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Treasure Island: Gold Dust or Radioactive Soil?

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Abstract

Former Naval Station Treasure Island in the San Francisco Bay is undergoing an expensive redevelopment process to be turned into a sustainable living community. However, the area has a long history of mishandled radioactive material, irresponsible behavior on behalf of authorities, environmental instability, lawsuits, and administrative complaints. This research project focuses on Treasure Island's history and redevelopment plan, utilizing San Francisco government documents, local newspapers, literature on environmental justice and racism, and state legislation to draw conclusions on the efficacy of the project from a sustainability standpoint and the responsibilities of the planners and developers. After providing a historical overview of the site and including the perspectives of City developers, officials, Treasure Island residents, and activists, I situate the redevelopment design plan within environmental justice and circular sustainable design models to emphasize how the project is lacking in long-term sustainability and social responsibility. This policy analysis shifts into an argument against continuing to build housing on the island and posits affordable housing development and office-to-housing conversion in downtown San Francisco as a better alternative. Throughout the paper I argue that Treasure Island is not safe for long-term habitation.

Treasure Island, Judith Calson.

Introduction

In the middle of San Francisco Bay sits Treasure Island, a 400-acre land mass created in 1937 by the Army Corps of Engineers. The name Treasure Island is reported to have come from urban myths of gold dust being inside the mud of its base. This idea makes ironic the fact that "the Navy spread contaminated dust and left a tremendous amount of radioactivity from ships and four decades of radioactive experiments in Hunters Point soil"(Harvey, n.p., 2022) when that landfill area farther down the bay was a naval shipyard as well as in the air of Treasure Island itself.

In 1991 the EPA calculated a hazard score of 51.78 for Treasure Island, nearly double the number necessary to be designated a Superfund site, but it was never listed as one—a mystery that remains to this day (Fagone and Dizikes, n.p., 2019). In 2000 the Navy conducted a soil

analysis revealing ‘contaminants of concern in resident backyards as well as lead and other carcinogenic chemicals underneath the elementary schoolyard (Respaut and Levinson, n.p., 2019). In 2003 another survey found contamination throughout the neighborhood and high radioactivity near apartments on one street. In 2008 Robert McLean, a radiation specialist working with Navy-contracted New World Environmental, found radiation on the west side of the island, enough “for a person at close range to receive, in an hour, five times the maximum radiation a nuclear worker is allowed to absorb in a year” (Smith and Mieszkowski 2014). The U.S. Nuclear Regulatory Commission told the health department there were ‘serious radiological concerns’ on the island (Respaut and Levinson, n.p., 2019). After the Navy had sworn there were no contaminants under the schoolyard, in 2011 they found more radioactive items. The health department gave Navy contractor Shaw Environmental 16 violations later that year (Respaut and Levinson 2019). In 2013 before developers took over the island another radiation survey was conducted, finding low-level radiation and notably, radioactive shards in public areas outside cleanup zones (Smith and Mieszkowski 2014).

Firsthand accounts from residents detail effects of radiation sickness and ailments they believe are caused by the radiation existing on the island (Bendix, n.p., 2020). The authorities and developers insist that the land is safe for habitation, and Governor Gavin Newsom is in favor of the development because of its potential to spur economic growth and create jobs. Due to the economic capacity of the island, the city has elected to move forward with plans to build 6 billion dollars-worth of housing and development in the location.

I was born and raised in the San Francisco Bay Area. I grew up believing California was a pioneer state, a place of progressiveness and conscious thinking. A large part of why I became an environmental and urban studies major was because of my early schooling here, where I

learned to be cognizant of my relationship to the rest of nature. The redevelopment plan on Treasure Island interests me because of its closeness, literally and figuratively, to me and my studies. I find the contradictions at work on the site fascinating and want to put forth an exploratory case study analysis of the island and the housing project to shed light on the differing perspectives and implications of the development, as the contamination and future sea-level rise clearly suggest that it is not safe for long-term habitation.

Types of Radiation Present and Health Effects

The most concerning radioactive contaminants on the island are Cesium-137, Radium-226, and PCBs. According to Envirostor,[1] the land also contains lead, petroleum, arsenic, PFAs, dioxins, cumene, and methane. Radium-226 is a radioactive isotope that has a half-life of about 1,600 years, meaning after this time it reduces in concentration by half (Bendix, n.p., 2020). Cesium-137 has a half-life of 30 years, yet high levels of exposure to both of these chemicals causes acute sickness and cancer. PCBs, or polychlorinated biphenyls, are man made chemicals that were used in building materials until they were banned by the Toxic Substances Control Act in 1979 (EPA, n.p., 2022) because they accumulate in the environment and cause adverse health effects in humans and other animals. Per- and polyfluorinated substances, or PFAS, are also man made chemicals that do not break down in the environment and negatively affect growth and development in large amounts. They are far more widespread but nowhere near as regulated as PCBs. Lead, petroleum, and arsenic have been present on the site as a result of past waste disposal from the Navy, spread into the air as toxic dust dredged up from cleanup and redevelopment (Leahy, n.p., 2022). These chemicals are linked to health effects including heart disease, diabetes, and various cancers. Dioxins are organic pollutants known to cause immune,

[1] Department of Toxic Substances Control, Cal EPA, *Naval Station Treasure Island (38370044),* September 08, 2022, https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=38370044.

reproductive, and developmental damage. Cumene and methane are volatile organic compounds, large quantities of which irritate and damage the lungs.

