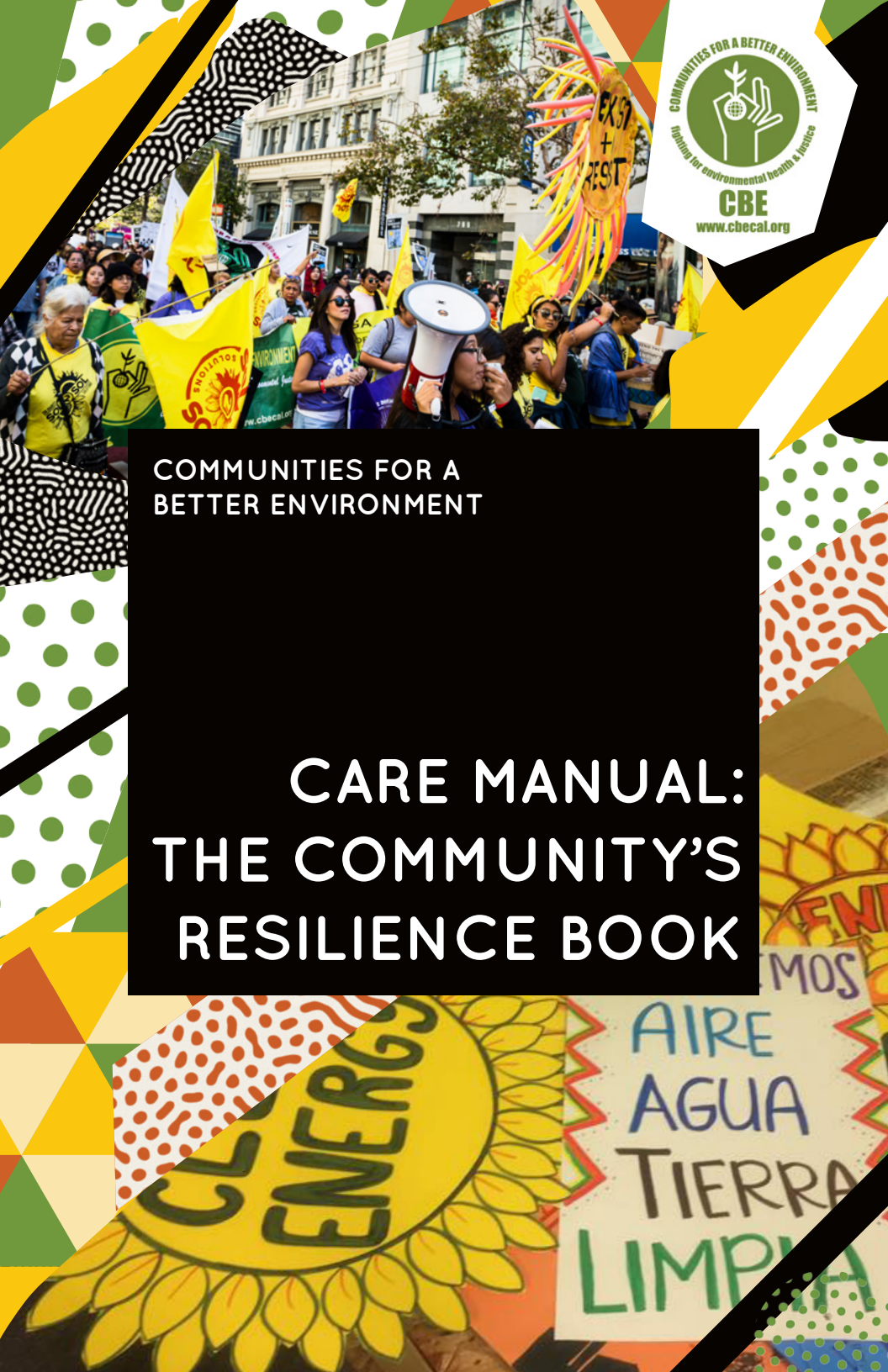
COMMUNITIES FOR A BETTER ENVIRONMENT

CARE MANUAL: THE COMMUNITY'S RESILIENCE BOOK



Communities for a Better Environment

CBE Richmond
120 Broadway Suite #2
Richmond, CA 94804
(510) 302-0430

CBE Wilmington
113 E. Anaheim St
Wilmington, CA 90744
(323) 826-9771

CARE Manual: The Community's Resilience Book

Adaptation and Resilience in Wilmington and Richmond, CA

The Community's Resilience Book will explain the political and geographical landscape, existing and future risks, community-driven case studies, and CBE's recommendations for Wilmington and Richmond. We will offer some insight as to how CBE has used its own recommendations to create projects in the community and how we have partnered with residents and community organizations to move this work forward.

Principle Authors: Laura Gracia-Santiago and Ernesto Arevalo

Many thanks to:

All CBE staff who have helped mold and institute community needs and expertise in the growth of our statewide Climate Adaptation and Resilience Project. With so much gratitude to organizers and members in our four communities who have guided our approach to intersectional organizing and a Just Transition.

The Kresge Foundation for making this project possible.

Dr. James Sadd, Professor of Environmental Science at Occidental College

Designed by DesignAction Collective

TABLE OF CONTENTS

Our Theory of Change

Our communities and the statewide organization we have built together have been national leaders in the environmental justice movement for over 40 years. Our members, which are the essential forces for achieving environmental and social justice, are primarily low-income Black and people of color, especially womxn, youth, migrant, and queer folks. Our communities have been on the frontlines, are the experts in the failures of our current extractive and pollution-based economy, and are building a Just Transition to bring forward solutions to benefit people, workers, and the planet. A Just Transition from a pollution-based economy to a society that serves our communities, heals the planet, empowers the people and improves our quality of life.

ISSUE:

Low-income Black, Indigenous, and communities of color suffer the most from historic and current, racism, environmental racism, exploitation, immediate and long-term public health risks from poor air quality and environmental degradation, a result of capitalism and colonization. Climate change is not a question anymore, we are now dealing with the effects of Climate Destruction driven by capitalism and colonization. Climate Destruction will heighten socioeconomic stressors and is already hitting environmental justice, low-income Black, Indigenous, communities of color, and marginalized communities the hardest. Socioeconomic stressors—such as lack of access to quality health care, immigration status, white supremacy and anti-blackness, patriarchy, displacement, affordable housing, open space, fair employment, affordable higher education, healthy food access, mental health services, state violence and others—burden our communities and exacerbate the impacts of environmental factors, such as toxins, pollution, and extreme weather events. Historical red-lining, based on racist policies that practically created "front-line communities" left people of color to live in overly burdened and polluted communities. Additionally, the combination of white supremacy and "white flight" sets a notion that communities of color are disposable, thereby capitalizing off the destruction of land which disinvests from what people want and need to what creates the most revenue for the wealthy. Together, these cumulative impacts including high rates of cancer, asthma and other respiratory problems, negatively impacts our families and the communities' health.

HOW?

The aim of our work is to build powerful, resilient community leaders and environmental health advocates in front line communities, who live near power plants, brownfields, rendering plants, diesel truck routes, refineries, major economic development projects and other major chemical facilities. We recognize that those directly impacted by environmental racism are experts through lived experience. CBE follows a people powered vision of change by using our environmental justice (EJ) triad model: member-led transformative organizing, legal expertise, and scientific research. We facilitate organizing amongst our intergenerational members, small/medium sized businesses, professional and academics in our communities: East Oakland, Richmond, Southeast LA, and Wilmington. We strengthen leadership development within members via political and technical education, participation in mobilizations, mobilizing community power, public speaking, and lobbying decision makers. We equip frontline communities with legal analysis, research, and community organizing tools to become self-advocates bringing front line concerns and solutions to the table. Together we have confronted pollution at the source and demanded justice for everyone's right to live, work, and play in a clean and healthy environment.

POSITIVE OUTCOMES FROM OUR WORK

Our victories stem from self-love and love for our communities comprised of all genders, abilities, and identities. Understanding and actively working to address the existing intersections of injustices and oppression that all members of our community face will be key to our overall success. We acknowledge that Black, Indigenous, people of color, womxn, youth, low-income, migrant, queer, trans, gender non-conforming bodies and voices experience injustices disproportionately and will need greater support for them to have the love, value, and dignity that will obliterate historical injustices and oppression. Doing so will ensure the survival, safety, self and community resilience, fundamental human rights, clean and healthy environment where we can all live, work, and play. We strive to uphold these qualities to improve lives in our neighborhoods as we work towards systemic change. We understand that we live in a society dominated by corporate power, a power driven only to maximize profit despite the cost to Mother Earth and her inhabitants. We can only be effective if we challenge this domination and strive to build a system established on the values of love, equality, justice, consensus, self-determination, the restoration and nurturing of Mother Earth and her air, water, and land.

TRANSFORMATIVE PATH GOING FORWARD:

CBE has fought back the disproportionate pollution forced onto our communities. As we continue to organize to stop the bad, we will also continue to work with our members to build the good towards a Just Transition. Development and investment needs to be decided and built with community leadership, guidance, and support. Building just, sustainable communities without displacement that will improve the health and quality of life for all residents is critical to our direction. While we are fighting to meet the immediate needs of the people, we are also building a movement for long-term transformative change. Political education, healing, and leadership development are essential strategic components of our work. Our grassroots environmental justice community is emboldened to lead the way into a new era of community-driven transformation towards a clean, healthy, and collaborative future that is led by and benefits no- to low-income and working-class communities of color. The key is: grassroots organizing.

Introduction

ENVIRONMENTAL JUSTICE AND CLIMATE ADAPTATION

Communities for a Better Environment (CBE) is a statewide Environmental Justice organization working to build people's power in low-income communities of color. We provide organizing skills, leadership training and legal, scientific and technical assistance in Richmond, East Oakland, Wilmington, and the South East Los Angeles cities. Through our triad model of Organizing-Research-Legal, we have been successful in campaigns that empower our residents and allow them to reshape their environment. Our membership comprises of adult members and youth members who organize in their schools as Youth for Environmental Justice.

In 2013, CBE began the Climate Adaptation and Resiliency Enhancement (CARE) Program to engage our members around climate change and its potential impacts, learn, and share the best methods community members have used to *adapt* to changes and be *resilient* in in the EJ communities of Richmond and Wilmington, CA. These communities are similar in that they are on the frontlines of impacts from climate change and pollution. CBE recognizes that our work in creating policies to reduce greenhouse

gases and lessen our reliance on *fossil fuel* continues to be crucial; we also realize it is inevitable that climate change will significantly impact our lives. These impacts are far more severe for low-income communities of color, as has been well documented by several research studies[1] and by recent experiences with hurricanes Katrina, Sandy, Maria, Michael, and many more.

California cities have long dominated the American Lung Association's lists for worst air quality in the nation.[2] In large part, this is due to the *combustion* and *evaporation* of fossil fuels by vehicles, industry, and other sources which cause *smog precursor emissions* that react on hot days to cause *ground level ozone*.[3] Since impacts from climate change intensify existing vulnerabilities, it is important we also focus on the sources of pollution in our communities and the lack of services that continuously place a strain on individuals. For Richmond and Wilmington, *refineries* and the transport of fossil fuels are an everyday threat to the health of community members.

These problems will not be solved without phasing out fossil fuels, including those used in transportation, oil refining and extraction, and power plants. Adaptation must be addressed holistically to include pollution prevention, the need for health care access, emergency preparedness, access to cooling centers, more green spaces, and other socio-economic barriers.

When determining vulnerability in a community, it is important to look at the following three components:

1. Exposure: How much change occurs and the impact it has on the community.

2. Sensitivity: How many people will be affected by a given amount of change. For example, sensitivity can include how badly you could be affected by *chronic illnesses*. The chronic illnesses could be a result of environmental factors, which include impacts on cardiac and respiratory health.

