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**Embracing Informality in the
Eastern Coachella Valley:**
Building Climate Justice Through
Design in Polanco Parks

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Abstract

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California's Eastern Coachella Valley faces a persistent and acute shortage of safe and affordable housing for its essential workforce, particularly farmworkers and low-wage service workers. In response to this housing gap, small mobile home parks have emerged since the early 1990's — many of which developed outside of formal planning processes. Commonly known today as Polanco Parks, these communities represent a vital, though often overlooked and stigmatized, form of informal housing. While they provide critical shelter to thousands of predominantly Latinx residents, Polanco Parks are frequently characterized by substandard or aging infrastructure, limited access to basic services, and geographic isolation from urban centers and municipal services.

This thesis investigates the historical and spatial dynamics that have shaped the emergence and marginalization of Polanco Parks, with a focus on their growing exposure to extreme weather events under climate change. Through a qualitative methods approach that combines historical analysis, policy review, and spatial vulnerability assessment, this research contextualizes Polanco Parks within broader frameworks of informal urbanism and environmental and climate justice. It then proposes a conceptual site design for a selected case study park to explore strategies for place-based resilience. The design articulates a framework to support culturally-informed place-making, climate-adaptive infrastructure, well-being, and short- to long-term resilience. Ultimately, this thesis argues for the recognition of inclusion of informal housing typologies like Polanco Parks within regional climate adaptation planning and calls for targeted interventions that address both immediate infrastructure needs and long-term resilience.

EMBRACING INFORMALITY IN THE EASTERN COACHELLA VALLEY

Building Climate Justice Through Design in Polanco Parks





Mecca, California



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abstract

California's Eastern Coachella Valley faces a persistent and acute shortage of safe and affordable housing for its essential workforce, particularly farmworkers and low-wage service workers. In response to this housing gap, small mobile home parks have emerged since the early 1990's — many of which developed outside of formal planning processes. Commonly known today as Polanco Parks, these communities represent a vital, though often overlooked and stigmatized, form of informal housing. While they provide critical shelter to thousands of predominantly Latinx residents, Polanco Parks are frequently characterized by substandard or aging infrastructure, limited access to basic services, and geographic isolation from urban centers and municipal services.

This thesis investigates the historical and spatial dynamics that have shaped the emergence and marginalization of Polanco Parks, with a focus on their growing exposure to extreme weather events under climate change. Through a qualitative methods approach that combines historical analysis, policy review, and spatial vulnerability assessment, this research contextualizes Polanco Parks within broader frameworks of informal urbanism and environmental and climate justice. It then proposes a conceptual site design for a selected case study park to explore strategies for place-based resilience. The design articulates a framework to support culturally-informed place-making, climate-adaptive infrastructure, well-being, and short- to long-term resilience. Ultimately, this thesis argues for the recognition of inclusion of informal housing typologies like Polanco Parks within regional climate adaptation planning and calls for targeted interventions that address both immediate infrastructure needs and long-term resilience.

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00 prologue: studying home



Figure 0.1 Image of me standing in front of my childhood home.

FROM LIVED EXPERIENCE TO RESEARCH INQUIRY

This research is motivated by my personal experience growing up in a Polanco Park. Prior to learning about their name and position within the broader environmental justice context of my hometown, I did not fully understand what this meant. To me, this park was simply home – a patchwork of mobile homes and dirt roads, shaded by scattered palm trees and Mesquites, where neighbors moved between each other’s spaces as if the whole park was an extended household, as it was for me – with my aunts, uncles, and cousins living just next door. It was a place shaped by both resilience and precarity, where the cycles of the seasons dictated daily life: scorching summers that made our tin-walled homes unbearable by midday, winter rains that turned unpaved roads into mud, and the spring windstorms that sent everyone scrambling to secure their homes and belongings against the wind, preparing for a blinding sea of dust.