Currently the island is home to the Treasure Island Museum, public arts installations, a sailing center, a school, a daycare center, playgrounds, parks, and various eateries and breweries open to visitors. The site is also used for film and TV production. But, how safe is Treasure Island for human habitation? Is it an environmentally sound place to situate a large housing development, the type of which is currently approved and under construction? What are the goals of the developers and government entities and how do they compare with those of the residents and activists? The research here provides an assessment and determination of the efficacy of this 'environmentally conscious' development in San Francisco. How do sustainable design standards, environmental justice frameworks, and the City's own environmental justice goals, stack up in relation to the urgency of increasing San Francisco's housing supply? This research project will also keep the issues raised in the public eye.

Methods

My aim is to mount a documentary comprehensive case study of Treasure Island and the implications of the new development, which, I will argue, imperil residents of the project on the site. The body of the paper is framed by environmental justice and sustainability frameworks supported by California Senate Bill 1000, environmental studies scholars Dorceta Taylor and Traci Voyles, and the UN Global Compact. I begin by discussing the history of Treasure Island, then disclose the narratives of activists and residents in conversation with the narratives from the city and island developers. I pull from the activist group Green Action and SF government documents. I use interviews and news articles from local sources, as well as scholarly research

articles on Treasure Island and the efficacy of the environmental remediation efforts made. I also cite the 2020 class-action lawsuit with the claims made by activists and former residents. I end my paper by making an argument for affordable housing development in safer areas closer to downtown San Francisco, and urge planners and city government to enact planning, design principles, and building codes in accordance with the BREEAM, Living Building Challenge, and Design for Deconstruction movement supported by the Environmental Protection Agency (EPA).

Literature Review

Terms I employ for context and analysis are 'environmental racism' and 'environmental justice,' as well as 'wastelanding' and 'social sustainability'—these are defined by Dorceta Taylor and Traci Voyles in their works "The Rise of the Environmental Justice Paradigm" and *Wastelanding: Legacies of Uranium Mining in Navajo Country*, respectively. Taylor and Voyles are leading scholars of environmental justice and racism. Social sustainability and environmental justice principles are addressed now in global and local policies such as the UN Global Compact and California's SB1000, both of which I cite in this paper.

Much writing and official documentation related to the Treasure Island situation focus on its history and the position the place occupies in the realm of urban studies and environmental justice work. Lindsey Dillon has written an article entitled "Pandemonium on the Bay" on the island's military history. Dillon argues that the historical uses of Treasure Island are an example of slow violence because the military harmed the land and neighboring indigenous Marshallese peoples with radiation, invisible toxins which 'do not manifest for decades.' As the remediation effort is still going on today, she calls into question "whether the nuclear experiment ever really ended, or whether and how it continues to unfold" (Dillon, 2017, p. 150). She argues that the military built an illusion of control around radiation which was undermined by the Navy's

inability to both contain and determine which parts of the island were impacted by it. A written geography of radiation is also provided by Smith and Mieszkowski, from the Center for Investigative Reporting, on the negligence from the Navy in the cleanup of Treasure Island. They discuss how the standards the Navy had for decontamination in most cases do not live up to the current standards, and their lack of following through with proper procedures. Smith and Mieszkowski's 2012 investigation found higher levels of radiation than reported by the Navy, and later records of radioactive shards in public grassy areas from radiation surveys in 2013.

The book *Urban Reinventions: San Francisco's Treasure Island*, by Horiuchi and Sankalia, which contains Lindsey Dillon's essay, describes the area as a space with important history and its development as an urban reinvention– a term the novel hinges on, referring to "*tabula rasa* development that sweeps sites clean of most visually recognizable previous occupation or natural features" (Horiuchi and Sankalia, p. 5, 2017). The book begins with an in-depth dive into this history, and leads into essays which explore a range of under researched topics through the lens of Treasure Island and urban reinvention.

