
Brownfield Case Study: Oakland Army Base - Remediation and Reuse

Oakland Army Base

Site Location and Setting



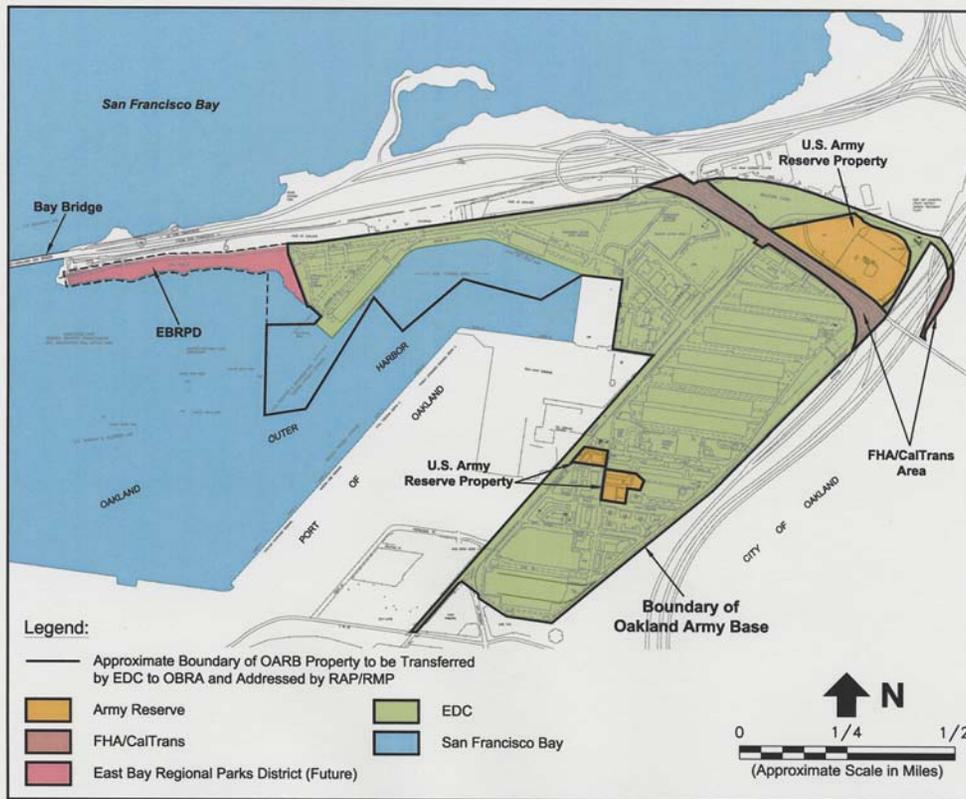
Oakland Army Base

Site Description

- Approximately 425 ac. industrial zoned
- Mostly covered by buildings, railroads, roadways, and paved parking and storage
- Surrounding land uses: Port of Oakland harbor, EBMUD wastewater treatment plant, freeways, railroads

Oakland Army Base

Site Description



- Approximately 425 ac. industrial zoned
- Along margin of San Francisco Bay
- Mostly covered by buildings, railroads, roadways, and paved parking and storage
- Surrounding land uses: Port of Oakland harbor, EBMUD wastewater treatment plant, freeways, railroads
- West Oakland residential

Oakland Army Base

Site Use History

- Original tidal flats and open water
- Filling early 1900s, later by U.S. Army in 1940s
- Prior to Army, oil reclaiming plant (“ORP”)
- Major Army cargo port (1941 – 1999)
- Activities: cargo loading/ storage; locomotive maintenance and repair; truck and equipment service and repair

Oakland Army Base

Site Reuse Plan

- 189 acres redeveloped by City of Oakland with mixed commercial / industrial as part of Gateway Development Area (GDA)
- 185 acres developed by Port of Oakland for maritime, rail, and other activities (PDA)
- 56 acres submerged lands transferred to Port
- No residential use allowed

Oakland Army Base

Site Reuse Plan



- 189 acres redeveloped by City of Oakland with mixed commercial / industrial as part of Gateway Development Area (GDA)
- 185 acres developed by Port of Oakland for maritime, rail, and other activities (PDA)
- 56 acres submerged lands transferred to Port
- No residential use allowed