I describe these scenes not to produce a sorrowful image of life in Polanco Parks, but to showcase the unavoidable realities that are embedded in the memories of those who grew up in similar conditions. But my experience of home was also shaped by something else – by the knowledge that my family was not just living in this type of park; my parents were responsible for it. As the daughter of the park owners, I witnessed firsthand the negotiations, anxieties, mental and physical stresses, and responsibilities that came with sustaining what originated as an informal housing community. I saw my parents navigate regulations (often having to translate legal or policy documents to them from English to Spanish – even as a child), mediate conflicts, and advocate for basic services, in addition to providing and caring for their own family’s needs. As I grew older, I came to understand the deep structural inequities that defined these spaces – how limited infrastructure, environmental neglect, and legal precarity placed entire communities at risk, including my own.

This personal history led me to work as an advocate for affordable housing, social and environmental justice at a local non-profit organization after completing my undergraduate degree. I collaborated with residents in mobile home parks and other low-income housing across the Eastern Coachella Valley, including family members, friends of my parents, parents of my friends, and others who shared similar cultural backgrounds. Through this work, I saw how Polanco Park residents, and residents across the region organized to fight for their rights despite legal and infrastructural challenges. They demanded access to clean water, resisted displacement, proposed design interventions for active transportation infrastructure, and pushed for policy changes that supported livability and equity. It was in these moments, sitting in community meetings or walking through the same kinds of neighborhoods I grew up in, that I began to see that my connection to Polanco Parks was not only shaped by lived experience, but by questions that deserved deeper understanding.

Thus, this prologue situates my research within my own positionality, reflecting on what it means to study home – a place that I have not only inhabited but also advocated for. It examines how my lived experience shapes the question I ask, the people I interview, the perspectives I bring, the ethical considerations of researching a community to which I feel accountable. By bridging personal narrative with academic inquiry, I position this study not only as a scholarly contribution, but as a continuation of the work that I have been engaged in for years – a way of making sense of the place I call home and imagining its hopeful future.

From Advocacy to Research

Before undertaking this research, I was engaged in community organizing and policy advocacy efforts to address the social and environmental justice threats that eventually led me to graduate school. Soon after completing my undergraduate studies, I returned home and spent six years working alongside community residents as a Policy Advocate and Regional Policy Manager with Leadership Counsel for Justice and Accountability in the Eastern Coachella Valley. In this capacity, I collaborated with residents and other local advocates to build campaigns that called for improvements in the built environment, particularly for transportation, housing, water and wastewater services, land use, air quality, and government accountability. Through this work, I learned so much more about my own community than I had been aware of growing up in the same area. I built relationships with residents and local leaders who continue the fight today.

Conducting research, however, is quite different; it requires a shift in perspective while still acknowledging the value of both capacities. As an advocate, I was often responding to immediate issues that required bridging the gap between community and government entities and assisting with environmental or economic burdens. As a researcher, I am meant to document, study, and analyze a community and the challenges they face. But as someone who has witnessed my own community become a study subject, I recognize that approaching this process through both lenses is necessary to ensure an ethical research process. I, therefore, share my story and positionality for transparency, but also to maintain accountability to the community who helped me get here and whom I seek to uplift.

Navigating the Research Process

Balancing my positionality as both a community member and now researcher requires careful ethical considerations - something I admittedly struggled with throughout the process. My familiarity with the community (including family ties) granted me access to certain spaces and allowed me to leverage existing relationships for interviews and site visits. Most importantly, I had built prior trust with local residents which allowed for sincere and in-depth conversations about vulnerable experiences that may not have been afforded to someone outside of the community.

I employed this perspective in my research design as well, communicating to interviewees that despite my previous knowledge of and personal experience in Polanco Parks, their distinct expertise and perspectives were critical for me to learn from and consider in this process. I approached the interviews as opportunities to develop conversations - creating space for participants to share their stories in their own words without imparting judgement or my own narrative.

Growing up in a Polanco Park has been such a defining experience in my life. Conducting this research has allowed me to stay connected to home - to a community that has given so much and received so little. I am committed to documenting injustice and contributing to tangible discussions on solutions that continue to take place locally.

Polanco Parks are defined as small mobile home parks of 14 units or less for agricultural employee housing, as defined by Assembly Bill 3526 (CA 1992).