A recently dismissed lawsuit on behalf of more than 2,000 people previously and currently residing on the island implicates the city, Navy contractors Tetra Tech Inc. and Shaw Environmental, nonprofit One Treasure Island, and private developers in ignoring the possibly hazardous levels of radiation using information from Smith and Mieszkowski's report[2]. The lawsuit sought 2 billion in damages as a result of the defendants' response to the radiation costing residents time, money, and personal wellbeing, as well as a stop to all development until

[2] Treasure Island Current and Former Residents v. Treasure Island Development Authority; Treasure Island Homeless Development Initiative; Shaw Environmental; US Navy Treasure Island Cleanup Director Jim Sullivan; US Navy Treasure Island Cleanup Lead Project Manager David Clark; US Navy Representative Keith Forman; Tetra Tech, EC, Inc.; Dan L. Batrack; State Department of Toxic Substance Control; San Francisco Department of Public Health; Lennar Inc.; Five Point Holdings, LLC., John Stewart Company. Case 3:20-cv-01328-JD (Cal. 2020)

evidence was shown of complete remediation. A Reuters investigative report from 2019 cites public records of health complaints from residents but notes a lack of epidemiological studies to prove the connection to radiation amidst ongoing concerns. *San Francisco Chronicle* and other San Francisco newspapers have been reporting on Treasure Island, its redevelopment and social context for the past years, offering an established timeline of public information. The documents on the city government website's Treasure Island section grant access to the design and development plans as well as their sustainability intentions.

Section 1: Historical Overview and Current Narratives

History of the Site to Today

In 1937 the Army built a dam of thousands of tons of boulders next to Yerba Buena Island and filled it with about 23 feet of bay mud and sand dredged up from the ocean floor (Stark, n.p., 2019). Created at the nexus of technology and expansion in the Bay, the initial intended purpose of Treasure Island was to host the third World's Fair in 1939 and then be the site for a new airport. The Golden Gate International Exhibition arrived on the site in Art Deco glory, boasting an array of exhibits from various nations and U.S. states. The earliest evidence of radiation arrived in the form of glow-in-the-dark pins distributed by the World's Fair administration at the Golden Gate International Exposition.

During World War II, Treasure Island became a U. S. naval station, a status it retained through the Cold War. The Navy began conducting nuclear tests at the Bikini and Enewewok atolls as part of Operation Crossroads in 1946, continuing to use the "area as an outdoor laboratory for its experimental weapons program until 1958, ultimately exploding a total of sixty-seven bombs" (Dillon, p.149, 2017) . The ships used in these tests were taken either to

Hunters Point Shipyard or to Treasure Island. There they would be repaired or cleaned and processed into scrap metal. During this time radioactive runoff from the ships polluted the island and surrounding water. From 1947-1972, a series of Navy-sponsored classes in chemical warfare preparation and radiological decontamination training took place on Treasure Island. The Navy conducted radiation training at their Damage Control Training Center on the island, during which they disposed of radioactive materials in pits on-site (Smith and Mieszkowski, n.p., 2014). The ship *USS Pandemonium* was used for these classes, doused in radioactive material to simulate nuclear fallout and explored by sailors with Geiger counters (Dillon, n.p., 2018). In 1972 stricter environmental regulations were enforced and the decontamination trainings were discontinued.

In addition to the radiation risk, the land is both prone to sinkage and liquefaction– when the "strength and stiffness of a soil is suddenly reduced by earthquake shaking or other rapid loading" (Stocking, n.p., 2022), causing high rates of ground acceleration. A composition of silt and landfill, the ocean has been slowly reclaiming its less-than-solid base from the moment it was finished. In 1989 during the Loma Prieta Earthquake the island "fell between 6 inches and 2 feet closer to sea level" (Gordon, n.p., 1995). That was in just 15 seconds. Treasure Island is 18 miles from the San Andreas fault and 7 miles from the Hayward-Rodgers Creek fault system (Schlesinger, n.p., 2010), a seismic hazard zone. This instability will always be a technical challenge for redevelopment, as situating housing on weak ground next to major faults could result in disaster.

Process of Redevelopment

In 1997 after the Naval base closed the island was leased to the City. Former Mayor Willie Brown ensured state control over the island's redevelopment project by putting forth a bill establishing a separate governing authority on the site in 1997. This became the Treasure Island

Development Authority (TIDA), packed with board members chosen by Brown, consisting of city employees and campaign donors. People began moving onto the island around 2000, drawn to affordable housing offered by the city and disused military housing secured by nonprofits for the formerly unhoused. At the same time the authority issued a call for developers, and two parties proposed bids for development. One of these was a group called Treasure Island Community Development (TICD)— a partnership between Stockbridge Capital Group, Wilson Meany, and home construction corporation Lennar Inc. Lennar already had experience doing a large redevelopment of Bayview-Hunters Point, another Navy-sponsored dumping ground for radiation that was improperly remediated (Bay City News, n.p., 2022). Other developers believed the cost of seismic improvements required for Treasure Island would "necessitate a level of density on the island that would be 'unethical' (Hawkes and Yeung, n.p., 2010). Rather than reopening the bidding process, the authority voted to accept TICD as developers. After a rocky start positioning some housing on seismically unstable portions of the land, TICD came out with a revised green and smart-growth planning design in 2006 (Hawkes and Yeung, n.p., 2010).

The geotechnical firm ENGEO conducted a series of in-depth tests on the layers of the island to make a seismic risk-mitigation strategy that would prevent liquefaction from occurring, coming up with a 'multi-step ground improvement process' involving deep-power compaction and engineered fill (Stocking, n.p., 2022), estimated to cost around $137 million (Schlesinger, n.p., 2010).