Oakland Army Base

Overall Scope of Environmental Concerns

- Approximately 82 wash racks, sumps, oil/water separators, and other below-grade structures identified
- Approximately 93 USTs and ASTs identified
- Seven known former chemical handling/industrial areas
- Multiple reported historical chemical spill and stain areas
- Possible lead in soil around older buildings
- Approximately 20 miles of old storm drain pipe and 5 miles of old sanitary sewer pipe
- Approximately 26 miles of railroad tracks and ballast
- Potentially contaminated marine sediments at storm drain outfalls
- Localized areas of known groundwater impacts
(see Figure – next slide)

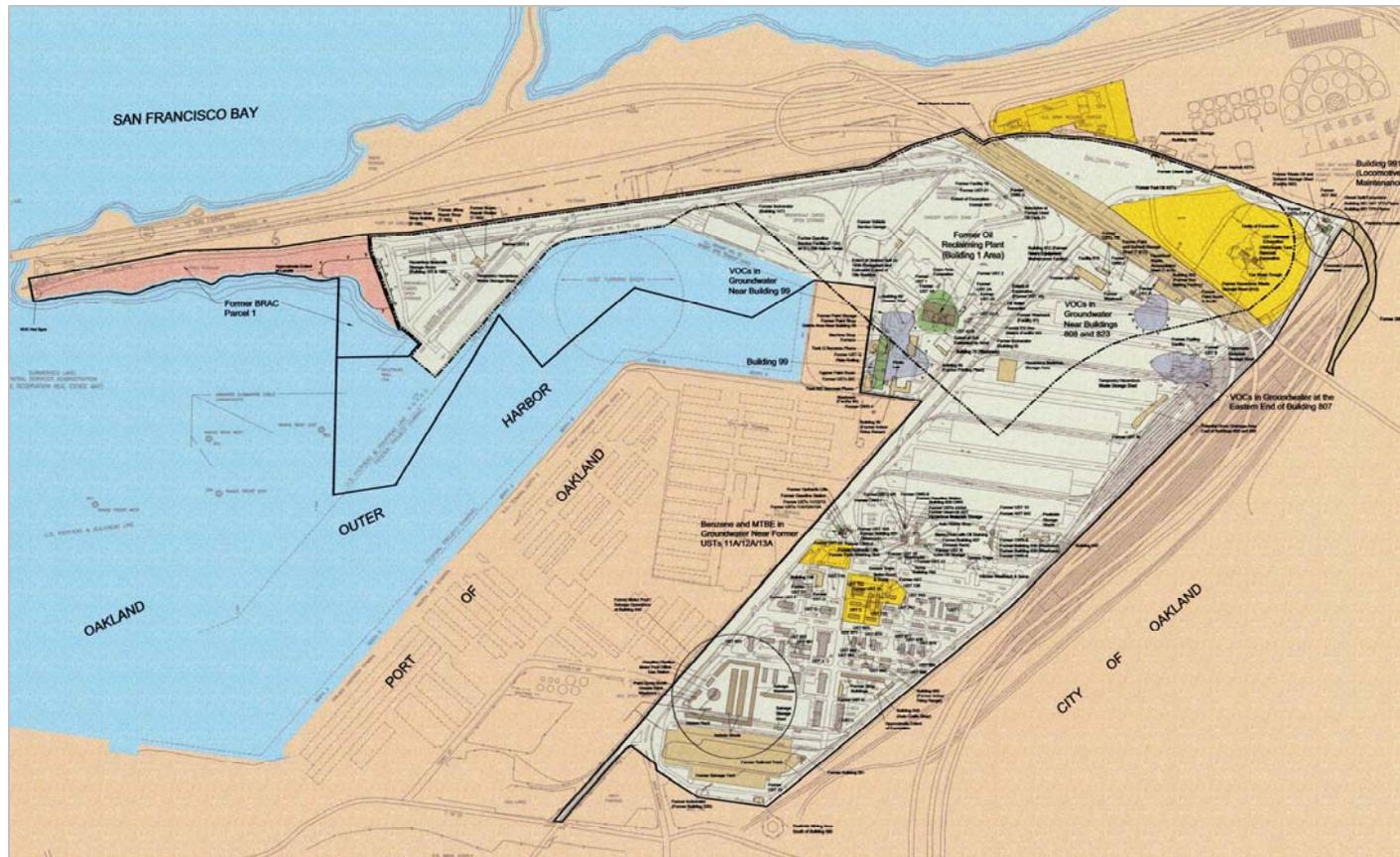
Oakland Army Base

Specific Areas of Environmental Concern (Seven “RAP Sites”)