Figure 0.2 Image of Hermelinda Tejas and Ramón Zaragoza building a septic system in their Polanco Park.

01 introduction + context



Figure 1.1 Aerial image of the Eastern Coachella Valley looking South.

In the sun-scorched expanse of the Eastern Coachella Valley (ECV), where rows of citrus trees and date palms stretch to the edges of the Santa Rosa and San Jacinto Mountains in Southern California, a different type of community exists - one built not by urban planners, designers, or developers, but by necessity, resilience, and the very hands of the farmworkers who make a living here. Here, in the shadow of affluence found in the western Coachella Valley, Polanco Parks are a vital source of affordable housing for those who harvest food, maintain landscapes, and provide other essential services to many. These small clusters of mobile homes, often tucked between fields or along dusty, unpaved roads, are more than just places to live; they are symbols of endurance in a system that has enforced their marginalization.

In 1981, my parents Hermelinda and Ramón, first settled in Cien Palmas, an unpermitted park of mobile homes tucked in the unincorporated area of Oasis - a small town of nearly 4,500 in the ECV (US Census Bureau 2020) - where they found work in the nearby fields. In the early 1990's, they purchased a 10-acre property just a few miles away which slowly became a makeshift mobile home park. Today, their property is among the more than 100 total mobile home parks (MHPs) in the ECV that provide one of the few options of affordable housing for farmworkers and other low-wage workers. Their story, though privileged in many ways, reflects one of the distinct paths that has led to the creation of Polanco Parks known today. But owning and managing a Polanco Park is not an easy task. Hermelinda and Ramón's story reflects that of many owners who, despite their efforts, are unable to fully address the infrastructural needs of such an isolated and under-resourced community.

This is the reality of Polanco Parks, a form of informal housing shaped by necessity and community, as well as social hardship and neglect. While these parks provide crucial affordable housing, they remain vulnerable to extreme weather, infrastructural decay, environmental injustices, regulatory scrutiny, and social stigma. The question at the heart of this research is not just how to improve these settlements but how to reimagine them as sites of climate and social resilience. I ask: What are the small-scale design interventions that can address climate vulnerability in Polanco Parks? In addressing this question, I also document part of the history and identity of Polanco Parks, featuring the efforts of local residents in their pursuit of housing and climate justice.

1.1 Regional Context: Understanding the Eastern Coachella Valley

Local Landscape and Demographics

Few regions in California illustrate inequity as sharply as the Coachella Valley, where affluence and exclusion exist side-by-side. Located in the heart of the Southern California desert, the Coachella Valley offers an escape for many visitors and seasonal residents looking for luxury and leisure, finding it in the region's abundance of golf courses, resorts, and festivals. But amidst the Coachella Valley's world-renowned events and exclusive resorts lies the eastern region, where a stark reality of environmental injustice and the effects of social marginalization overburden its predominantly low-income, immigrant, and farm-working residents (London, et al 2013). These disparities are deeply embedded in the region's history of migration and agricultural labor, land use policies, and environmental racism (Rodriguez 2021).

The ECV is an agricultural and unincorporated region located in Riverside County, California, approximately 90 miles northwest of the U.S.-Mexicali border. Its geographic boundaries may have varying limits depending on who you ask. For most community advocates and local residents, the region encompasses four unincorporated communities: Thermal, Oasis, Mecca, and North Shore, forming the northern periphery of the Salton Sea, California's largest lake (Figure 1.2). The ECV is also home to four federally recognized Tribal Nations: the Twenty-Nine Palms Band of Mission Indians, the Cabazon Band of Mission Indians, the Torres-Martinez Desert Cahuilla Indians Tribe, and the Augustine Band of Cahuilla Indians.

According to the U.S. Census Bureau (2020), the ECV is home to nearly 21,000 residents, 63% of which identify as Latino/Hispanic. 45% of the total employed population work in agriculture, in the grape, strawberry, chile,

citrus, and date harvests - among many others. Limited English proficiency is just above 65% for people aged five and up. Economic hardship is also a significant marker in the ECV, with about 35% of residents living at or below the federal poverty level (U.S. Census Bureau; American Community Survey 2020). These intersecting demographic and economic markers illustrate the region's deep-rooted structural inequities, underscoring the urgency for targeted and community-driven planning interventions to address climate vulnerability and spatial marginalization in the ECV.