Rendering of redevelopment plan, Luke Carothers. csengineermag.com

Plans for redevelopment were finalized and approved around 2011. However, the start of construction was delayed until around 2016 due to a lawsuit led by a group called Citizens for a Sustainable Treasure Island, including then-former City Supervisor President Aaron Peskin, who called for a redoing of the island's environmental impact report (Roberts, n.p., 2011). The state Supreme Court turned aside the appeal in favor of the City's report and continuation of the project (Egelko, n.p., 2014). A Finding of Suitability to Transfer (FOST) was required from the Navy for each parcel of land in order to document them environmentally suitable prior to transferring ownership to the Development Authority. According to the 2011 Infrastructure Plan, FOSTs had been completed for "approximately 170 acres of the former naval base" (TIDA, p. 11, 2011). While construction and development is now well under way, a 2022 public record from the SF Mayor's office notes "The Navy projects that its remediation efforts on the Base will continue for an additional five to ten years" (Dunlop, n.p., 2022). The island's first high-rise tower is under construction and streets, half of the infrastructure, freeway ramps, and 105 units

of housing have already been completed. Completion of the master plan is expected by 2036 (Nelson, n.p., 2023).

Navy/City/Developer Perspectives

The redevelopment on Treasure Island provides the city with a source of tax revenue from incoming residents, as well as economic activity. Currently, the Bay Area is experiencing a housing crisis. The new housing on the island would help ease this by providing both affordable and market-rate units. It also provides profit and portfolio embellishment for the developers and contractors involved. Developer Christopher Meany of Wilson Meany describes the project as an opportunity to manufacture San Francisco's new largest neighborhood (Dineen, n.p., 2022). Even with sea level rise predictions veering towards extreme levels, director of the Treasure Island Development Authority Bob Beck says: "The strategy to adapt to sea level rise is baked into the land use and the funding plan" and they are "well-positioned to adapt to even some of the worst-case scenarios" (Stark, n.p., 2019). And in response to radiation concerns, according to Reuters, "The Navy insists there was never unacceptable risk to residents' health, citing the depth and concentration of buried contaminants. It has been removing pollutants 'out of an abundance of caution.'" The city has categorically denied the danger of radiation on the island and the Navy's environmental coordinator Tahirih Linz has stated there is no risk to human health from the radioactive objects uncovered through the cleanup program (Bendix, n.p., 2020). The consensus from this end is that the project is safe, unique, transformative, exciting, and helpful for San Francisco.

Activist/Resident Perspectives

In May 2022 a virtual panel was held by the SF City College Journalism Department with four experts in their fields: The investigative reporter Carol Harvey, Hunters Point resident activist Arieann Harrison, Tetra Tech whistleblower attorney David Anton, and environmental physician James Dahlgren, MD. They were asked about wrongdoing on the island and the linkage between actions there and at Bayview Hunters-Point. David Anton reported during the panel that in 2007 on Treasure Island "workers were ordered not to scan around or under buildings" because "The Navy didn't want it exposed that people had been living over radiation" (Harvey, n.p., 2022) and that the redevelopment process will churn up soil and expose more people to it. Carol Harvey and he agreed that Treasure Island water quality is 'a disaster,' and visitors should bring their own water bottles.

Carol Harvey has been reporting on injustice related to Treasure Island for more than a decade, with countless articles published in the San Francisco Bayview National Black Newspaper. She describes how the development authority has feigned support while steamrolling citizens' concerns. In a recent article she revealed that the authority has been attempting to displace low-income residents with tolls, a lottery system for transitional housing, and complex rules despite their initial promise of guaranteeing residents housing after redevelopment (Harvey, n.p., 2022).

In 2020 former residents Andre Patterson and Felita Sample, along with over 2,000 other current and former residents filed a class action lawsuit against the developers, navy contractors, and authorities for failing to do an adequate remediation process and give proper information to the incoming residents on the issue. They and other plaintiffs asked that "defendants remediate the property to an acceptable condition; conduct safety and health assessments for those living,

working or attending school on the island; and stop any development, construction, digging or any other activity that could disturb the soil until independent verification of a complete cleanup" (Slowey, n.p., 2020). According to news website the Real Deal, "U.S. District Judge James Donato dismissed the suit, amended three times, saying it didn't meet precedent for 'violation of bodily integrity'" and that "plaintiffs' lawyers had failed to properly serve defendants in the case" (TRD Staff, n.p., 2022).

