support public services, such as the Port of The Dalles, a county corrections facility and the North Wasco County Public Utilities Department. The site is about 1.5 miles north of the city's downtown commercial district. Residential and commercial areas are located to the west, across Interstate 84. Steep hillsides and a vacant, agriculturally zoned area are northwest of the site.

Site Reuse Suitability

Based on the site's remedial components, access and zoning considerations, and area land uses, the site's reuse suitability can be characterized in three zones. The zones range from most suitable for reuse (A) to least suitable for reuse (C), as shown in Figure 8.

A – ACTIVE/PLANNED REUSE	
ZONING	Industrial
ACCESS	Access from the west side of the site, via the intersection of Hostetler and West 2nd Streets.
USE	• Northwest Aluminum Specialties aluminum alloy plant • Undisclosed plans (Google)
REMEDY LIMITATIONS	Lockheed Martin maintains ownership of all monitoring wells in and around the aluminum facility.
REASONABLY ANTICIPATED FUTURE USE	The aluminum plant is expected to continue to operate. Google will develop the remaining parcels to complement its existing data centers; the exact use is not known.

B – POTENTIAL FOR REUSE	
ZONING	Industrial, commercial/light industrial
ACCESS	Multiple access points from Columbia Road and River Road.
USE	• One part of The Dalles Industrial Group's parcel east of River Road appears to be a storage lot for industrial machinery and materials, according to satellite imagery. The other part is vacant, as is the adjacent, BCP LLC parcel. • West of River Road, three parcels are vacant. Two of these parcels are contiguous. They are the largest developable area at the site with no existing or planned use.
REMEDY LIMITATIONS	There are no remedy limitations.
REASONABLY ANTICIPATED FUTURE USE	Development policies and zoning could be leveraged to purse renewable energy or any industrial or commercial use. The city has expressed interest in an industrial and/or commercial business park campus, per zoning designation plans.
C – AREAS WITH REMEDY LIMITATIONS	
ZONING	Industrial
ACCESS	Access from River Road
USE	Industrial
REMEDY LIMITATIONS	The CERCLA and RCRA landfills have caps and steep sides, which limit development opportunities. An off-site investigation has shown that elevated fluoride concentrations are limited to underneath the sludge ponds and do not extend downgradient to another parcel.
REASONABLY ANTICIPATED FUTURE USE	Reuse is not expected for these areas due to ongoing monitoring of fluoride levels and reuse challenges presented by existing remedial features.