An ongoing problem in the ECV is the lack of affordable and quality housing options. Low-wage jobs, including jobs in the agricultural and service industries, keep residents out of range of most options, especially in cities west of the ECV (London, et al 2013). Additionally, residents often face institutional barriers to government subsidized housing because of immigration status, including mixed-status households. Together, these factors have made mobile homes not just the most accessible, but often the only viable housing option for many low-income residents in the region. As a result, mobile homes and mobile home communities (MHCs) have become the prevalent housing option in the ECV, particularly for farmworkers (ECV Climate Action Plan for Climate Resilience 2019).

Historical and Socioeconomic Context

The ECV has a deep legacy of agricultural development and labor that continues to shape its built and social landscape today. The region is remembered as a pivotal site of labor organizing, including the Coachella Grape Strikes of 1965 and 1969, part of the broader United Farm Workers movement (Paiz 2023). Historically, the agricultural industry relied on a predominantly Mexican and Filipino workforce, including short-term contract laborers through the U.S. Bracero Program (Martin 2020). Today, agriculture remains the economic backbone of the region. Many farmworkers continue to migrate north during the summer harvest seasons, reflecting enduring patterns of seasonal labor rooted in structural inequality.

The housing landscape in the ECV continues to be limited and under-resourced, making mobile homes