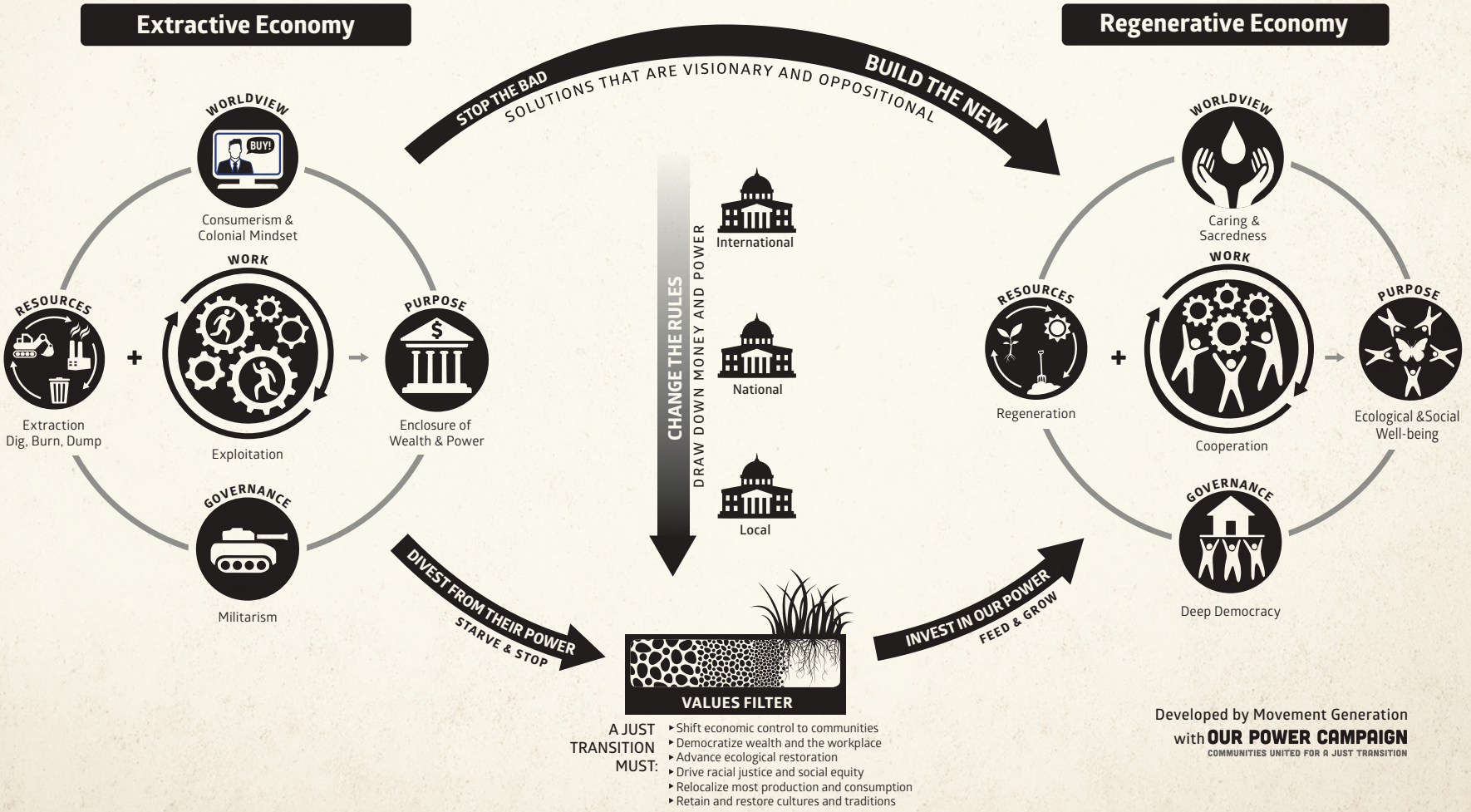
3. Adaptive Capacity: The ability to adapt to change, in this case the effects of climate change. Do individuals have access to transportation to avert further impact from disasters? Can individuals afford to move from their homes to another area after the impact? Have they purchased air conditioning? Environmental Justice communities struggle to build adaptive capacity due to lack of investment in jobs, infrastructure, and vital services. For example, a person working paycheck to paycheck is constantly worried about the possibility of experiencing homelessness, especially in areas or households with increasing rents, while trying to meet their basic necessities.

JUST TRANSITION

Black, brown, Indigenous, communities of color, migrants, womxn, queer, trans, people experiencing homelessness, people living with disabilities, and low-income communities have been historically, and disproportionately, impacted by *white supremacy*, *capitalism*, and *misogyny*. To us, a Just Transition means real solutions that stem from and address historical and *generational trauma* through intersectional organizing, because our communities are not simply impacted by single issues. It means moving away from the extractive economy that steals people, health, and wealth from our communities to a regenerative economy based in community, healing, and healthy environments.[4] While we work to integrate the Just Transition framework into our campaigns, internal structure, organizing, research, and legal support, we are dedicated to oppose the extractive fossil fuel economy and organize to uplift renewable, clean energy and transportation.

Our experience shows that climate adaptation and resilience work best via an environmental justice, community-led, Just Transition lens. This is how we "Build the New" and "Invest in Our Power" as shown in the Just Transition framework[5] below. Socio-economic factors like poverty and unemployment impact the ability of communities to readily adapt to the effects of climate change (e.g. extreme flooding or heat waves) and industrial disasters (e.g. refinery spills, fires, and explosions). Access to good paying jobs is crucial to having the basics of life, including housing, food, services, and transportation. Additionally, when people have more disposable income, they can cover the basics, save for emergencies, and afford to pay for adaptation efforts in unexpected climate events. For example, disposable income can allow them to respond to immediate impacts or invest in their resiliency, such as maintaining a vegetable garden, getting flood insurance, purchasing energy efficient air conditioning and air filtration systems, or retrofitting a roof to install solar.

A STRATEGY FRAMEWORK FOR JUST TRANSITION

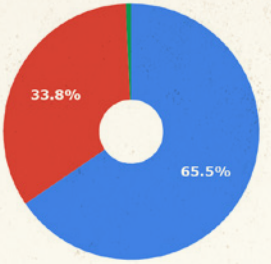


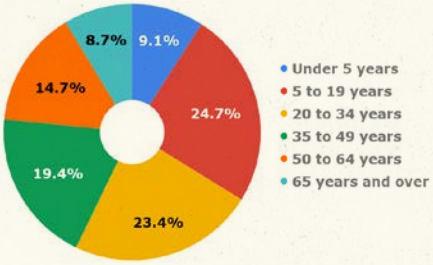
Wilmington

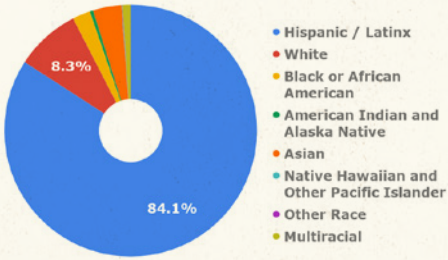
Demographics

The neighborhood of Wilmington, located in the southern coastal tip of the City of Los Angeles, occupied Tongva territory,[6] is home to a primarily working-class, *Latinx* population and has some of the highest concentrations of pollution sources in the state.[7] Wilmington is home to various *mobile and stationary sources of pollution*, including the largest and most polluting port complex[8] in the United States, the third largest oil field in the country[9], oil extraction, and oil drilling. This community experiences some of the highest regional cancer risks due to air pollution.[10]

Considering the large migrant population and high percentage of mono-lingual Spanish speakers, linguistic isolation is high and can prevent families from accessing important emergency preparedness and response information. The US Census Bureau defines *linguistic isolation* as limited English-speaking households.[11]



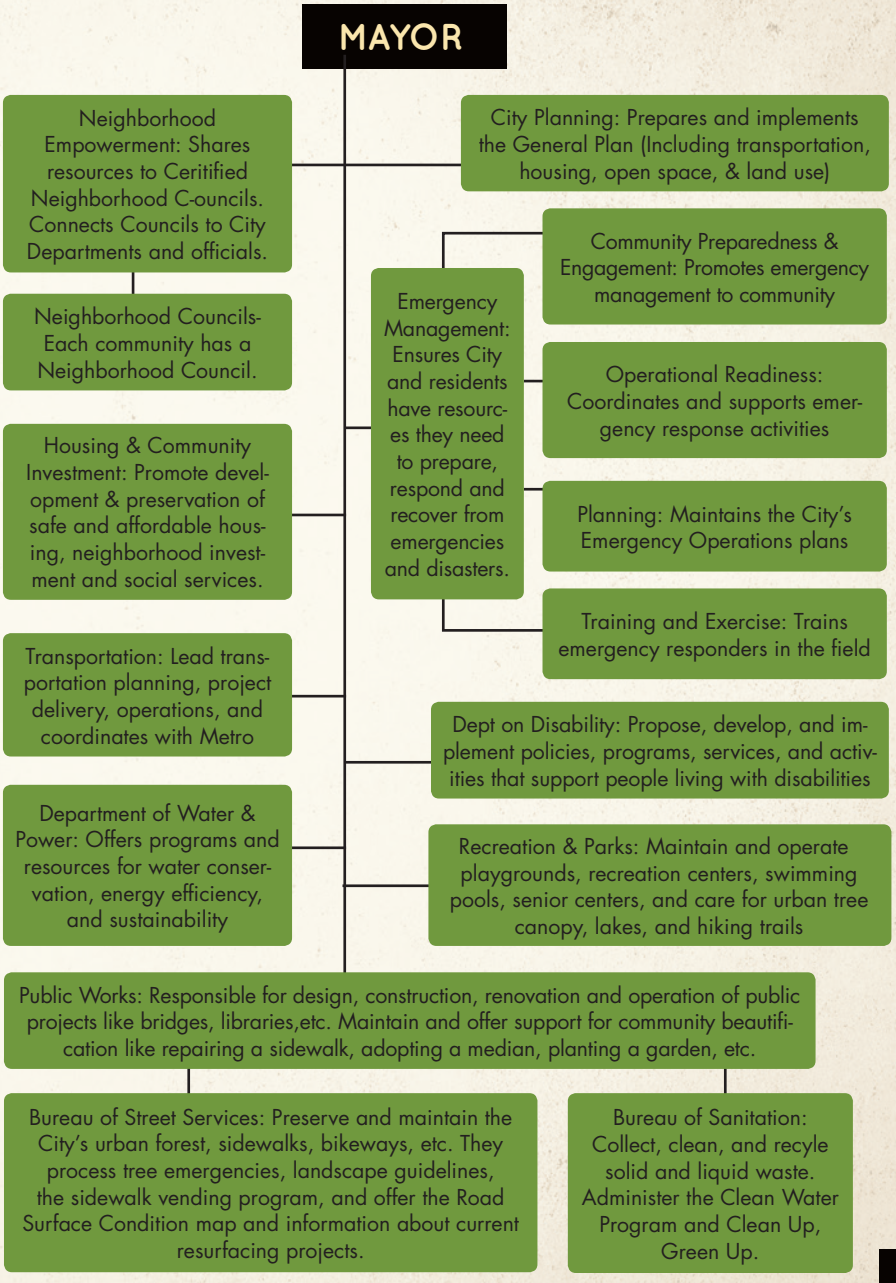




POLITICAL LANDSCAPE

Since Wilmington is not its own city and is a part of the City of LA, it shares council member representation with Watts, San Pedro and Harbor City, and as a result, community members do not have a direct influence on policy and spending in LA. However, Wilmington can garner influence and power through the Neighborhood Council. Neighborhood Councils play a role in influencing local policy-making by playing an advisory role to the council representative, City of LA, LA County, city services and State agencies. The neighborhood council also provides community engagement via outreach events and small community project grants. The Neighborhood Council has easier access to meetings with the mayor, councilmembers, and other elected officials. In addition, the Chair of the executive committee of the Neighborhood Council board can have influence over the City of LA budget.

LOS ANGELES CITY DEPARTMENTS: ENVIRONMENT & SUSTAINABILITY EFFORTS[12]



ON THE GROUND

Wilmington, CA

PORT & DIESEL: Close to half of the goods entering the U.S. come in through the Port of Los Angeles. The Alameda corridor and surrounding freeways are populated by diesel-powered trucks that emit large amounts of pollution.

OIL DRILLING: There are about 90 active oil wells.

REFINERIES: There are 5 refineries in Wilmington: Tesoro/Marathon, Phillips 66, Valero,

LINGUISTIC ISOLATION: About a third of the Wilmington population speak only Spanish and may have difficulty understanding emergency signals and be prepared in case of an emergency.

METAL DISMANTLERS: There are various, small-medium scale metal dismantlers that have caught fire and release large black plumes of smoke in the community.

SEA-LEVEL RISE & FLOODING: As a coastal low-lying neighborhood, sea-level rise and flooding from storm surges threaten community

EXTREME HEAT: Increasing temperatures and poor air quality will compound health hazards due to the formation of ground-level ozone.