Further video interviews with representatives of the 2020 lawsuit describe continuing illness even after moving off the island– Felita Sample, who had been living on Treasure Island for 13 years, says she still has "super high blood pressure… an enlarged heart…and consistent nausea" (Harvey, 9:45, 2020). She and Andre Patterson claim to have been illegally evicted from the island after speaking out about radiation. Other citizens have described various illnesses and cancers that arose after moving onto the island, and what they call the 'Treasure Island cough,' a symptom residents of the Island have in common (Bendix, n.p., 2020). The activist group Green Action is working with residents to get information out about environmental injustice on Treasure Island. One of their main concerns is that rising sea levels will eventually inundate and expose the radiation under the soil to citizens. On their website they state that "leaving contamination at the Hunters Point Shipyard and Treasure Island is an act of environmental injustice! Rising sea levels will spread radioactive and toxic waste into neighborhoods and the San Francisco Bay!" (Rivera, n.p., 2021)

Section 2: Treasure Island Plan Analysis

Environmental Racism and Wastelanding

Environmental racism, as scholar Dr. Dorceta Taylor defines it, is "the process by which environmental decisions, actions, and policies result in racial discrimination" (Taylor, p. 536, 2000). Shortly after the City got the island in 1997, housing programs sponsored by orgs under the Treasure Island Homeless Development Initiative gave subsidies to houseless people–predominantly poor and marginalized—and the City rented out market-rate units to citizens, resulting in a population three-fourths people of color on the island. African-American, Hispanic, Asian, and low-income Caucasians represent the island, the largest subgroup being Hispanic, and the smallest Caucasian (Harvey, n.p., 2022). Through the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, around 2,500 people moved into post-war housing (Horiuchi & Sankalia, 2017, p. 23) later exposed to be a site of radiation. These groups were exposed to the radiation left over from the Navy without being informed of its existence, although the Navy and other authority groups were aware of it, then ignored upon realizing this reality and speaking out. Now that the island is being redeveloped, risks remain with construction and demolition exposing contamination under the soil, and residents being ignored once more as updated management policies cause displacement.

Traci Voyles describes processes such as these as 'wastelanding,' a facet or rather operation of environmental racism, where the "'wasteland' is a spatial and racial signifier that "renders an environment and the bodies that inhabit it pollutable" (Voyles, 2015, p. 9). The body of Treasure Island was created and ravaged by the hands of the military and subsequent authorities, rendering it an irradiated wasteland passed over by San Francisco's more affluent inhabitants, and down to the City's unsuspecting disadvantaged communities, where they

remained under resourced and overlooked. Voyles makes clear that wastelanded places embody a socially constructed meaning similar to that of race, in that the meaning and perceived value can shift through discourse and material practices. The redevelopment of Treasure Island represents this shift "from being pollutable to protectable" (Voyles, 2015, p. 16), its meaning and value becoming more aligned with the residents who will occupy the high-rise condos making up the majority of the new housing. This means utmost care must be taken to acknowledge its previous history and meaning, and transition affected residents to its new form, unless the actions of environmental racism be conveniently erased or even perpetuated.

Environmental Sustainability/Social Sustainability

Treasure Island Development Project sustainability obligations, according to their 2011 documents, state they want to "convert previously developed lands so that approximately 2/3 of the available land area is dedicated for parks and open space" and "complete additional remediation work beyond that done by the Navy to ensure the safety of future residents and users of Treasure Island, in accordance with the Infrastructure Plan" (Sustainability Obligations, pp. 1-2). For infrastructure, goals include "improvements to protect against seismic, flooding and climate change risks; and improvements to provide adequate emergency support services"(p. 3). As far as environmental sustainability is concerned, the design plans for the development are poised to be LEED Platinum standard, the highest designation possible for green development. LEED certification, however, considers development life cycle thinking only up to the design stage. Whether or not the developers will follow through on the goals listed remains to be seen.

According to Uri Eliahu, President of ENGEO the geotechnical firm, quoted in Civil + Structural Engineer Magazine: "The initial construction places the development area of the project about 3.5-feet above the 100-year sea level, which [he] believes, based on current sea

level rise projections, makes the new development safe until at least the end of the century" (Carothers, n.p., 2023). This may be true if the current projections remain accurate. According to the Treasure Island Infrastructure Plan, the projections they are using for planning are 16 inches by 2050 and 55 inches by 2100. However, scientists will not know what path the planet is on with sea-level rise until the 2060s, according to Rutgers University researcher Robert Kopp (Stark, n.p., 2018). High predictions place sea-level rise as high as 10 feet, and extreme storms could push water up an additional 3 feet higher (Stark, n.p., 2018). The Ocean Protection Council recommends natural barriers and wetlands in land use policy to protect against sea level rise. TIDA has accommodated this advice by incorporating low-lying open space in the design for Treasure Island's redevelopment, intended to convert to wetlands in the event of on-shore flooding. This is a compelling aspect of circular design which could provide a buffer for flooding. TIDA has also committed to providing sea level monitoring reports every 5 years to determine, amongst other factors, what improvements may need to be made to the strategy based on up-to-date data and regulatory requirements, which would be supported by funding baked into the Financing Plan. The measures are elaborate and optimistic, well-articulated but decidedly a hefty and costly effort for such an unstable location.