- **Former Oil Reclaiming Plant (“ORP”) / Building 1** – Tarry residue
- **Building 807** – VOCs in groundwater (former drum storage area)
- **Buildings 808 & 823** – Vinyl chloride and other VOCs in groundwater
- **Building 99 Groundwater** – VOCs in groundwater
- **Former USTs 11A/12A/13A** – TPH, BTEX, and MTBE in soil and groundwater
- **Building 991** – Former locomotive repair – TPH in soil and groundwater, pesticides
- **Building 99 Soil** – Former metalworking, vehicle maintenance, and paint shop

Oakland Army Base

Environmental Concern Areas



Oakland Army Base

Purpose of RAP / RMP

- **Remedial Action Plan (RAP) / Risk Management Plan (RMP)** prepared on behalf of OBRA and Department of Toxic Substances Control (DTSC) with input from Army and Port of Oakland (approved by DTSC in Sept. 2002)
- **RAP** identifies, evaluates, and proposes remedial action alternatives for the seven “RAP sites” at the OARB
- **RMP** proposes presumptive-style remedies for other areas of OARB with known or potential contamination
- **RMP** remedies consist of institutional controls and protocols for managing low-risk chemical residues during construction and in the future

Oakland Army Base

Contents of RMP

- **Health protective measures** to be followed during and after redevelopment
- Protocols for **inspecting and sampling RMP locations** as they are encountered during redevelopment
- Protocols for **elevating RMP locations to RAP sites**, if appropriate
- **Notice and reporting** obligations
- Requirement to **maintain institutional controls**

Oakland Army Base

Remedial Action Objectives

- Protect human health and the environment
- Remediation goals developed consistent with National Contingency Plan (NCP) and Chapter 6.8 of the California Health & Safety Code (HSC)
 - Site-specific numerical risk-based goals derived specifically for OARB's planned commercial and industrial uses
 - Accounted for identified chemicals of concern (COCs), impacted media, future land use, exposure pathways, and site conditions