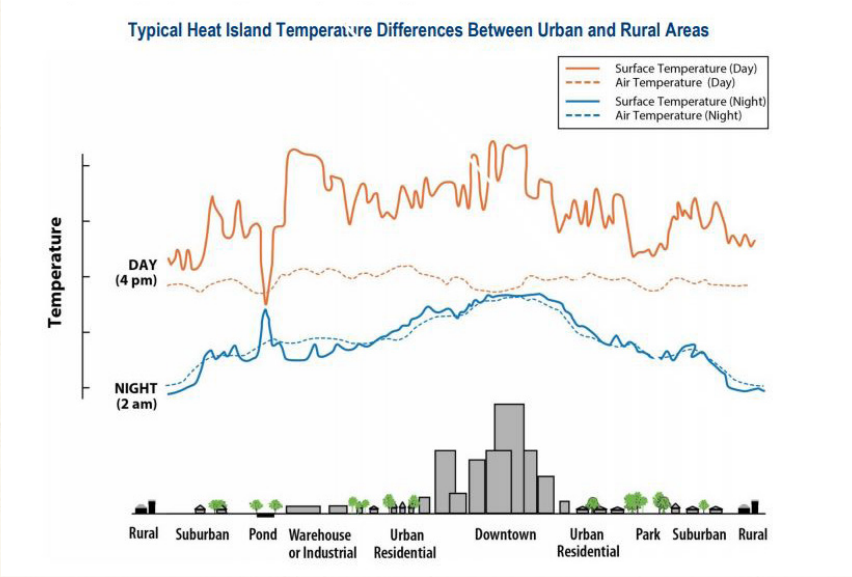
UNEMPLOYMENT: Unemployment creates an added layer of stress and limits adaptive capacity.

2000 ft

Future Risks

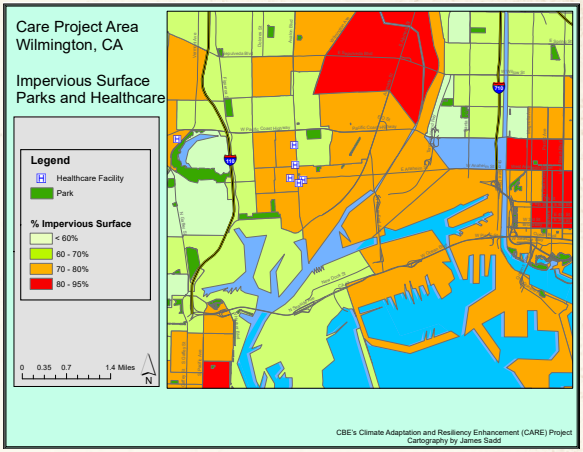
As seen in the previous map, there are various existing risks that are exacerbated by climate change and threaten the livelihood of Wilmington residents. While all Angelenos are aware of *extreme heat events*, the impacts on low-income and communities of color are not just limited to extreme temperatures. Extreme heat events also impact the work, education, nutrition, energy, health and well-being of low-income communities and communities of color. Wilmington residents are particularly vulnerable. Sea breezes in the area mean that the weather is generally cooler. Because of this, people are not as accustomed, or *acclimatized*, to higher temperatures. The elderly (age > 65), children (age < 1) and those with cardiac and respiratory illnesses are extremely vulnerable.[13] As a coastal low-lying neighborhood, *sea-level rise* (SLR) and worsened flooding events are threats to Wilmington. According to the Sea-Level Rise Vulnerability Study, Wilmington is one of the most socially vulnerable communities to SLR in Los Angeles.[14]

HOW HEAT IMPACTS THE HOME AND THE ENVIRONMENT:



Urban Heat Island Effect: The Urban Heat Island (UHI) effect as shown to the right, is when *impermeable* surfaces, such as asphalt and concrete, absorb the heat from the sun throughout the day. Conversely, in areas with vegetation such as trees or grass, these plants absorb the sun's rays and keep the surrounding area cooler by creating oxygen. The map below demonstrates that Wilmington, with a high percentage of impermeable surfaces, is vulnerable to the effects of UHI. The UHI also keeps nighttime temperatures higher, by releasing the absorbed heat in the evening. There are health risks from constant heat exposure, which makes it harder for people to feel relief during heatwaves, and increased air pollutants that form ground-level ozone, which can trigger asthma attacks.[15] [16]

More and Longer Extreme Heat Events: Estimates show that the Wilmington area will see an increase of extreme heat event (EHE) days where temperatures surpass 93.4° F,[17] jumping from 3 EHE days in 2018 to an average of 67 EHE days in 2100.[18] Increasing temperatures and poor air quality will compound health hazards due to the formation of ground-level ozone. The elderly, children and those with existing chronic diseases (e.g. asthma) are disproportionately burdened.[19]

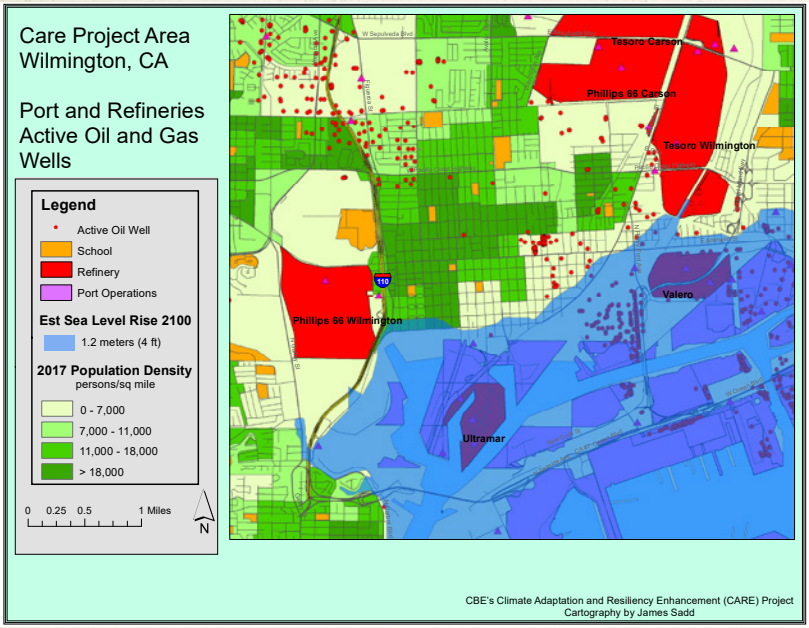


Access to Air Conditioning (AC): Having access to AC can be crucial for someone vulnerable to extreme heat. Coastal communities may not consider an AC unit urgent because they are accustomed to cooler breezes, but they are at high risk since many are not acclimatized to extreme heat.[20] Purchasing an air conditioner might not even be a feasible option for low-income households due to lack of funds. Landlords are not required to provide AC to tenants, so many renters, especially those renting in older buildings, may not even have the option to install them. Community members have shared that they don't have good ventilation in their homes or apartments and sometimes can't open their windows due to the air pollution and odors from nearby refineries, refinery flaring episodes, idling trucks, oil drilling emissions and nuisances, and more. When an extreme heat day hits, those with no access to air conditioning, poor ventilation, or those who are experiencing homelessness are the most impacted.

Power Outages: People who have access to air conditioning usually turn it on during the summer. During a heat wave, many more people turn up their ACs, because the heat usually extends into warmer nights. This in turn means the demand on energy to power ACs is elongated, and this increases the strain on the energy grid. This increased strain can lead, and has led, to power outages[21] [22]. Power outages at any time of day, or elongated power outages, can have varying impacts on people. For example, a 2003 New York power outage increased total mortality by 28%.[23] Warmer nights after a hot day place greater strain on vulnerable populations. Constant exposure to heat can be taxing on the body and result in heat exhaustion or heat stroke. Loss of power can also impact people that must keep medicines like insulin cold.

People Experiencing Homelessness: Between 2010-2017 there was a 42% increase of people experiencing homelessness in Los Angeles County. [24] In 2018 in Wilmington there were about 41 people living in tents or encampments and about 271 people living in their cars[25]. While there is insufficient data showing the impacts of extreme heat on people experiencing homelessness, these are dangerous housing situations in extreme temperaures.

HOW SEA-LEVEL RISE & FLOODING IMPACT THE HOME AND ENVIRONMENT:



Housing Vulnerable to Flooding: Many families in Wilmington live in, and rent, older housing units that are more vulnerable to flooding. This is an issue because many don't often have the means or incentive to flood-proof their homes.

Impaired Public Infrastructure: During a flood event, public systems can be impacted through improper or faulty drainage of wastewater and stormwater, interruption of access to potable water and electricity, and road flooding leading to impaired access to food, water, medications, and emergency services.[26] The low-lying roads in Wilmington already face serious flooding during storms.

Possible Water Contamination: A 3-foot flood in Wilmington can reach 6 hazardous waste sites, 11 EPA-listed sites, and 3 hazardous materials facilities. The likelihood of a 3-foot flood happening by 2050 ranges from 5%-100% to 100% by 2100.[27] There are over 90 oil drilling sites[28] and 33 brownfields that, when met with sea-level rise or flooding could lead to toxic runoff that would harm and contaminate the natural habitat, groundwater, and drinking water supplies.[29] [30]

Tsunami Could Inundate Harbor Area: Sea-level rise can significantly increase the risk of a tsunami occurring, or make even the smaller ones more powerful.[31] Depending on the magnitude of the tsunami, San Pedro and the Los Angeles Harbor area are at risk of being inundated. In a tsunami scenario, the following structures in the Harbor area would be exposed: about 445 buildings, 5 critical response facilities, 44 critical transportation infrastructure facilities and 54 critical utilities infrastructure facilities.[32] Washed out, inundated, or blocked bridges, roadways, and railroads are dangerous to residents because a lack of infrastructure can isolate them and prevent emergency service providers from accessing communities.

Case Studies

CLEAN UP, GREEN UP (CUGU) INITIATIVE

In 2015, after years of organizing and collaboration, CBE and allies won, with unanimous support from the Los Angeles City Council, the Clean Up, Green Up (CUGU) Ordinance. CUGU proposed innovative land use tools for reducing the cumulative impacts of pollution in three pilot communities (Wilmington, Boyle Heights, and Pacoima) and created incentives and programs to facilitate revitalization in these communities.

A NEW COOLING CENTER FOR WILMINGTON

After listening sessions and meetings with community members, cooling centers proved to be the most directly beneficial resiliency measure that residents were interested in. Through the support we garnered from the CUGU campaign we reached out to community members, community centers, and organizations to help us establish a cooling center. We successfully gauged interest and willingness from the Tzu Chi Clinic to open their space during extreme heat waves. The Tzu Chi Clinic had previous experience in providing emergency preparedness trainings. During heatwaves, CBE staff would announce a heat-wave advisory that explained the dangers of heat waves, how to protect oneself, and cool spaces open to the community. Then, CBE staff and members would take water and snacks to the Clinic and welcome people in. After a year of this community-led pilot project we terminated the program, for various reasons. Some of the barriers we faced were limited hours of operation, accessibility, and lack of funds. Moving forward we have begun to work with the Los Angeles Public Health Department to institutionalize county-staffed and funded cooling centers in Wilmington.

REIMAGINING OUR ENERGY: REPOWER LA & LA CLEAN ENERGY COALITION

CBE is a member of the Repower LA coalition. The Repower LA Coalition formed in 2011 in response to two major challenges: double digit unemployment in many of LA's neighborhoods and our city's unsustainable reliance on dirty energy. The coalition began by advocating for increased investment in energy efficiency programs that would save customers money on their bills, create good, career path jobs and help the Los Angeles Department of Water and Power (DWP), the nation's largest municipally-owned utility, move toward cleaner energy. Los Angeles is on track to reduce energy use 15% by 2020 and by 442 GWh by the end of this year (the equivalent of taking over 64,000 cars off the road). That's enough energy to power 400,000 homes. Thanks to our coalition's advocacy, the Department has now helped upgrade 20,000 homes, small businesses and schools throughout the city.[33]

In Fall 2018, the coalition's organizing efforts for a Shared Solar Program were successful when LADWP Board Members approved it. The Shared Solar Program is designed for renters and multi-family housing buildings in the city of Los Angeles to have access to solar energy. This includes, among other provisions, a commitment of $100 million over 5 years for energy efficiency and conservation programs for low-income customers renting in multi-unit housing complexes, especially those in pre-1978 structures. In addition, LADWP allocated an additional $10 million for a Shared Solar Program in the Clean Up Green Up communities of Boyle Heights, Pacoima, Wilmington, as well as Watts, where low-income renters and those in multi-family housing can participate in the benefits of solar investment without installing panels on their rooftops, which is typically very difficult for non-owners.