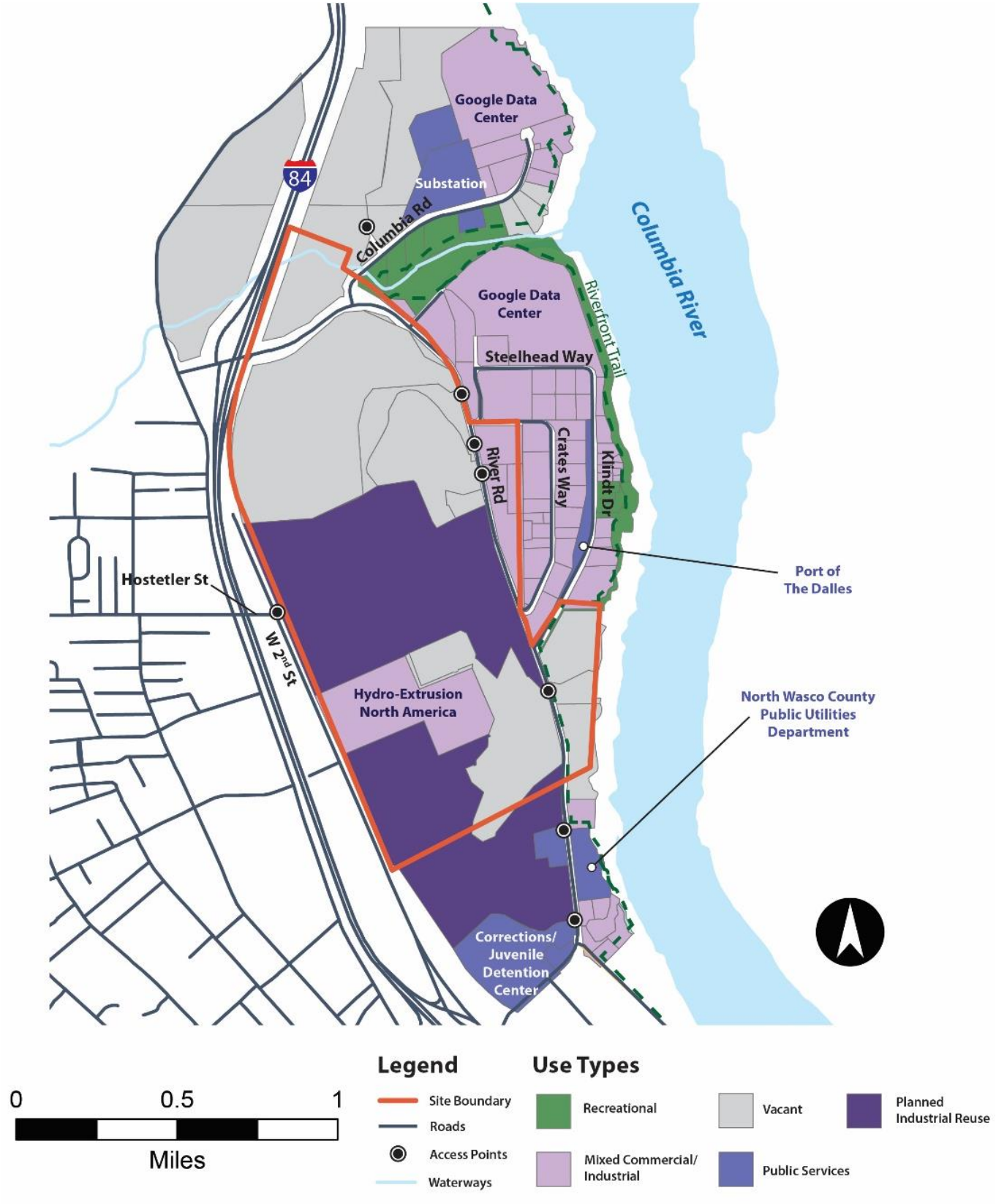

Figure 7. Existing and surrounding land use.