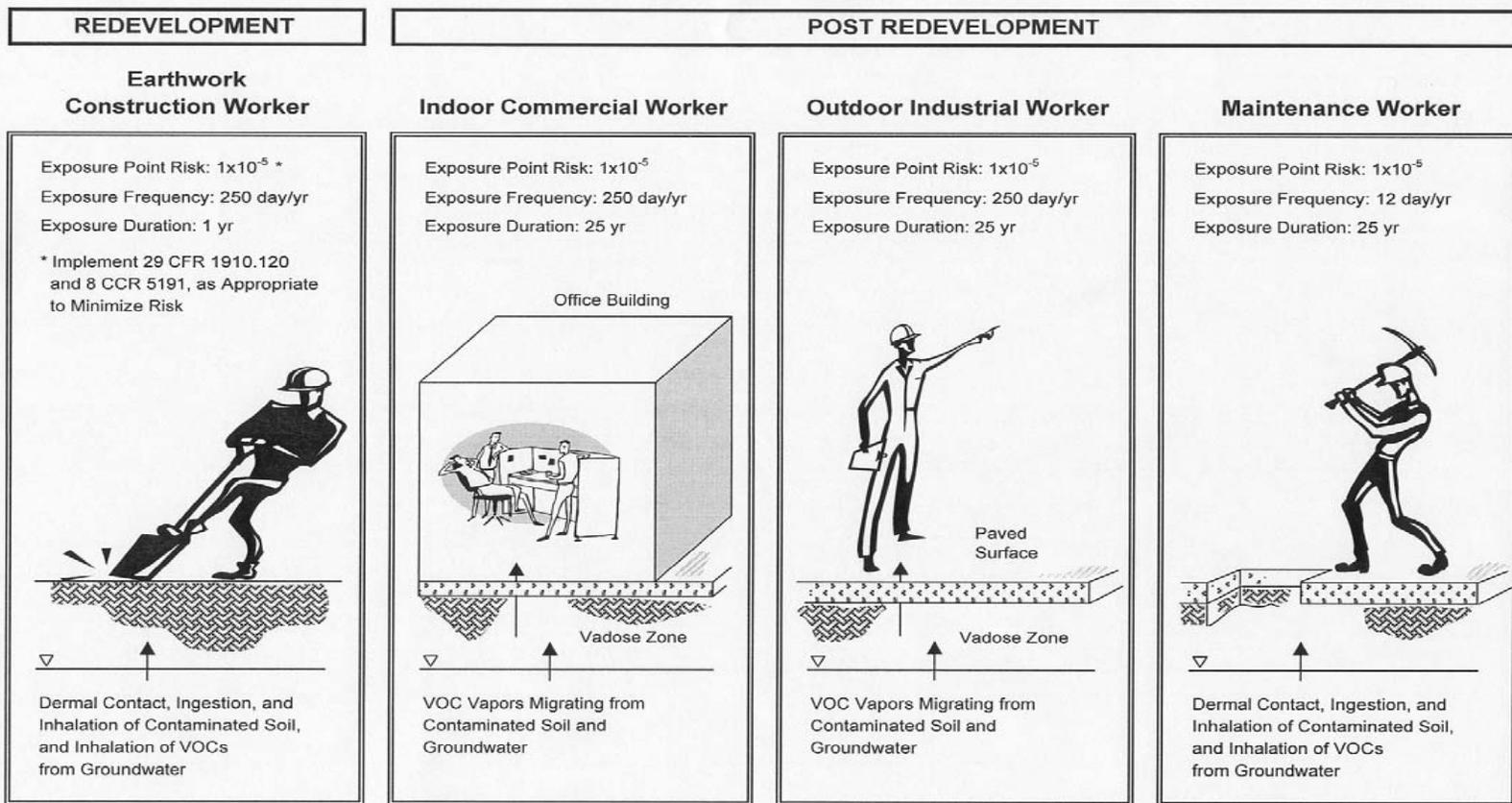
Oakland Army Base

Remedial Action Objectives (cont.)

- Remove and treat or dispose of contaminated source material that may pose a significant threat to human health or environment, or is prone to leaching to groundwater
- For individual COCs in soil and groundwater, establish a remediation goal that corresponds to 1 in a million (10^{-6}) lifetime cancer risk and hazard index of 1 for non-carcinogens protective of potentially exposed populations
- Establish overall cumulative remediation goal of 1 in one hundred thousand (10^{-5}) lifetime cancer risk and hazard index of 1 when multiple COCs are encountered

Oakland Army Base

POTENTIALLY COMPLETE EXPOSURE PATHWAYS AND HUMAN RECEPTORS ASSOCIATED WITH REDEVELOPMENT OF OAKLAND ARMY BASE



Oakland Army Base

Overall Project Schedule

- Schedule will conform with the phased approach of redevelopment proposed by the City of Oakland
- Remediation of RAP sites within 5 years after conveyance
- Remediation of RMP locations within 10 years after conveyance in phases consistent with development