As far as social considerations, the developers list public benefits of the project such as "significant amounts of new affordable housing, increased public access and open space, transportation improvements, extensive infrastructure improvements, and recreational and entertainment opportunities, while creating jobs and a vibrant, sustainable community" (Development Agreement 2011, p. 3). Their Design for Development plan emphasizes the pedestrian-focused nature of the finished city and its public transit infrastructure. Of the 8,000

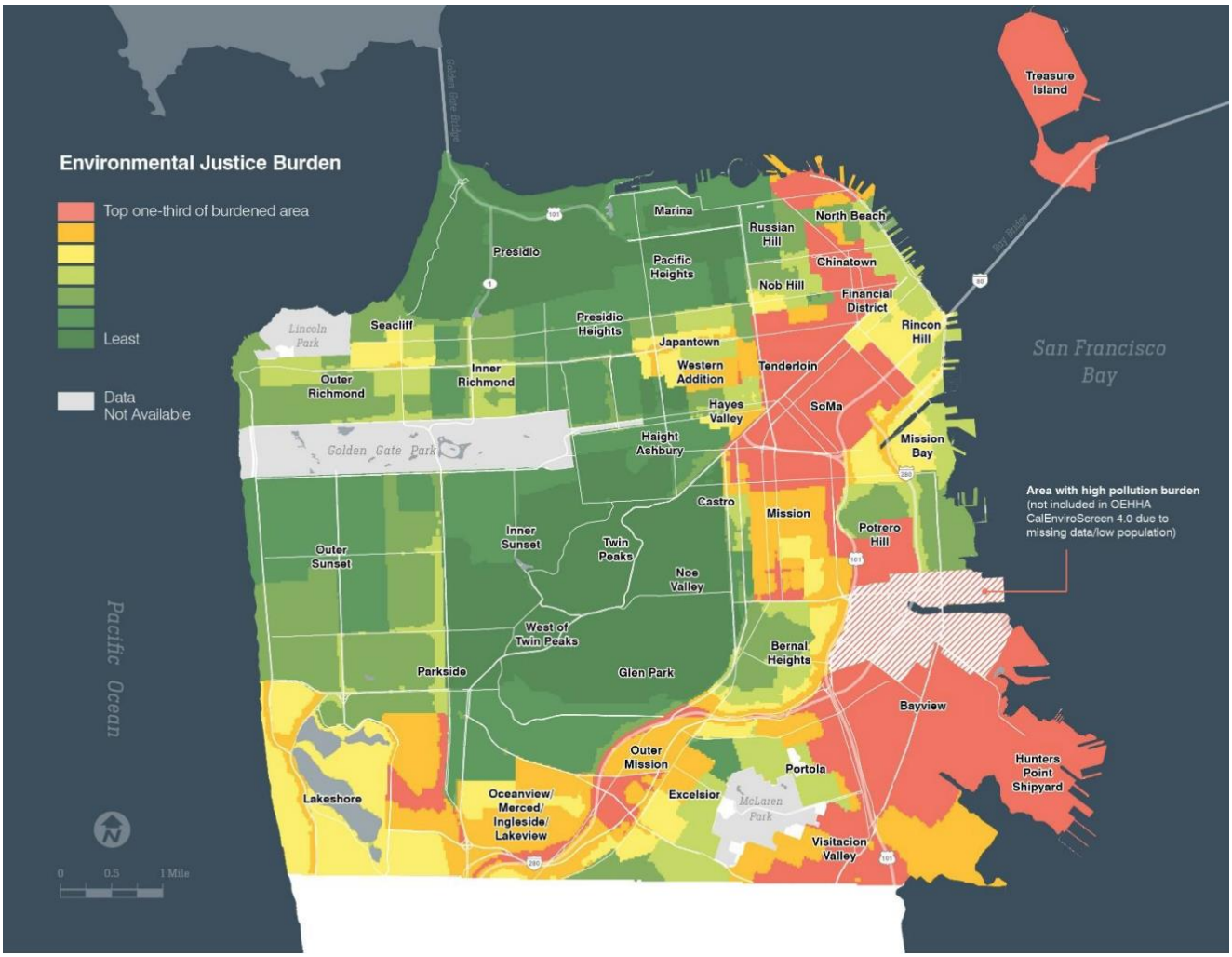
planned homes, about 27 percent are allocated to low-income and homeless populations. Of these, 20 percent are reserved for formerly homeless households.

Social sustainability standards, according to the UN Global Compact, maintain that at the minimum, businesses must "undertake due diligence to avoid harming human rights and to address any adverse impacts on human rights that may be related to their activities" (UN Global Compact, n.p., n.d.). Transparency and accountability are important aspects of these standards as well. TIDA's documents appear well-intentioned, but their past lack of accountability regarding health risks associated with Navy cleanup violates these standards. They have an obligation to be transparent about Treasure Island's past and to be honest with residents about hazards associated with redevelopment and implications of future sea level rise.