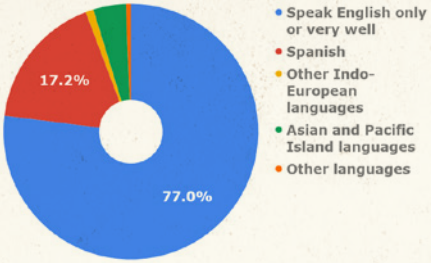
A cornerstone of RePower LA's work is its support for the Utility Pre-Craft Trainee program, which was developed by IBEW Local 18 in partnership with the DWP. The program has opened up quality career path opportunities at both the DWP and the City for entry level workers across Los Angeles. It is also training future utility workers in anticipation of planned retirement by DWP's existing workforce[34] and towards training the new workforce for enhancing community solar projects.

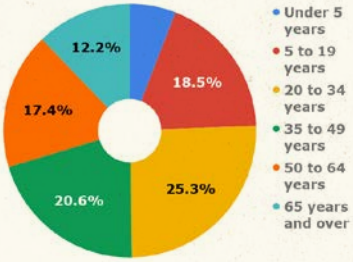
LADWP – POWER PLANT

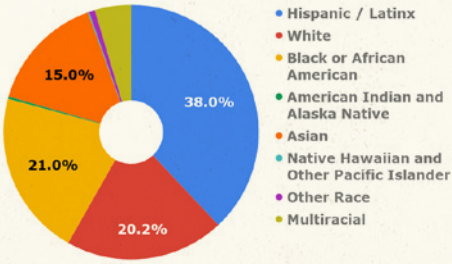
In the LA Clean Energy Coalition (LACEC), CBE and coalition members organize a multi-faceted strategy of pushing LADWP to end future investments in natural gas. In February 2019, LACEC won a huge victory when Mayor Garcetti announced that LADWP would not rebuild its three fossil-fuel-based power plants in Wilmington, Long Beach and El Segundo. CBE was one of the founders of the LA Clean Energy Coalition, and this victory was the result of nearly a decade of collaboration and hard work from staff, members and allies attending numerous meetings with LADWP and decision makers. We will be working with allies to make sure the future implementation of this vision at LADWP is rooted in equity.

Richmond

Demographics







The City of Richmond, in Contra Costa County, has significant income inequality from historical red-lining, "white flight", and wealthier families moving to the suburbs. Richmond is heavily impacted by Chevron- which emits more than 4.6 million metric tons $CO2e^{35}$- as well as various industrial facilities, *brownfields*, the Port of Richmond, and diesel truck activity located within the city. Along with pollution, the Black and Latinx community has experienced rising rents and increased home foreclosures. Between 2007-2012, subprime lending that disproportionately targeted Black and Latinx homeowners forced about 6,300 homes in Richmond into foreclosure.[36] This is one site in a regional crisis in the Bay Area, where the African American community has been rapidly declining due to *displacement* from *gentrification*. In Richmond, African Americans made up about ~36% of the Richmond population in 2000,[37] down to 20% in 2018.[38] While data and information on people experiencing homelessness has limited reliability, one study showed that no other city in Contra Costa County had more people experiencing homelessness than in Richmond. While adaptation policy and projects are important for everyone, due to the high percentage of people being displaced in Richmond, it is imperative that they benefit the existing community and include anti-displacement language or support methods.

NORTH RICHMOND:

Currently, Contra Costa County provides municipal government services to the 3,717 community members of unincorporated North Richmond. It is about 900 acres in area and comprised of residential, industrial, commercial and open space.[39] Since World War II, North Richmond has faced among the highest rates of poverty, crime, and deteriorating infrastructure in California due to historical *redlining* and discrimination.[40,41] After years of contemplating *annexation*, in October 2018, the Richmond City Council

approved a plan that simultaneously conducted public outreach for the annexation and began the annexation process application with the LAFCO (Local Agency Formation Commission). The annexation of North Richmond would open up access to nearby city services, funding, and programs. Without annexation, community members rely on county services that are not as accessible, or limited and have an added layer of difficulty in accessing climate adaptation services. In March 2019, the City Council voted against annexation based off staff recommendations and a survey conducted with postcards. If the community continues to explore annexation, it requires significant community outreach, vetting, and a transparent process with clear information for all individuals due to the complexity of the issues.

POLITICAL LANDSCAPE:

The City of Richmond has a City Council ("Council") and a City Manager. The Council includes the Mayor and six councilmembers. These roles are all elected at-large, meaning that the entire City of Richmond votes to elect these positions. The Council then appoints a City Manager who carries out the policies and projects passed, directs departments and administrative functions, assures City Services are efficient, and oversees the annual budget process.

Disaster Strikes: In 2012, the Chevron refinery exploded and started a fire that took over 15,000 people to the hospital over several days. Many went to Doctor's Medical, a public hospital with full services, or Kaiser Permanente Hospital. In 2015, the Doctor's Medical Hospital was closed, leaving the community with no public emergency rooms and only spread out clinics that offered minimal care. The closure of Doctor's Medical heavily impacted the elderly and children's *adaptive capacity*.

ON THE GROUND

Richmond, CA

REFINERIES: Chevron, the most polluting refinery of the neighboring five refineries in the region, released over 4.5 million metric tons of CO_2e in 2017.

RAIL: Various products travel through the community via rail, this includes crude oil and coal. Both are extremely dangerous and hazardous to community health.

SUPERFUND SITES: There are two EPA-listed superfund sites which pose health and environmental risks and require urgent remediation.

PORT & DIESEL: The Port of Richmond is the third largest Port in the region. It imports vehicles, agricultural products, and large quantities of oil.

ASTHMA: Asthma is a chronic disease that can make breathing difficult.

EXTREME HEAT: Where there are fewer trees and green spaces, there can be an Urban Heat Island effect which increase temperatures throughout the day, and possibly night. This also leads to Extreme Heat Events.

GENTRIFICATION: Between 2007-2012, Black and Latinx homeowners' homes were disproportionately forced into foreclosure.

SEA-LEVEL RISE: Increasing storm surges, coastal flooding, and sea-level rise can inundate roads and services that are important to the community.

INCOME DISPARITY: There is significant income disparity due to historical red-lining, "white flight", and wealthier families moving to suburbs.

NO HEALTH SERVICES: In 2015, Doctor's Medical Hospital an important healthcare provider was closed, along with their public emergency rooms.

UNEMPLOYMENT: Unemployment creates an added layer of stress and limits adaptive capacity.

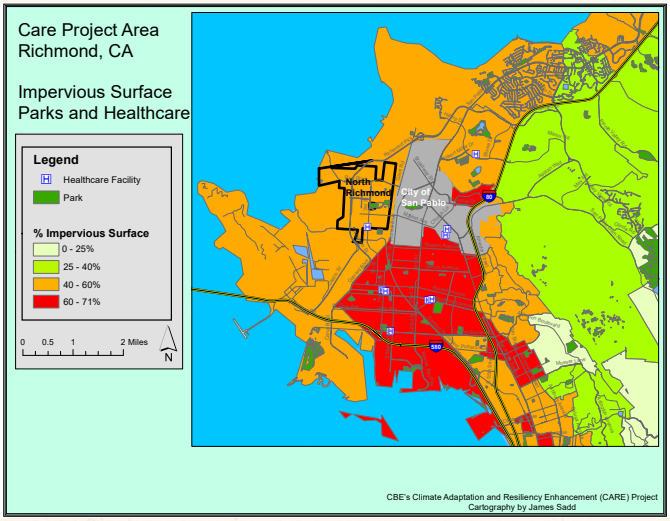
1 mile

Future Risks

As seen in the map, there are various existing risks that are exacerbated and can threaten the livelihood of the community in Richmond, including; pollution, extreme heat events, sea-level rise, gentrification, displacement, and little-to-no health services. Historically, Richmond has experienced cool temperatures due to its geographical location along the Bay. While the occurrence of heatwaves is not likely to increase over the coming years, people are still vulnerable.[42] The elderly (age > 65), children (age < 1) and those with cardiac and respiratory illnesses are extremely vulnerable.[43] The City of Richmond faces potential impacts from sea-level rise on residential and industrial land-uses. The Chevron refinery, the Port of Richmond, rail lines, and more are within the impacted areas from sea-level rise and coastal flooding. Impacts include property damage, disruption of services, and flooding of sites with hazardous materials.

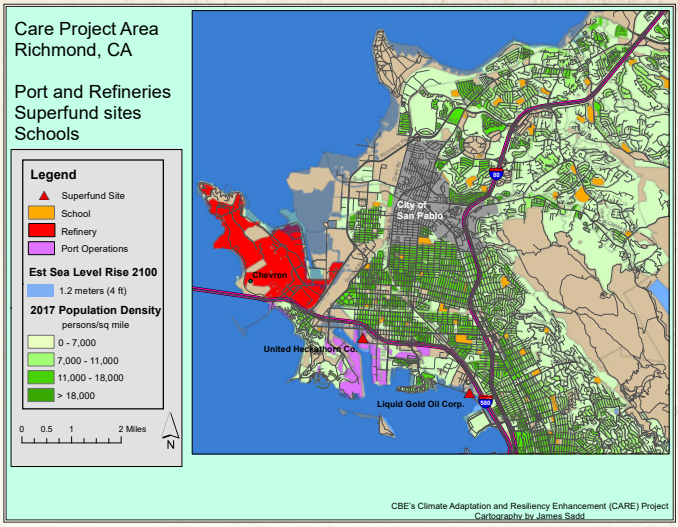
HOW EXTREME HEAT EVENTS IMPACT THE HOME AND THE ENVIRONMENT:

Heat Island Effect: There are communities in Richmond that lack tree coverage or green spaces. The combination of low-tree canopy (i.e. limited shade) and high amounts of impermeable surface (that absorb and magnify heat) can result to the Urban Heat Island effect. This also keeps nighttime temperatures higher, making it harder for people to find relief during heatwaves.[44]



Access to Air Conditioning (AC): Having access to AC can be crucial for someone vulnerable to extreme heat. Studies show that the number of low-income renters in Richmond overburdened by housing costs has increased from 34% in 2000 to 46% in 2015. As a result, investing in AC may not be a priority or may not be affordable.[45] When an extreme heat day hits, people experiencing homelessness and those with no access to air conditioning are the most impacted.

More and Longer Extreme Heat Events: Estimates show that Richmond will see an increase of extreme heat event days (EHE) where temperatures surpass 89 degrees F, jumping from 6 EHE days in 2018 to 36 EHE days in 2100.[46]



Asthma and Heat: Richmond has both a higher rate of emergency room visits and hospitalizations from asthma, than all of Contra Costa County.[47]

Power Outages: Power outages at any time of day-throughout the day or at night, can have varying impacts on people. For example, a 2003 New York power outage increased total mortality by 28%.[48] Warmer nights after a hot day place greater strain on vulnerable populations. Constant exposure to heat can be taxing on the body and result in heat exhaustion or heat stroke. Loss of power can impact food safety and people who must keep medicines like insulin cold. This is dangerous for Richmond residents since the death rate for diabetes in Richmond is significantly higher than Contra Costa County and, notably, those most vulnerable are Black men.[49]

No or Limited Access to Health Services: The closure of Doctors' Medical left the community with no public emergency rooms. While Kaiser Permanente Hospital has been able to provide services, their emergency room only has 10 beds. Existing health services have limited services and are not equipped to support a large industrial or natural emergency. Commuting to a nearby emergency room is difficult for the elderly, young, and those who do not have access to a vehicle.