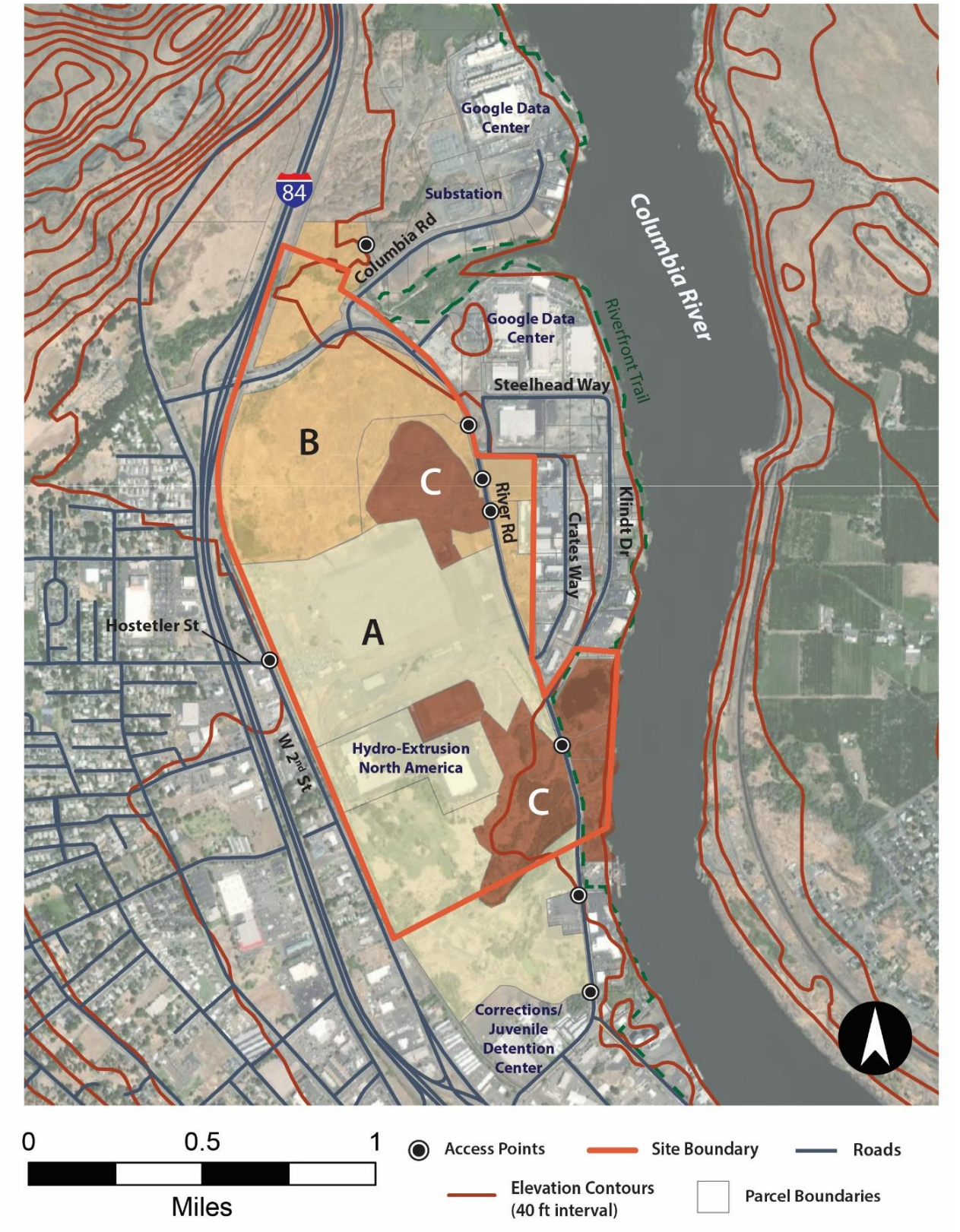

Figure 8. Site reuse suitability zones.

Key Considerations

Key remedy ownership and reuse suitability considerations are recapped below.

Remedial Limitations: There are several remedy-related reuse challenges at the site. The capped CERCLA and RCRA landfills are more difficult to redevelop due to steep-sloped sides and a relatively small developable area with restrictions on soil disturbance. The sludge ponds have soil disturbance restrictions and are monitored for fluoride levels in groundwater. Groundwater use at the site is restricted, but all active facilities and operations are connected to the city water supply. Ongoing remedial responsibilities do not pose significant reuse challenges. O&M activities consist of leachate and groundwater monitoring efforts, leachate collection and disposal, and maintenance of security fencing around the landfills and sludge ponds. Monitoring wells located beyond the remediated areas, in areas around the aluminum plant, must remain operational for the foreseeable future.

Ownership: All site parcels are privately owned. There is some industrial use on site and there are reuse plans for several of the central parcels. Generally, most site parcels are vacant and available for commercial and industrial use. The city's zoning designations are relatively flexible. The industrial and the commercial/light industrial zoning designations allow for a "variety of industrial and commercial uses". Surrounding land uses are primarily industrial, with some public service uses. Google operates two data centers next to the site, to the northeast.

Suitability: Based on this information, the site area most suitable for redevelopment is on the north side of the site, along River Road. This area has no remedial constraints, is vacant, is near an electrical substation, and has multiple intra-parcel access points via River Road and Columbia Road. Reasonably anticipated future uses for this area include renewable energy, as well as commercial and/or industrial uses. The commercial/light industrial zoning of the largest parcel is noted in the city's municipal code as a potential area for a commercial and/or industrial business park.

Coordination among a targeted group of stakeholders could help move reuse forward at the site. EPA's site team could work with developers, property owners, Lockheed Martin and the city to review and discuss these key reuse considerations. These discussions could inform the interests of these parties in pursuing reuse opportunities at the site.

Industry Trends – Renewable Energy

EPA requested industry trends research to help inform future evaluation of solar renewable energy generation opportunities at the site. Renewable energy trends are highlighted below for this region.

Large technology companies such as Google, Amazon, Apple, Microsoft and Meta (formerly Facebook) have become the leading corporate buyers of renewable energy in the last decade. Co-location of solar with data centers is an increasingly popular way to reduce the environmental impacts of high energy use by data center cooling systems (Figure 9).[5]

The site's proximity to an electrical substation increases the feasibility of locating renewable energy facilities there. The area's dry climate, on the rain shadow side of the Cascades, also means that the area offers good solar resources, relative to other cities in Oregon.