In 2016 California approved Senate Bill No. 1000 requiring cities across the state to adopt long-term plans for climate resilience and hazard mitigation with emphasis on an environmental justice element identifying and supporting disadvantaged communities.[3] The San Francisco Planning department came out with an Environmental Justice framework in March 2023 to underpin development in response to Senate Bill 1000's requirement for cities to integrate environmental justice into their planning endeavors. It lists environmental justice measures and initiatives being undertaken in the City and acknowledges environmental racism as well as San Francisco's historical part in it, utilizing feedback from community members. Sections include Healthy and Resilient Environments, Physical Activity and Healthy Public Facilities, Healthy Food Access, Safe, Healthy, and Affordable Homes, Equitable and Green Jobs, and Empowered Neighborhoods, with priorities enumerated for each. EJ communities are

[3] California Senate, *SB-1000 Land use: general plans: safety and environmental justice*, S-1000 Filed with the Secretary of State September 24, 2016, Approved by Governor September 24, 2016. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB1000

defined in the document with the visual aid of CalEnviroScreen, mapping software developed by the California EPA and Office of Environmental Health Hazard Assessment. The map displays in red outline the communities that are most socially and environmentally vulnerable.



SF Planning, 2023.

As noted: “This map was created to meet the requirements of CA Senate Bill 1000. The legislation requires that municipalities identify where "Disadvantaged Communities" are located, defined as areas facing elevated pollution burden coupled with a high incidence of low-income residents. This map is based on the Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 4.0 Map, modified to incorporate additional local data on pollution burden and socioeconomic disadvantage.”

Treasure Island is in the 100th percentile for pollution burden and environmental cleanup—the highest priority to apply the initiatives listed in the EJ Planning document. The first section of the document echoes the same goals present in the Treasure Island Design plan—to "limit and protect against pollution exposure...implement hazard and climate mitigation and adaptation measures...expand nature-based solutions, green infrastructure, and urban greening...affirm access to water, power, and sanitation as a human right...ensure public access to data and information, and empower community planning for climate resilience and justice."[4] The housing section prioritizes repairing past injustices to POC communities, building accountability and public participation, protecting vulnerable tenants, expanding affordable housing in high-income neighborhoods, and importantly—working to "ensure that housing built on environmentally contaminated land undergoes strict procedures for remediation, community engagement, and reporting"[5]. The City has set up Environmental Justice Working Groups within EJ communities led by resident representatives in cooperation with the city government to work on these priorities.

Dorceta Taylor refers to the framing of issues as central to the environmental justice movement—linking ecological concerns with social justice and labor. In her article "The Rise of the Environmental Justice Paradigm," she outlines core elements of the ideology in a list of environmental justice principles. Under the 'justice' section, inter- and intra-generational equity

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[4] San Francisco Planning Department, *San Francisco Environmental Justice Framework,* March 2023, 27, https://citypln-m-extnl.sfgov.org/SharedLinks.aspx?accesskey=98990b76ae685e880fd8a23e6cbd82d776e53fa29ad63706e741e263b772d7a1&VaultGUID=A4A7DACD-B0DC-4322-BD29-F6F07103C6E0

[5] San Francisco Planning Department, *San Francisco Environmental Justice Framework,* March 2023, 27, https://citypln-m-extnl.sfgov.org/SharedLinks.aspx?accesskey=98990b76ae685e880fd8a23e6cbd82d776e53fa29ad63706e741e263b772d7a1&VaultGUID=A4A7DACD-B0DC-4322-BD29-F6F07103C6E0

are enumerated—cleaning up and constructing areas in balance with nature, and ensuring healthy developments for present and future generations (Taylor, p.539, 2000). Pertinent to the Treasure Island case, Taylor insists that "corporations should enter into a social compact with host communities that would preclude wanton acts like the wilful or careless contamination, purchase, and relocation of communities as a cost-effective way of doing business" (p. 555, 2000). The framework released by the city appears in almost full accordance with these principles, even using some of the same language. However, issues around future structural instability and social wellness remain.

I believe San Francisco's Planning Department should hold to their new commitment to expanding affordable housing in high-income neighborhoods rather than using taxpayer money to invest in Treasure Island's precarious future. However, as construction is unlikely to halt, the development authority on Treasure Island should incorporate environmental justice principles into their design plan—due to the island's history of environmental racism and injustice, these principles should be underlying all new development that occurs there.

Findings

The narratives from activists and independent investigators tell that the land on Treasure Island is still contaminated and despite remediation and redevelopment efforts, remains vulnerable to future inundation that would irradiate the area. While the design plans are extensive and employ sustainable methods of development, as well as procedures for future land risks, the island is not safe for long-term habitation. Ongoing social concerns that have not been addressed are the lack of epidemiological studies for concerned residents, and amendments for past mistreatment. One of the principles listed in Taylor's paper is that "victims of environmental

injustice have the right to receive full compensation and reparations for damage" as well as quality healthcare (Taylor, p. 540, 2000). Although the class-action lawsuit served by Treasure Island residents did not succeed in meeting their demands, the City and developers have a responsibility to listen to these needs and enact due requests. Workers and residents of the island deserve safety and health tests, reparations for damage, and independent verification of the environmental suitability of the land they occupy, as the Navy has proven itself to be untrustworthy. Additionally, around 200 current residents who were not present when the City signed its agreement with the development team in 2011 are not eligible for replacement units or in-lieu payments from the City for relocation after eventual possible displacement due to the redevelopment project (Sabatini, n.p., 2017). These residents deserve the right to place as much as those who were there before do—in following SB1000 and environmental justice principles the City should provide support in the event that these individuals are displaced, and work their best to prevent displacement.