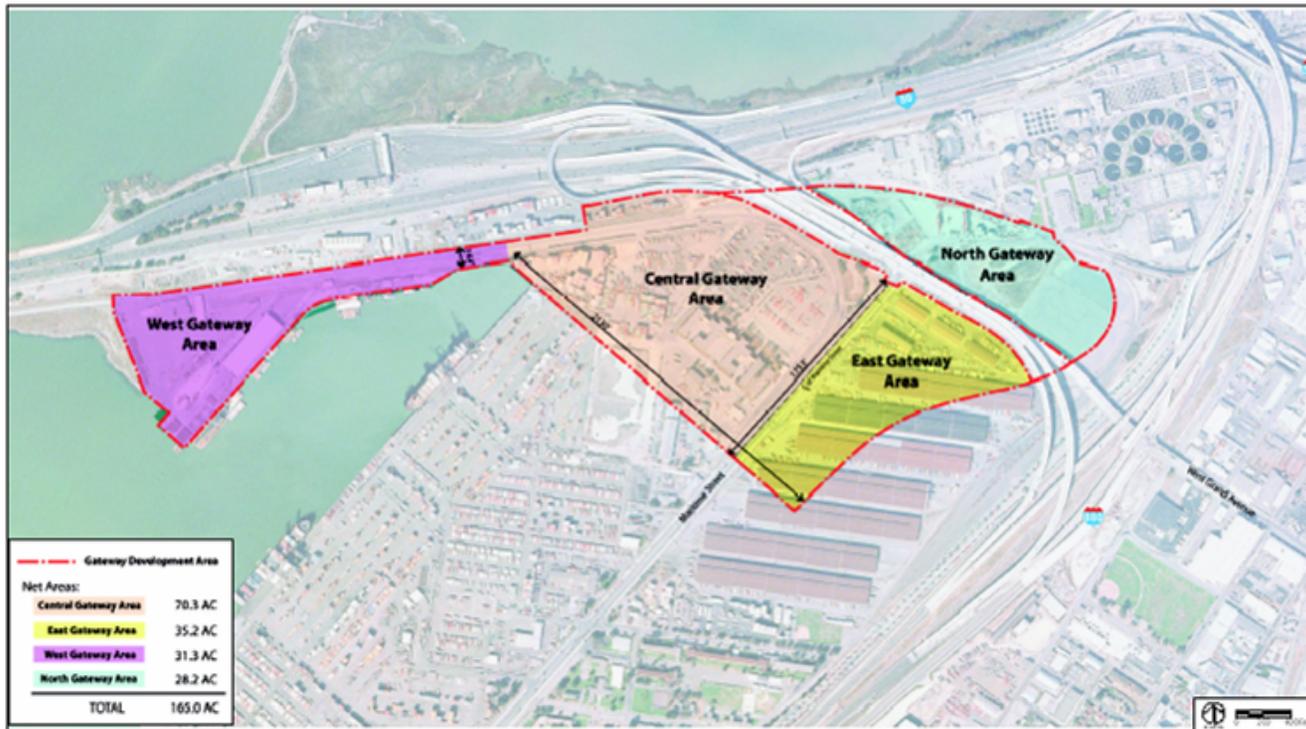
Oakland Army Base

Groundwater Remedial Action Objectives

- Implement institutional controls to prevent ingestion and dermal contact with groundwater
- Treat groundwater impacted with VOCs that is above remediation goals or interferes with planned reuses
- Prevent further increases of metals and other non-VOC concentrations in groundwater

Former Oakland Army Base Gateway Development Area

CHAPTER 3: SITE DEVELOPMENT CONSIDERATIONS



For Development Planning for the Oakland Army Base Gateway Development Area: Interim Final Report
Oakland Base Reuse Authority

FIGURE 3-1
GATEWAY DEVELOPMENT AREA

Oakland Army Base

Summary

- Innovative application of brownfield redevelopment approach at a closed military facility – First of its kind for the U.S. Army BRAC Program
- Finding of Suitability for Early Transfer (“FOSET”) based on use of a Risk Management Plan and land use restrictions as integral components of the DTSC-approved remedy
- Development of Final RAP within Army funding and timing constraints by use of risk-based remedial goals consistent with planned land uses and integration of focused Phase II sampling data with available Site characterization information provided by Army

Oakland Army Base

Summary (cont.)

- Close working relationship with DTSC staff – Including jointly edited documents and working group sessions
- Incorporation of significant local community support for brownfield redevelopment under the City of Oakland’s Urban Land Redevelopment Program
- Obtained Land Disposal Restriction (“LDR”) variance for disposal of tarry residue waste from prior facility use – Second U.S. EPA Land Disposal Restriction variance granted in California.

Oakland Army Base

- Problem
- Approach
- Risk
- Comfort
- Solution
- Future