---

[5] *How tech went big on clean energy.* 10 February 2021. https://www.ft.com/content/0c69d4a4-2626-418d-813c-7337b8d5110d.

The site's proximity to Columbia Gorge Regional Airport (about 2.5 miles) means that solar facility planning would likely need to include a glare study. Facility construction may require the permission of the Federal Aviation Administration.

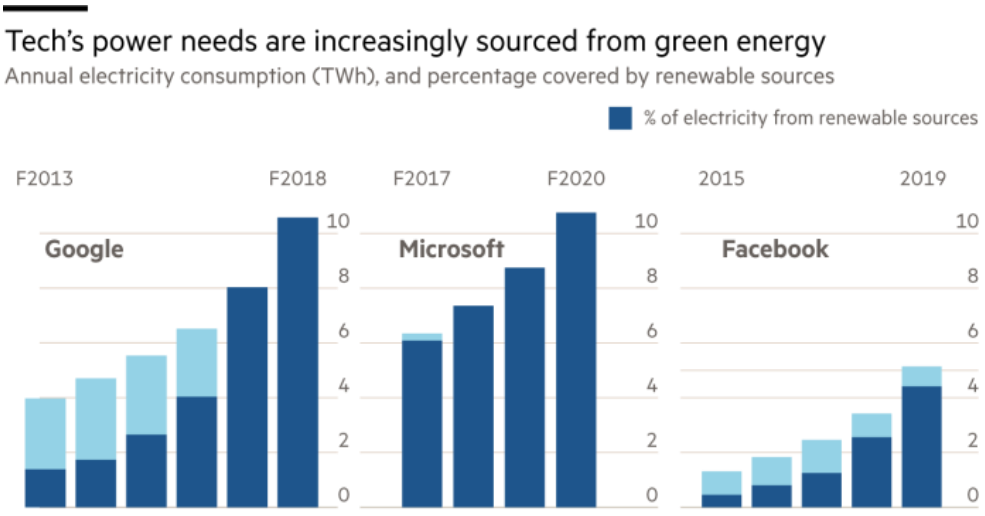

Figure 9. Renewable energy usage by Google, Microsoft and Facebook (now Meta) increased from 2013-2020.

Resources for Implementation – Renewable Energy

In 2020, Northern Wasco Public Utilities Department and Lockheed Martin did a feasibility study of solar capacity for the site's CERCLA and RCRA landfills. The study determined ballasted solar systems could be placed on the caps without endangering the remedy. However, the developable area on the landfills is small, due to the steep sides of the landfills. A larger solar array that extends to the parcels around the landfills could address the city's renewable energy goals and provide power for existing uses and future uses at the site and nearby. The resources below highlight available financial and technical assistance incentives that could help support a solar installation at the site.

Federal	
Program	**Benefits**
Investment Tax Credit	Available to any renewable energy development. The tax credit reduces the tax liability of the installation cost. It provides a tiered percentage reduction by the year when construction starts. • Reduction for 2022: 26%. • Reduction for 2023: 22%. • Reduction for 2024 onward: 10%. *Example:* If a solar installation costs $1 million and construction started in 2023, annual income taxes on the system would be taken on $880,000 (a tax liability deduction of $220,000).

Federal	
USDA Renewable Energy Development Assistance (REDA)	REDA is available to small businesses. It provides up to $100,000 per project for energy audits and planning assistance.
USDA Rural Energy for America Program (REAP)	REAP is available to small businesses. It provides guaranteed loan financing and grant funding for renewable energy systems or to make energy efficiency improvements. It covers up to 25% of project costs, capped at $500,000 per project.

State/Regional	
Program	**Benefits**
Oregon Department of Energy Model Ordinance Program	The program is available to any Oregon municipality. It provides templates and support for local governments in permitting and zoning for renewable energy projects.
Oregon Property Tax Incentive	Oregon law states that any change in real market value to property due to the installation of a qualifying renewable energy system is exempt from assessment of the property's value for property tax purposes.

Contacts

For more information regarding the site's remedial status or Superfund reuse in general, please contact the EPA Region 10 Remedial Project Manager or Superfund Reuse Coordinator, respectively.

Conor Neal
Remedial Project Manager
EPA Region 10
(206) 553-5502
neal.conor@epa.gov

Dustan Bott
Superfund Reuse Coordinator
EPA Region 10
(206) 553-5502
bott.dustan@epa.gov