HOW DOES SEA-LEVEL RISE IMPACT THE HOME AND ENVIRONMENT:

Sea-Level Rise in Residential Areas: The Richmond waterfront has already experienced 2 inches of sea level rise, with climate change and more severe and frequent storm surges and high-tides, the likelihood of a 3-foot flood is 34%-68% by 2030, 76%-100% by 2050, and 100% by 2100.[50] Parts of the 580 freeway will also be inundated making access in and out of the city extremely difficult.[51] The Iron Triangle neighborhood and unincorporated North Richmond bear the heaviest burden from SLR as it would impact over 96 homes by 2050.[52]

Possible Water Contamination from Sea-Level Rise, Coastal Flooding, and Industry: A three-foot rise[53] and flood would reach 1 extreme hazmat facility, 1 hazardous materials facility, and 2 EPA-listed sites. The flooding of sites with hazardous materials, such as pharmaceuticals, petroleum products, cleaners and pesticides, can have long-lasting impacts on water quality, the environment, people, and the surrounding natural habitats of the Bay. A main concern is the potential release of these hazardous chemicals into rising groundwater

Case Studies

The Our Power Coalition

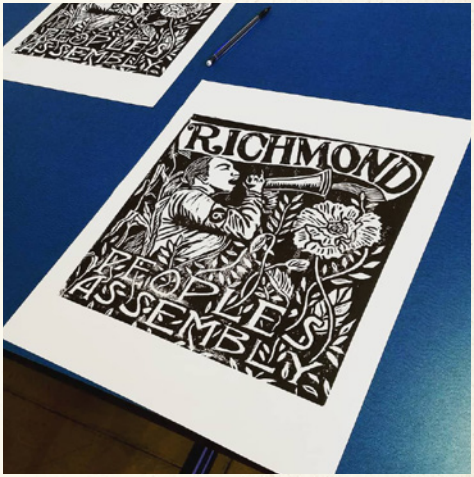
The Our Power Coalition focuses on building a Just Transition in Richmond. The organizations in the Coalition are: the Asian Pacific Environmental Network (APEN), Communities for a Better Environment (CBE), Urban Tilth, Rich City Rides, Alliance of Californians for Community Empowerment (ACCE), The Safe Return Project, Cooperation Richmond, Idle No More, and the Richmond Progressive Alliance (RPA). They work to increase food access, renewable energy, clean transportation, renters' protections, resources for those previously incarcerated, indigenous sovereignty, and local community wealth.

Richmond People's Assembly

The first-ever, People's Assembly in Richmond was organized by the Our Power Coalition and held in 2018. There were over 300 Richmond community members who came together to discuss priorities, action items, and solutions for the future they want in their community. Breakout groups included Safety: Reimagining Safety in Our Hoods; Housing: Eradicating Homelessness and Fighting Displacement; Environment & Health: No to Refinery Sacrifice Zones; Food and Economic Justice; Jobs: Own Your Job. Following the Assembly, a group dedicated to introducing renewable energy policy formed, Indigenous and environmental justice leaders collaborated in co-leading campaigns to mitigate fossil-fuel impacts, and a community barbecue was held to bring awareness to the *Prison Industrial Complex* imprisoning Black and brown bodies through state-violence in urban communities and at the Southern "border". The People's Assembly brought residents together to work across sectors and organize solutions that build resilience and equitable solutions towards a Just Transition.

Climate Action Plan

Richmond was one of the first cities in the country to include a comprehensive Health and Wellness Element in its general plan. In October 2016 they adopted a Climate Action Plan that included adaptation, community resiliency, pollution prevention, and environmental justice.



Marin Clean Energy: Solar One [54]

In April 2018, the City of Richmond held the ribbon cutting ceremony for the MCE Solar One project, a 10.5-megawatt solar system that produces 22,000 megawatt hours per year of renewable energy on a repurposed and partially *remediated* 60-acre brownfield.[55] The project arose when the City of Richmond was reviewing the Chevron Modernization Project and community advocates organized to include MCE Solar One as part of a side agreement negotiated between the City and Chevron. This project included local job-training and local hire by requiring 50% of local resident workforce, contractors, and suppliers.

Resilience

Communities and people at the frontlines of environmental racism and at the intersections of injustices are inherently resilient. The notion of "bouncing back" from difficulties, that resilience holds, is very real for Indigenous, Black, communities of color, migrants, low-income, womxn, and queer people. Despite being historically disenfranchised, these communities have survived. It is important to celebrate our endurance and existence while not losing sight that there is still much more work to do. We must be visionary and prepared to address the increased risks that we are experiencing from a changing climate, as well as dismantle the system that does not support our communities. We must take care of ourselves, each other, and across communities to not just survive, but thrive.

This chapter will uplift methods people and communities have used to best prepare, adapt, be resilient to climate change, and long-term changes to support our long-term health and prosperity.

How you survive:

This section will focus and provide best methods on how to protect oneself, and their family.

In Extreme Heat:	
Stay hydrated and drink electrolytes (esp. for children)	Using fans properly (i.e. not in unventilated rooms over 95 F)
Eat fresh foods and wear light clothing.	Shading windows
Resting when hot. Stay in shaded areas	Unsticking painted windows
Use Air Conditioning or evaporate "swamp" coolers	Planting shade trees like Fern Pine or Sweet Bay
Taking cool showers and foot baths	Using reflective "cool" paints
Go to cooling shelters or public pools LA-Beat the Heat[56] Contra Costa County (1-800-510-2020)[57]	Improving insulation in your home LADWP has incentives[58] Richmond's Weatherization Program[59]

In Extreme Flooding:	
Installing a rain water catchment barrel to your home to mitigate *stormwater runoff*	*Sandbagging* Fire Stations in Wilmington offer free DIY sand bags
Installing 'rain gardens' filters pollutants from stormwater and allows it to sink. Native plants such as succulents, Pitcher Sage, and California Buckwheat are commonly used in rain gardens.[60] [61] [62]	*Flood Insurance- Homeowners and Landlords should invest in flood insurance if their property is located in areas projected to be impacted by sea-level rise[63]

*The City of Los Angeles participates in FEMA's Community Rating System and has a Class 7 rating. This means residents who live in a 1% annual chance floodplain, can receive a discount of about 15% on flood insurance. [64] [65]

PREPARE DISASTER SUPPLY KIT AND EMERGENCY PLAN

A disaster supply kit is essential to survival and an emergency plan should provide guidance. A disaster supply kit should include:[66]

- Food
- Water
- Medications
- Flashlights
- Radio (Battery or hand crank self-powered emergency radio)
- Warm Blankets
- Clothes
- First Aid Kit

It is important to update this kit every year, especially for growing children and teens. Make sure to include supplies and means of transportation for your pets. An emergency plan should prepare and guide your family on what to do in case of various emergencies, where they will go, where to meet, and how they will communicate. After creating your immediate family emergency plan, we suggest incorporating neighbors who are elderly or do not speak English, this will be explained under "Community Disaster Support Group & Community Emergency Plan" (page 34).

In Wilmington, the Tzu Chi clinic has offered **Build Resilience** trainings for residents to prepare for disasters.

"Gaining skills and resources to prepare for a natural disaster and partnering with other residents and neighbors on how we can better prepare ourselves and build resiliency when something happens or when a natural disaster strikes or when an oil refinery explodes."

Sylvia – Wilmington Community member and CBE Staff

BE A LEADER WITH CERT!

The Community Emergency Response Teams (CERT) training can provide you with tools to create an emergency plan, respond or evacuate in case of fire or flooding, communicate with neighbors, basic first-aid, and search tactics. CERT Training is free and ranges from 17.5 - 20-hour course in Richmond and in Los Angeles. Richmond provides these trainings through REACT- Richmond Emergency Action Community Teams. The Los Angeles Fire Department hosts several trainings throughout the year in different parts of LA County.

KNOW YOUR EMERGENCY SHELTER

The City of Richmond has community centers, police stations, and emergency shelters ready for disaster relief and response. The adaptation study[67] that was released by the City of Richmond, along with the Climate Action Plan, has a map of various emergency sites. It is strongly recommended community members know where their closest community center or emergency site is in case of any disaster. This location should also be included in your emergency plan.

The City of Los Angeles has information on cooling and emergency centers through their 311 phone line or on the Emergency Management Department website.

SIGN UP FOR ALERTS

NotifyLA, the City of Los Angeles' Official Emergency Mass Notification System, sends alerts via voice messages, text messages, and email messages during an emergency or disaster. It is free and easy to register for.

Contra Costa County has the Community Warning System (CWS) which alerts cell phone users about hazardous materials incidents and other emergencies that pose a threat to health.

Being connected to a notification or warning system can help you be prepared and aware. This should not be substituted for community cohesion, community preparedness, or individual preparedness. In 2018, the Sims Metal Management in Richmond caught fire and released a huge plume of toxic black smoke over the city[68]. During this disaster, many community members were not notified through the CWS over an hour later and many were unaware of the incident. CBE staff and members spread information about the fire and methods to stay safe via text messages, phone calls, and social media.[69]

How we survive

Localized pollution is an ongoing threat to community health; therefore, adaptation must prioritize pollution prevention at the community level. We must not simply adapt, but develop cleaner, healthier neighborhoods. Adaptation should not only be addressed at the individual level, but also as a community where it is most effective. For example, preparing a disaster kit can be difficult, but becomes almost impossible if one is living paycheck to paycheck and cannot set aside extra food for an emergency. Therefore, working with neighbors and the larger community can ensure that we are all better informed and of each other's needs and assets.

COMMUNITY DISASTER SUPPORT GROUP & COMMUNITY EMERGENCY PLAN

Community support and cohesion is important for surviving a disaster, therefore, it is vital we consider peoples' lived experiences, needs, and expertise. In order to best address these needs, we encourage neighbors to talk to one another to learn what they need, or share best practices for preparing, adapting, or responding. This requires:

Strong Community Leaders:
Begin and facilitate conversations with neighbors. We encourage you to review our Transformative Organizing Manual which can provide you with examples of developing strong leadership or join CBE to learn the leadership and organizing skills necessary. Simultaneously, the CERT training will provide you with technical knowledge.

Information Gathering: Convening a group of volunteers, or emergency block captains can help spread awareness, identify vulnerable homes, community assets, and create a community plan. This group can also help map vulnerable populations so they receive adequate warning and immediate, coordinated attention from first responders. This can be started by canvassing the neighborhood to identify language barriers or limited access to communications such as television, radio, social media, etc. Community volunteer work groups can help people with the physical work needed to keep their homes cool, such as installing shade structures or air conditioning, prioritizing vulnerable households. For more information visit Ready Your LA Neighborhood[70].

Disaster Strikes: Once the groups, or Block captains are organized and better equipped, they can provide immediate support. For example, during flooding events, these groups can help to house people whose homes have been inundated or made uninhabitable. They can also be effective for distributing information and making sure people are accounted for during emergencies—even if this is just better connecting with your neighbors. Block captains can also serve as a crucial intermediary between the community and government programs.[71]

EXPANDING GREEN SPACE

Creating community parks, gardens with shade trees, or green scaping are effective ways to create safe, cool, public spaces, that reduce the urban heat island effect, absorb CO2, mitigate pollution, provide shade, and slow down stormwater runoff to mitigate flooding.

The City of Richmond has the Urban Forestry Advisory Committee (UFAC) who's goal is to assist in carrying out green projects from the Urban Green Master Plan[72]. Richmond also has the Citywide Tree inventory that lists all city-owned trees, including street trees, park trees, and trees on city-owned property. The inventory is useful to identify opportunity sites for tree planting and which type of trees are best for the area. Residents can also Adopt-a-Tree in their neighborhood but must commit to water and maintain the tree.

The City of LA, offers community members access to NavigateLA[73], an online tree mapping tool and inventory. There are various city

departments and organizations that support residents with free trees and support for residents who want to plant trees in their community. The LA Sanitation & Environment Department has an Adopt-a-Tree Program for residents and business, but they must commit to water the tree during its initial growth phase, about 5 years from planting. Similarly, CityPlants[74], a public/private organization also offers free trees. The City of LA's 50 Parks program[75], Wilmington acquired two locations for the creation and restoration of parks and areas near water sources. The Clean Up, Green Up program, which was explained under Wilmington's case studies, focuses on planting trees in 3 overburdened communities, Wilmington, Pacoima, and Boyle Heights. CBE's Brown to Green Report[76] is an excellent example of how we have conducted community-led research and planning for expanding green spaces.