I believe San Francisco's Planning Department should hold to their new SB1000 commitment to expanding affordable housing in high-income neighborhoods rather than using taxpayer money to invest in Treasure Island's precarious future. However, as construction is unlikely to halt, the development authority on Treasure Island should incorporate environmental justice principles into their design plan—due to the island's history of environmental racism and injustice, these principles should be underlying all new development that occurs there and elsewhere in the city.

The developers should also consider BREEAM, Living Building Challenge, and Design for Deconstruction frameworks for the project. BREEAM is the world's leading sustainability assessment method for infrastructure and planning projects. It considers the lifecycle of a

development, from design to construction to expected performance and user experience long-term, all in the context of circularity and resilience. The Living Building Challenge goes a step further and analyzes projects based on their actual performance, with a rigorous set of rules relating to place, equity, water, energy, health and happiness, materials, and beauty. The Design for Deconstruction model, supported by the EPA, promotes a closed loop approach to building and construction materials, utilizing recycling and reuse to turn development into a completely circular process. As climate change continues to add uncertainty to the future, these assessment and planning models propose important mitigations in contrast to the endless extraction of resources, demolition, and dumping practices characteristic of normative development. And in the very possible scenario that the Treasure Island redevelopment project ends up inundated, preparing for deconstruction could help the project evolve gracefully in the future.

A prospect less mired in uncertainty is office-to-housing conversion. According to the *San Francisco Standard* business journal "a slew of office leases signed at the height of the city's economic boom are poised to expire over the next few years, further inflating vacancies and diminishing what the office towers that draw the city's skyline are worth. There's currently more than 25 million square feet of commercial space available for lease or sublease in the city" (Truong, n.p., 2022). These towers might not see much commercial interest in the future: According to the Obsolescence Equals Opportunity Report by Cushman and Wake, "Upwards of 25% of office stock throughout the country is growing increasingly undesirable and will need to be reimagined and made relevant for the future" (Corbet et. al, p. 4, 2023). This fact, contrasted with statistics on homelessness in San Francisco, emphasizes the need and potential for these buildings to be converted to livable spaces. A startup from Stanford graduates called Kit Switch is creating kitchen modules that can easily be constructed and deconstructed for adaptable use in

reimagined unused spaces such as office buildings. As the cofounder highlights, "building interiors are typically the most cost intensive, yet they are also the building layer most subject to change, and we need to be thinking about producing them in a more adaptable and circular manner" (TomKat Center, n.p., 2022). San Francisco authorities appear to be warming up to the idea as well—Mayor Breed and Supervisor Aaron Peskin recently unveiled legislation making it easier to convert office buildings to housing. Their proposal would get rid of certain requirements for these projects such as "a certain amount of space reserved for rear yards" and "a certain percentage of two- and three-bedroom units," (Morris, n.p., 2023) speeding up the process of conversion substantially. In an article entitled "San Francisco Could Be on the Verge of Collapse. What Should California Do about It?" from the *San Francisco Chronicle* editorial staff, research from the San Francisco Planning and Urban Research Association (SPUR) and the Urban Land Institute San Francisco showed 40 percent of office buildings in SF have strong potential to be converted, which would provide around 11,200 units of housing (n.p., 2023). At the moment San Francisco's downtown is suffering from inactivity, with these offices–having been emptied during the pandemic– remaining empty and unused. Some economists are speculating whether the city will be caught in a "doom loop" in which an economic crisis forces people to leave, further driving a downturn (Li and Arroyo, n.p., 2023). Focusing on converting offices into accessible, affordable, or even transitional housing would both revitalize San Francisco's dwindling downtown economy, and address the housing crisis on more environmentally stable land that is central to the city.

As the precarity of Treasure Island and the abandonment of San Francisco's offices reveal, consideration of end-of-life procedures for developments are necessary in maintaining economic balance and public wellbeing. Buildings that are flexibly designed leave room for

adaptation when their current uses change. While I urge the city to halt development on Treasure Island, planners and developers in San Francisco can be more responsible to the community by incorporating circularity into the Treasure Island project and holding to both SB 1000 and Dorceta Taylor's environmental justice principles. The massive project may sink from the pressure of this transparency shift, or follow through due to the market pressure for housing the City is under. I believe the former is the lesser of the poor scenarios. In either case, the environmental justice and circular design frameworks provided offer direction for responsible and adaptive action.

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