COOLING CENTERS

Establishing official- funded cooling centers for extreme heat days is essential considering the limited access to AC in Wilmington and Richmond. An alternative is to convert existing air-conditioned facilities, such as a senior center, into publicized cooling centers. As explained earlier in the Wilmington case studies, there are barriers to the latter method. Basic steps that CBE is using to identify cooling centers:

1. What basic benefits should a cooling center offer and need?[77]

    - Air Conditioning or equivalent (temperature maintained at 79 degrees)
    - Accessible to people with access and functional needs/ ADA compliance
    - Ample seating appropriate to the jurisdiction
    - Public restrooms accessible to people with access and functional needs
    - Access to 911 services (payphone)
    - Publicly advertised
    - Parking access
    - Proximity to public transit

2. Identify community sites that can serve as a cooling center in the neighborhood

3. Reach out to representatives from those sites as well as local representatives from the City to gather support for setting up a cooling center

4. Choose one pilot site that you would want to be a cooling center

    - Choose a site that is accessible to residents by car, public transportation and other alternative modes of transportation.
    - We need to provide transportation for wide range of audiences to reach cooling centers during climate emergencies especially sensitive populations that do not have their own transportation.
    - Choose a site that has all or most of the basic requirements of a cooling center

5. Finalize the components of running a cooling center

    - How communications will work (languages, media outlets, social media)
    - Signage for the cooling center
    - Establishing a system to determine extreme heat ays

ADVOCATE TO PHASE OUT FOSSIL FUELS

In Los Angeles, STAND-LA[78] (Standing Together Against Neighborhood Drilling-Los Angeles) is an environmental justice coalition of community groups organizing to end neighborhood drilling to protect the health and safety of those on the front lines of urban oil extraction. Our communities—not oil and gas corporations—should have the power to shape a safe and healthy future for their families and for Los Angeles. Additionally, we believe that to meet the resiliency needs and sustainability goals of City of LA, we need to shut down oil drilling operations within the impact zone of *sensitive receptors* and replace them with spaces that meet the needs of community, provide better paying and safer job and create win-win scenarios for the community, workers, and businesses. Currently, STAND-LA is working to establish a 2,500 foot health and safety buffer between homes, schools, hospitals, churches and new or existing oil wells.

Founded informally in 2013, our Steering Committee members consist of:

- Communities for a Better Environment (Co-Chair)
- Physicians for Social Responsibility - Los Angeles (Co-Chair)
- Esperanza Community Housing Corporation
- Holman United Methodist Church
- Redeemer Community Partnership
- Strategic Concepts in Organizing and Policy - Los Angeles

Transitioning Energy & Jobs

In Richmond, Wilmington, and other communities that host refineries, our capacity to adapt and thrive will be linked to our ability to plan and manage locally just transitions from climate-incompatible fossil fuels to non-extractive jobs rich alternatives. CBE has begun to develop in-depth research and analysis of these critical needs and opportunities to thrive.

BUILDING LOCAL WEALTH FROM RENEWABLE ENERGY

Community Choice Aggregation (CCA) permits any city or county to aggregate the electric loads of residents, businesses and municipal operations to facilitate the purchase and sale of electrical energy[79]. Joining a CCA provides customers with a choice of purchasing electricity with higher renewable energy content.

In 2013, Richmond took a historic step by becoming one of the first, largest communities of color in the nation to have Community Choice Aggregation[8081] (CCA) and in 2017 launched Local Sol, a new local option that allows economic development through local renewable generation.

COMMUNITY BENEFITS AGREEMENT (CBA)[82]

A tool that can legally enforce developing entities to include benefits to the local residents and amplify their wants for their neighborhood is a community benefits agreement. CBAs are typically negotiated between community-based organizations, public officials, local government agencies, and developers for large tax-payer subsidized projects. For this process to be equitable and exemplify community-needs, community-based organizations, grassroots organizations, and community-members must be a part of the process, this way the benefits of the economic development can be equitably distributed.

HOLD YOUR LOCAL CITY DEPARTMENTS AND AGENCIES ACCOUNTABLE

In order to address problems at their root, it is important to speak up about the issues our communities face and provide solutions that uplift their direct needs and expertise. Community leadership and involvement is crucial at all levels and in all spaces, we encourage you to get involved at your local Neighborhood Council, City Council, Committees, Air District, City Departments, community-based organizations like CBE, or talk to your neighbors. All spaces that work for community must prioritize outreach and collaboration with Indigenous, Black, Trans, queer, migrant, low-income and communities of color.

In Wilmington, the LADWP has "equity goals", these ensure engagement of low-income customers in the rollout of new projects. We must also advocate that local hire of local installation go to womxn, low-income communities, Black and people of color, and those previously incarcerated.

Now, let's thrive

Historical, red-lining, home foreclosures, environmental racism, lack of social services has impacted frontline, low-income, communities of color, and environmental justice communities. To address historical injustices, we must move forward prioritizing equity and long-term solutions that bring health and wealth to marginalized communities. Local representatives and community members should understand how a community faces cumulative impacts, how they intersect, or overlap with one another in order to truly adapt, survive, and lead an equitable and Just Transition. We need policies that can support the larger changes necessary for addressing the impacts of Sea-Level Rise and Extreme Weather Events, especially for major investments in infrastructure.

SOLAR ENERGY

Shifting to renewable energy, like solar, can lessen reliance on fossil fuels that pollute our communities, provide economic benefits to residents that are disenfranchised, and if coupled with battery storage can provide electricity during an emergency if the electrical grid fails.

- **Solar coupled with battery storage** can lead to improved resiliency, especially if the electrical grid fails. The solar panels would store any excess energy not immediately used onto the battery for use during hours when the sun does not shine. This is like a solar-powered back-up generator.

- Integrating a **Community Solar Project** that provides a 2-Megawatt storage for solar energy to support vulnerable services during electricity outages. This can the first step in changing the availability of solar throughout the day. California has legislation that enables the growth of community solar projects, while it isn't required, legislation has allowed it to increase. About 77% of community solar projects are in states with enabling legislation. [83]
- The Solar Rooftops Program[84] of LADWP allows customers to lease their rooftop where LADWP will install solar panels and the home-owner will receive a check or bill credit as payment for the use of their rooftop, regardless of the amount of energy generated. Because customers will not own the solar panels or energy generated, there are no upfront costs, annual fees, credit checks or maintenance costs.

RESILIENCY HUBS AND COMMUNITY DISASTER SHELTERS

A resilience hub is a community site that can serve as a disaster shelter as well as house community assets, such as solar, computers, and meeting rooms. We can work with local community organizations, schools, places of worship, and community groups to establish places that people in the community can trust. As past experiences have shown, the need for trust is incredibly important. For example, during a storm in 2010, the American Red Cross opened a shelter and received very little attendance from community members. This was because many in that community were unaware of the shelter or didn't trust it. Instead, many turned to CBO's that they did trust but were not properly equipped to help.[85] CBE has held visioning and grounding sessions with community members to conduct initial mapping of potential resilience hubs.

RESILIENT INFRASTRUCTURE

There are many physical improvements that can help Wilmington and Richmond adapt to climate change. These can be promoted through government mandates like building codes, voluntary government action, general plans and community plans. Resilient infrastructure needs to be coordinated, planned, and rolled out with community leadership and vision, if not, the project can have unintended consequences, like gentrification or displacement. Examples of resilient infrastructure include:

- Expanding nature-based projects such as green spaces and Low Impact Development (LID's) to slow down, filter, and allow permeation of storm water as mentioned earlier.[86]
- Creation of floodwalls, backflow preventers for storm water drains, elevated roadways or waterfronts, and pump stations to clear rainwater over the floodwalls. This action could especially be important to do around critical city infrastructure.8
- Installation of cool pavements, as proposed in Assembly Bill 296. The term refers to "paving materials that reflect more solar energy, enhance water evaporation, are more porous, or have been otherwise modified to remain cooler than conventional pavements." This would likely be enacted through the Department of General Services (DGS) and Transportation (Caltrans).[88]

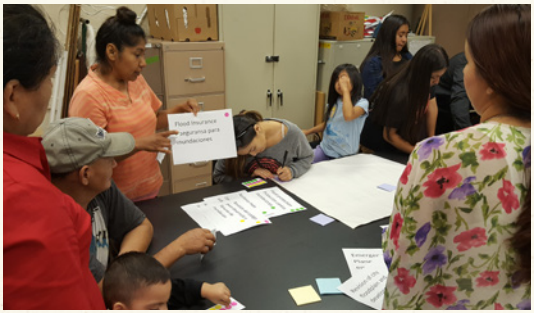
- Other means of increasing the albedo (reflectivity) of urban surfaces such as **cool roofs** and **cool paints** have also been identified as efficient ways of reducing the urban heat island effect[89]. These need not necessarily be light in color as they can be designed to be reflective only of infrared radiation (which carries heat), and not other colors.[90]

ESTABLISHING CLIMATE EMERGENCY MANAGEMENT DEPARTMENT

In 2018, the Energy, Climate Change, and Environmental Justice Committee (ECCEJ) introduced a motion to explore the establishment of a Climate Emergency Mobilization Department (CEMD) to plan and coordinate the City of Los Angeles' response to climate and resilience with a focus on environmental justice and workers. This process was initiated by Paul Koretz (CD5) and Bob Blumenfield (CD3), now the LEAP L.A. Coalition has refined the proposal and advanced the campaign to prioritize equity by ensuring that low-income and frontline communities of color are first to benefit from mitigation and adaptation efforts. The LEAP L.A. Coalition includes CBE, SCOPE, Physicians for Social Responsibility- Los Angeles, American Indian Movement-Southern California, Esperanza Community Housing, 5 Gyres, and The Climate Mobilization. In March 2019, the Climate Emergency Mobilization Department was introduced to the ECCEJ[91] and we are optimistic it will be heard by the full council mid-2019.

CITY AND STATE GOVERNMENT REQUIREMENTS OR INCENTIVES

Requiring or offering incentives have been shown to achieve desired results. Therefore, we believe that the following would support historically disenfranchised communities adapt to the effects of climate change:



- **Landlords required to provide relief** by providing tenants with air-conditioning or heating. This can be done by updating the Public Health Building Codes to require proper ventilation, air-conditioning, and insulation to tenants. These services are urgently needed but when discussed with community members, tenants are hesitant to demand them for fear of rising-rents cost or eviction. Therefore, this should ensure that costs are not off-set to tenants, there is Just-Cause for eviction policy, and anti-displacement policy.
- **Incentives for low income families to buy energy efficient air conditioning and/or insulate their home**.
- Increase hazard mitigation by **incentivizing flood insurance and elevated buildings** to low-income, first-time buyer, homeowners[92]**.** Because renters

can't get flood insurance, we have heard from community members they would prefer landlords be ready to rebuild and rehabilitate. Therefore, we suggest an understanding or **ordinance that landlords are required to rebuild** and rehabilitate in case of a natural disaster

- **Revision of city floodplain and development codes** to minimize flood risks.[93] CBE staff and members have been apart of recent community plan updates to uplift climate adaptation and rezoning toxic sites. Amending Richmond's Flood Damage Prevention Ordinance.
- Investment in more **efficient, higher capacity transformers** that will lose less energy to inefficiency and be less likely to fail during EHEs.[94]

PREPARE CITY STAFF, PUBLIC OFFICIALS, TEACHERS, AND CLINICIANS

- In order to increase adaptive capacity, foster buy-in, and generate the necessary institutional and political support, city staff should be trained around environmental justice and climate adaptation while developing trusting relationships with community organizations, identifying and supporting local champions in government, business, and civic organizations, and building governance structures across sectors and jurisdictions.[95]
- **Train school medical personnel[96]**. Our Youth for Environmental Justice (Youth EJ) members have shared that they don't feel like their schools, and personnel, are trained to address heat-related medical issues at schools. This could be achieved by having more trained nurses at schools regularly, as well as train and prepare all staff to treat emergencies in case of a disaster.
- The City of Richmond has a Climate Action Plan (CAP) and Adaptation Study that covers these topics. CBE recommends that the City of Richmond establish an advisory committee that can guide this work and ensure that the goals and projects set out in the CAP are accomplished.

Resources:

Air District

- South Coast Air Quality Management District and Bay Area Air Quality Management District:

  Responsible for cleaning up smog and issuing permits for equipment that can emit air pollution in the Los Angeles region(SCAQMD) and the Bay Area (BAAQMD). They implement many aspects of the Clean Air Act and state and local regulations. Community members can take part in public processes at the Air District in order to win clean up of air pollution problems.

CERT

- Los Angeles Fire Department: https://www.lafd.org/join/volunteer/cert
- REACT: https://www.ci.richmond.ca.us/339/REACTCERT

Community Benefits Agreement:

- www.forworkingfamilies.org/sites/pwf/files/publications/2005CBAHandbook.pdf

Community Choice Aggregation

- Lean Energy: http://www.leanenergyus.org/what-is-cca/
- http://www.electricitylocal.com/states/california/richmond/
- http://www.neo.ne.gov/statshtml/204.htm
- (2016). Public Works Department Report, Fiscal Year 2015-2016. Chan, R. (2010). Building a Framework for a Climate Action Plan in the City of Richmond, Berkeley.
- Giancatarino, A. (2013). Community-Scale Energy: Models, Strategies and Racial Equity. New York:Center for Social Inclusion.
- Clean Power Exchange: https://cleanpowerexchange.org/resources/cca-101/

Cool Pavements

- https://www.arb.ca.gov/research/apr/past/12-314.pdf

Emergency Preparedness

- Los Angeles Emergency Preparedness: http://emergency.lacity.org/sites/g/files/wph496/f/Family_Prep_Brochure_April%202016_10.pdf
- LAUSD: https://achieve.lausd.net/cms/lib/CA01000043/Centricity/Domain/135/LAUSD%20LHMP%20Update%20Chapters%20Only.pdf
- Red Cross (Southern CA): https://preparesocal.org/ , Phone: 310-445-2688
- Red Cross (Northern CA): https://www.redcross.org/local/california/northern-california-coastal/about-us/our-work.html
- SF 72: https://www.sf72.org/plan

Flooding

- FEMA Flood Map: https://msc.fema.gov/portal/search#searchresultsanchor
- National Flood Insurance Program Community Rating System: https://www.fema.gov/national-flood-insurance-program-community-rating-system

Glossary:

#

100-year flood: A 100-year flood is the level of flood water equaled or exceeded every 100 years on average. The 100-year flood measurement came from the 1 in 100 chance of the level of flood water being equaled or exceeded in any 1 year and an average recurrence interval of 100 years. A more accurate reference to a 100-year flood is the 1% annual exceedance flood.

A

Acclimatized: The past tense of acclimatize. To adapt (someone) to a new temperature, altitude, climate, environment, or situation.

Adapt: To adjust oneself to different conditions, environment, etc.

Adaptive Capacity: The ability to adapt to change, in this case the effects of climate change. Do individuals have access to transportation to avert further impact from disasters? Can individuals afford to move from their homes to another area after the impact? Have they purchased air conditioning? Environmental Justice communities struggle to build adaptive capacity due to lack of investment in jobs, infrastructure, and vital services. For example, a person working paycheck to paycheck is constantly worried about the possibility of experiencing homelessness, especially in areas or households with increasing rents, while trying to meet their basic necessities.

Annexation: The act of adding to something larger, especially the incorporation of new territory into the domain of a city, country, or state.

B

Brownfields: A property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

C

Capitalism: An economic and political system in which a country's trade and industry are controlled by private owners for profit, rather than by the state.

Chronic Illness: A long-term health condition that may not have a cure (Ex. Arthritis, Asthma, Cancer, Diabetes, etc.)

Combustion: The process of burning something.

D

Displacement: The act or process of displacing: to remove from the usual or proper place.

E

Evaporation: To change from a liquid to a vapor.

Exacerbated: To make more severe.

Extreme Heat Events: A series of unusually hot days; defined as weather that is much hotter than average for a particular time and place.

F

Fossil Fuels: Fossil fuels were formed from decayed prehistoric plants and animals over millions of years (hence the name fossil fuels). These include crude oil, coal, natural gas, other gases, fuels made from crude oil, such as gasoline, diesel, jet fuel, and others. Fossil fuels are hydrocarbon molecules, made up of different numbers of hydrogen and carbon. Using and burning fossil fuels causes emissions of greenhouse gases that cause global impacts, including carbon dioxide (CO_2) and methane, but they also emit chemicals that cause local impacts such as smog-forming chemicals and toxics (such as benzene). Many people are working toward promoting available alternative energy in order to phase out fossil fuels and eliminate their associated severe respiratory (such as asthma), and other health impacts and global impacts.

G

Gentrification: The process of buying and rebuilding homes and businesses in an urban neighborhood accompanied by an influx of middle-class or affluent people which results in the displacement of previous residents and businesses.

GHG: GHG is short for Green House Gases. CO2 is the main greenhouse gas emitted, due to burning fossil fuels. Methane is another greenhouse gas, emitted by using fossil fuels, but also emitted by cows in agriculture, landfills, and other sources. Methane is much more potent than CO2 as a greenhouse gas, but is emitted in lower quantities. These two greenhouse gases are both emitted by oil refineries. Other greenhouse gases include nitrous oxide, sulfur hexafluoride, trifluoromethane, difluoroethane, carbon tetrafluoride, and others.

Ground-Level Ozone: Formed by the chemical reaction in the atmosphere of hydrocarbons and nitrogen ozides with are released during the burning of fossil fuels. Ground-level ozone is the main pollutant in smog, it causes respiratory harm and asthma attacks.

I

Impermeable: Not permitting the passage of a fluid through the pores; impassable

L

Latinx: A gender-neutral alternative to Latino/Latina. It is inclusive to the trans, queer, agender, non-binary, gender non-conforming, or gender fluid community.-

Linguistic Isolation: The U.S. Census Bureau uses linguistic isolation to describe households in which no adults speak English well.[97]

M

Misogyny: Ingrained, by societal norms, the dislike, contempt, hate and prejudice against womxn.

O

Oil Refinery: An industrial process plant where crude oil is processed and refined into useful petroleum products.

P

Petrochemicals: Petrochemicals are derived from petroleum and natural gas.

R

Red-lining: The illegal practice of refusing to offer credit or insurance in a particular community on a discriminatory basis (as because of the race or ethnicity of its residents)

Remediated: To restore, reverse, or stop environmental damage.

Renewable Energy: Renewable energy is generated from natural resources – sunlight, wind, geothermal, tides – as opposed to fossil fuel, which is not renewable because it was formed over millions of years.

Resilience: To bounce back and "bounce forward". True resilience addresses the root causes of the climate crisis while advancing the social and economic transformation of communities.

S

Sandbagging: A bag or sack filled with sand to deter flooding.

Sensitive Receptors: Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants.

Sensitivity: How many people will be affected by a given amount of change. For example, sensitivity can include how badly you could be affected by chronic illnesses. The chronic illnesses could be a result of environmental factors, which include impacts on cardiac and respiratory health.

Stationary, mobile, and area sources of air pollution- A stationary source of air pollution is a single source that is not mobile. This includes both large and small sources such as oil refineries, power plants, other industries, and also dry cleaners, autobody shops, and many others. Nonstationary sources of air pollution include mobile sources (cars, trucks, trains, planes) and area sources (spray cans, consumer products, lawn mowers, that are small sources that add up over a large area).

Stormwater Runoff: Rainfall that flows over the ground surface such as roads, driveways, parking lots, rooftops and other paved surfaces that do not allow water to soak into the ground.

U

Urban Heat Island: Urban Heat Islands are created by a combination of sources that absorb heat from the sun's rays (such as dark pavement and roofing), activities that emit heat (such as car engines and generators), and the absence of trees, plants and other forms of vegetation (which provides evaporative cooling).[98] Due to this Urban Heat Island effect, Urban areas experience higher temperatures compared to rural communities during hot summer months.

U.S. Census Bureau: The United States Census Bureau's function is to provide data on people and the economy.

W

White Supremacy: The ideology that white people and the ideas, thoughts, beliefs, and actions of white people are superior to People of Color and their ideas, thoughts, beliefs, and actions. It is artificial but historically constructed, it is the glue that binds together white-controlled institutions into systems and white-controlled systems into the global white supremacist system[99].

ENDNOTES

1 Morello-Frosch, R., Pastor, M., Sadd, J., Shonkoff, S.B., (2009). The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap.

2 American Lung Association.(2018). State of the Air.

3 Note: Ground level ozone should not be confused with the naturally occurring upper-atmosphere ozone layer, which is the same chemical, but protects us from incoming ultra violet rays from the sun. Ozone is also the main component of smog, is formed by pollution emitted by humans, and is harmful to lungs when present at the ground level.

4 Movement Generation.(2016). From Banks and Tanks To Cooperation and Caring: A Strategic Framework for a Just Transition. Hereafter Movement Generation. From Banks and Tanks To Cooperation and Caring.

5 Movement Generation. From Banks and Tanks To Cooperation and Caring.

6 Julia Bogany.(n.d). Tongva Villages. Retrieved from http://www.tobevisible.org/tongva-villages.html

7 Communities for a Better Environment(2009). The Increasing Burden of Oil Refineries and Fossil Fuels in Wilmington, California.Los Angeles,CA: Julia May. Hereafter abbreviated CBE:Oil Refineries and Fossil Fuels in Wilminton

8 Barboza, T.,(2017, November 7). L.A., Long Beach Ports Adopt Plans to Slash Air Pollution and go Zero-Emissions. The Los Angeles Times.Retrieved from https://www.latimes.com/

9 Hereafter abbreviated CBE:Oil Refineries and Fossil Fuels in Wilminton

10 Multiple Air Toxics Exposure Study. (2008).[Interactive map of Estimated Risk in Los Angeles].Retrieved from https://scaqmd-online.maps.arcgis.com/apps/webappviewer/index.html?id=e39304122af84990b3a337307e08eea9

11 The Office of Environmental Health Hazard Assessment.(n.d).Linguistic Isolation. Retrieved from https://oehha.ca.gov/calenviroscreen/indicator/linguistic-isolation

12 Los Angeles City Administrative Officer. (2018).Organization of the City of Los Angeles.Retrieved from http://cao.lacity.org/misc/LAorgchart.pdf

13 U.S. Environmental Protection Agency. (2006-16).Excessive Heat Events Guidebook. (EPA 430-B-16-001)Washington,D-C:United States Environmental Protection Agency. Hereafter US EPA. Excessive Heat Events Guidebook.

14 Grifman, P. M., J. F. Hart, J. Ladwig, A. G. Newton Mann, M. Schulhof. (2013) Sea Level Rise Vulnerability Study for the City of Los Angeles. USCSG-TR-05-2013.

15 California Environmental Protection Agency. (2013).Preparing California for Extreme Heat: Guidance and Recommendations. Sacramento,CA:CA Environmental Protection Agency.Hereafter CA EPA. Preparing CA for Extreme Heat

16 CBE. Oil Refineries and Fossil Fuels in Wilmington

17 Note: As found by the Cal-Adapt tool, the Threshold Temperature for Wilmington was 93.4F. This Threshold was calculated to be the 98th historical percentile of daily maximum/minimum temperatures based on observed historical data from 1961–1990 between April and October.

18 Cal-Adapt. (n.d). [Graph Illustration of Extreme Heat Events in Wilmington, CA]. Retrieved from https://cal-adapt.org/tools/extreme-heat/#lat=33.78125&lng=-118.28125&boundary=localgrid&scenario=rcp85&models=Had-GEM2-ES,CNRM-CM5,CanESM2,MI-ROC5&climatevar=tasmax&units=imperial

19 CA EPA. Preparing CA for Extreme Heat (see 15)

20 Guirguis, K., Gershunov,A., Tardy,A.,Basu,R.(2013) The Impact of Recent Heat Waves on Human Health in California. Journal of Applied Meteorology and Climatology.53.https://doi.org/10.1175/JAMC-D-13-0130.1

21 Samenow,J.(2018, July 9).Record Heat Put Thousands of Californians in the Dark Friday. Scientists predicted this from climate change. The Washington Post. Retrieved from https://www.washingtonpost.com/

22 Miller, N.L., K. Hayhoe, J. Jin, and M. Auffhammer, 2008: Climate, Extreme Heat, and Electricity Demand in California. J. Appl. Meteor. Climatol., 47, 1834–1844,https://doi.org/10.1175/2007JAMC1480.1

23 Anderson, G. B., & Bell, M. L. (2012). Lights out: Impact of the August 2003

Power Outage on Mortality in New York, NY. Epidemiology (Cambridge, Mass.), 23(2), 189–193. doi:10.1097/EDE.0b013e318245c61c

24 Neighborhood Data for Social Change. (2018).A 2018 Snapshot of Homelessness in Los Angeles County. Retrieved from https://usc.data.socrata.com/stories/s/Homelessness-in-2018-A-Snapshot-of-Los-Angeles-Cou/g8ge-um6u/

25 26 Same as above

26 27Grifman, P. M., J. F. Hart, J. Ladwig, A. G. Newton Mann, M. Schulhof. (2013) Sea Level Rise Vulnerability Study for the City of Los Angeles. USCSG-TR-05-2013.

27 Surging Seas. (n.d). Risk Finder: Wilmington.

28 STAND-L.A.(n.d) Warren E&P, Wilmington. Retrieved from https://www.stand.la/wilmington.html. Hereafter STAND-L.A. Warren E&P, Wilmington

29 Tetra Tech. (2018). City of Los Angeles 2018 Local Hazard Mitigation Plan. Prepared for the City of Los Angeles Emergency Management Department, January 2018. Hereafter Tetra Tech.(2018).City of Los Angeles 2018 Local Hazard Mitigation Plan.

30 Homefacts.(2019).Wilmington,Los Angeles County,CA Environmental Hazards Report-Brownfield Sites. Retrieved from https://www.homefacts.com/environmentalhazards/brownfields/California/Los-Angeles-County/Wilmington.html

31 Switzer,A., Federico, S.(2018).Climate Change Sea-Level Rise Could Increase Risk for More Devastating Tsunamis Worldwide. Retrieved from https://vtnews.vt.edu/articles/2018/08/Science-tsunamis_increase_climate_change.html

32 STAND-L.A. Warren E&P, Wilmington

33 RePowerLA.(2019).Retrieved from https://repowerla.org/.Hereafter RePowerLA.(2019).

34 RePowerLA.(2019).

35 California Air Resources Board. (2017). [Excel Sheet of GHG Reporting]. Annual Summary of GHG Mandatory Reporting

36 Bissell,E., Moore,E., et.al. (2018). Housing Policy and Belonging in Richmond. Haas Institute for a Fair and Inclusive Society, University of California, Berkeley: Berkeley, CA. Hereafter Bissell,E.,Moore,E. Housing Policy and Belonging in Richmond

37 Census Viewer.(2010).Richmond, California Population. Retrieved from http://censusviewer.com/city/CA/Richmond

38 United States Census Bureau.(2018). Retrieved from https://www.census.gov/quickfacts/richmondcitycalifornia

39 Lochner, T.(2017, October 19). Council approved dual-track approach to North Richmond annexation.The East Bay Times. Retrieved from https://www.eastbaytimes.com/

40 CA Contra Costa County.(n.d).North Richmond Annexation Information. Retrieved from http://www.co.contra-costa.ca.us/6812/North-Richmond-Annexation-information

41 City of Richmond.(2018).Unincorporated North Richmond Annexation-Frequently Asked Questions. Retrieved from http://www.ci.richmond.ca.us/DocumentCenter/View/47510/DRAFT-City-of-Richmond-Draft-NR-Annexation-FAQs

42 Contra Costa Health Services. (2015).Climate Change Vulnerability in West Contra Costa County: A Focus on Heat.

43 US EPA. Excessive Heat Events Guidebook.

44 California Environmental Protection Agency. (2013).Preparing California for Extreme Heat: Guidance and Recommendations. Sacramento,CA:CA Environmental Protection Agency. Hereafter CA EPA. Preparing CA for Extreme Heat

45 Bissell,E.,Moore,E. Housing Policy and Belonging in Richmond

46 Cal-Adapt. (n.d). [Graph illustration of Extreme Heat Occurrences] Retrieved from https://cal-adapt.org/tools/extreme-heat/

47 Contra Costa Health Services. (n.d). The Richmond Health Equity Report Card. Hereafter Contra Costa Health Services. The Richmond Health Equity Report Card

48 Anderson, G. B., & Bell, M. L. (2012). Lights out: impact of the August 2003 power outage on mortality in New York, NY. Epidemiology (Cambridge, Mass.), 23(2), 189–193. doi:10.1097/EDE.0b013e318245c61c

49 Contra Costa Health Services. The Richmond Health Equity Report Card

50 Surging Seas. (n.d) Risk Finder: 94801, CA, USA. Retrieved from https://riskfinder.climatecentral.org/postal-code/94801.ca.us?comparisonType=postal-code&forecastType=NOAA2017_int_p50&level=3&unit=ft

51 Cal-Adapt. (n.d). [Map of Sea-Level Rise in CA]. Retrieved from https://cal-adapt.org/tools/slr-calflod-3d/

52 Climate Central (2016). Sea level rise and coastal flood exposure: Summary for 94801, CA. Surging Seas Risk Finder file created July 21, 2016. Retrieved from http://ssrf.climatecentral.org.s3-website-us-east-1.amazonaws.com/Buffer2/states/CA/downloads/pdf_reports/Zip/CA_94801-report.pdf

53 Note: "Climate Central has estimated risk by combining local sea level rise projections with historic flood statistics from the NOAA water level station at Alameda, CA, 13 miles from the center of 94801… ll elevation and flood height values in this document and the tool are given in reference to Mean Higher High Water (informally, the "high tide line") – the average of each day's higher high tide over the most recent national "tidal epoch," 1983-2001"

54 Marin Clean Energy. (2018, April 18). Think Globally, Build Locally. [Press Release]. Retrieved from https://www.mcecleanenergy.org/news/press-releases/mce-solar-one-thinking-globally-building-locally/

55 Marin Clean Energy. (2018). MCE Solar One Fact Sheet.

56 Los Angeles Emergency Management Department. (2018). Visit a Cooling Center to Beat the Heat. Retrieved from https://www.lacity.org/blog/visit-cooling-center-beat-heat

57 Contra Costa Health Services. (2019). Heat and Your Health. Retrieved from https://cchealth.org/heat/

58 Los Angeles Department of Water and Power. (2013). Home Upgrade Program. Retrieved from https://www.ladwp.com/ladwp/faces/ladwp/residential/r-save-money/r-sm-rebatesandprograms/res-save-money-newconstr?_adf.ctrl-state=5bv7oka-dt_4&_afrLoop=309764952863030

59 City of Richmond. (n.d). Energy Program for Residents. Retrieved from https://www.ci.richmond.ca.us/2498/Residents

60 Calscape.(n.d).[Interactive map of California Native Plants]. Retrieved from https://calscape.org/Lupinus-albifrons-(Silver-Lupine)?srchcr=sc5c64e5a745846

61 Borel,V., Myers,M., Giraud,D. (2015). Coastal California Rain Gardens. Agriculture and Natural Resources, Publication 8531. Retrieved from https://anrcatalog.ucanr.edu/pdf/8531.pdf

62 Treepeople. (n.d). Maintenance of Climate-Appropriate Native Plants for Southern California-A Starter List.

63 FEMA Flood Map Service Center. (n.d). [Interactive map of flood zones depending o the address search]. USGS The National Map: Orthoimagery. Retrieved from https://msc.fema.gov/portal/search#searchresultsanchor

64 Tetra Tech. (2018). City of Los Angeles 2018 Local Hazard Mitigation Plan.

65 Federal Emergency Management Department. (2019). National Flood Insurance Program Community Rating System. Retrieved from https://www.fema.gov/national-flood-insurance-program-community-rating-system

66 City of Los Angeles-Emergency Management Department. (2016). A Comprehensive Guide to Family and Home Preparedness.

67 City of Richmond.(n.d). Climate Change Adaptation Study Appendix F.

68 Larsen, K. (2018, January 30). Firefighters Battle Toxic Smoke from Richmond Scrap Metal Fire. Abc7. Retrieved from https://abc7news.com/

69 Hurd,P. (2018, February 1). Air District Investigates Smoke from Richmond Metal Scrapyard Fire. East Bay Times. Retrieved from https://www.eastbaytimes.com

70 City of LA-Emergency Management Department. (2019). Ready Your LA Neighborhood. Retrieved from https://emergency.lacity.org/rylan/about

71 US EPA. Excessive Heat Events Guidebook.

72 City of Richmond. (2017). Urban Greening Master Plan. Retrieved from http://www.ci.richmond.ca.us/2858/Urban-Greening-Plan

73 Navigate LA (n.d).[Interactive map and database of tree canopy in LA]. Google maps and Pictometry. Retrieved from https://navigatela.lacity.org/navigatela/

74 City Plants (2019) Retrieved from https://www.cityplants.org/

75 Department of Recreation and Parks. (n.d) Department of Recreation and Park New Parks Initiative. Retrieved from https://www.laparks.org/50parks

76 Communities for a Better Environment. (2013). Huntington Park Brown-to-Green Implementation Plan. Los Angeles, CA: Author

77 Cal OES. (2019). Summer Heat Resources. Retrieved from https://www.caloes.ca.gov/ICESite/Pages/Summer-Heat-Resources.aspx

78 STAND LA. (n.d). Los Angeles County Department of Public Health Confirms Heath Threats of Neighborhood Oil Drilling. Retrieved from https://www.stand.la/ladph-report.html

79 National Renewable Energy Laboratory. (2016). Status and Trends in the U.S. Voluntary Green Power Market. (NREL Publication No. OOSP.10291.05.02.04. Hereafter NREL. Status and Trends in the U.S. Voluntary Green Power Market

80 Marin Clean Energy. (2016). Retrieved from https://www.mcecleanenergy.org/mce-contra-costa/

81 U.S. Environmental Protection Agency. (2017). Green Power Communities. Retrieved from https://www.epa.gov/green-power/green-power-communities#RichmondCACommunity

82 National Association for the Advancement of Colored People. (2018). In the Eye of the Storm: A People's Guide to Transforming Crisis and Advancing Equity in the Disaster Continuum. Baltimore, MD: Author

83 NREL. Status and Trends in the U.S. Voluntary Green Power Market

84 Los Angeles Department of Water and Power. (2013). Solar Rooftops. Retrieved from https://www.ladwp.com/ladwp/faces/ladwp/residential/r-gogreen/r-gg-commsolarprogram?_adf.ctrl-state=mx08498r5_4&_afrLoop=275918407842448

85 Ekstrom, J.A.,Moser, S.C., Sea-Level Rise Impacts And Flooding Risks in the Context of Social Vulnerability, Prepared For the Mayor's Office, City Of Los Angeles, January 2013. (Saved as Appendix 3 of the Sea Level Rise Vulnerability Study for the City of Los Angeles)

86 Coastal Resilience Project Tracker. (n.d) [Map of Boston's Resilience Project Tracker]. ArcGIS. Retrieved from http://boston.maps.arcgis.com/apps/Cascade/index.html?appid=c438a8a66e9d470b8b305a973fc192f7

87 Environmental Resources Management. (2011). Regulatory Response to Sea Level Rise and Storm Surge Inundation, City of Annapolis, Maryland. Annapolis, MD: Author. Hereafter ERM. Regulatory Response to Sea Level Rise and Storm Surge

88 CA EPA. Preparing CA for Extreme Heat

89 CA EPA. Preparing CA for Extreme Heat

90 Cool Roof Rating Council. (2014). Cool Roofs for Architects and Roofing Specifiers. Retrieved from http://coolroofs.org/documents/CoolRoofsforArchitectsandRoofingSpecifiers.pdf

91 Contributing Editor. (2019, March 9). City Council Committee Supports Developing Green New Deal for L.A. Retrieved from https://mynewsla.com/

92 Nelson, A.C., Steven P.F. (2002). Plan quality and mitigating damage from natural disasters: A case study of the Northridge earthquake with planning policy considerations. Journal of the American Planning Association 68.2 (2002): 194-207.

93 ERM. Regulatory Response to Sea Level Rise and Storm Surge

94 Copper Development Association Inc. (2019). Temperature Rise and Transformer Efficiency. [Excerpt from "Premium-Efficiency Motors and Transformers"].Retrieved from http://www.copper.org/environment/sustainable-energy/transformers/education/trans_efficiency.html

95 Cicin-Sain, B., et al. Integrated coastal and ocean management: concepts and practices. Island Press, 1998.

96 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5708036/

97 Cal Enviro Screen: Linguistic Isolation. (2011-2015). [Interactive map of linguistic isolation in CA]. Retrieved from http://oehha.ca.gov/calenviroscreen/indicator/linguistic-isolation

98 CA Environmental Protection Agency. (2015, September 16). First-of-Its-Kind Index Quantifies Urban Heat Islands. [Press Release]. Retrieved from http://www.calepa.ca.gov/UrbanHeat/

99 Showing up for Racial Justice. (n.d) White Supremacy Culture. Retrieved from https://www.showingupforracialjustice.org/white-supremacy-culture.html


COMMUNITIES FOR A BETTER ENVIRONMENT
CBECAL.ORG