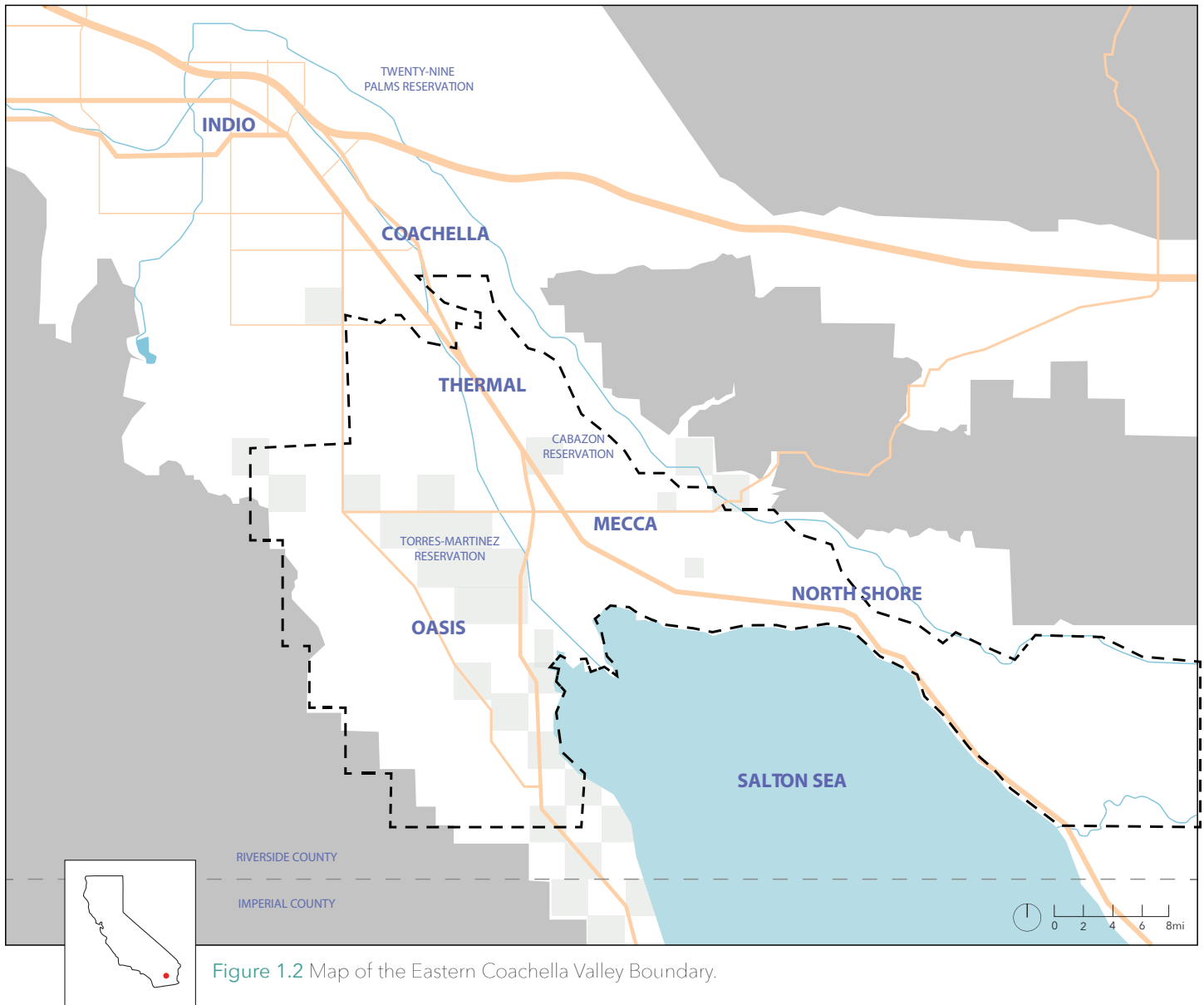


Figure 1.2 Map of the Eastern Coachella Valley Boundary.

the most accessible option for low-wage workers. Over time, the region has experienced chronic disinvestment, resulting in visible disparities when compared to the urbanized Western Coachella Valley. Basic services such as paved roads, sidewalks, sewer connections, potable drinking water, and public transportation remain limited across large portions of the ECV. Polanco Parks are often located near sources of pollution due to local zoning practices that have historically allowed residential areas – especially MHCs – to be close to polluting land uses including open burning, pesticide application, waste dumps, and the Salton Sea (AB 617 Community Nomination 2019).

Despite decades of reporting, organizing, and advocacy, public health and infrastructure investments have moved slowly and unevenly across the region. These chronic conditions – combined with limited land tenure and restrictive housing policies – have directly contributed to the rise of informal housing in the form of mobile home parks and Polanco Parks. At the same time, Coachella Valley cities have grown into hubs for luxury tourism, reinforcing the stark economic and spatial segregation that define the region (London et al. 2013; Paiz 2021). More recently, luxury developments have been proposed in ECV communities like Thermal and North Shore, threatening to increase land values and affordability,

potentially increase displacement, extract natural resources like water, and further strain already precarious housing access for low-income residents.

While public transportation in the ECV has seen incremental improvement, mobility challenges remain a significant barrier to opportunity. Most residents rely on personal vehicles or carpooling to commute to agricultural jobs in the ECV or to service and hospitality positions in western cities – jobs they cannot afford to live near. This lack of reliable, regionally integrated transportation continues to isolate ECV communities from higher education, healthcare, healthy food, and regional planning processes (PBS 2016).

In turn, these structural exclusions reinforce cycles of economic marginalization, health disparities, and housing precarity that disproportionately affect low-income and immigrant communities.

Environmental Burdens and Climate Vulnerabilities

The ECV ranks within the top 40th percentile of communities disproportionately burdened by multiple sources of pollution, with Mecca and North Shore ranking in the top 20th percentile (see Figure 1.3) (Calenviroscreen 4.0). These data are based on the combined pollution burden scores made up of indicators from the Exposures and Environmental components of Calenviroscreen (CES) (Calenviroscreen 4.0 Indicators model). CES defines pollution burden as “the potential exposures to pollutants and the adverse environmental conditions caused by pollution” (Calenviroscreen 4.0). The ECV is broken down by three census tracts (see Tables 1-3). All three census tracts demonstrate high pollution burdens, indicating that these communities are exposed to disproportionate environmental risks compared to other parts of California. Pesticide exposure is among the highest indicators across all tracts, with

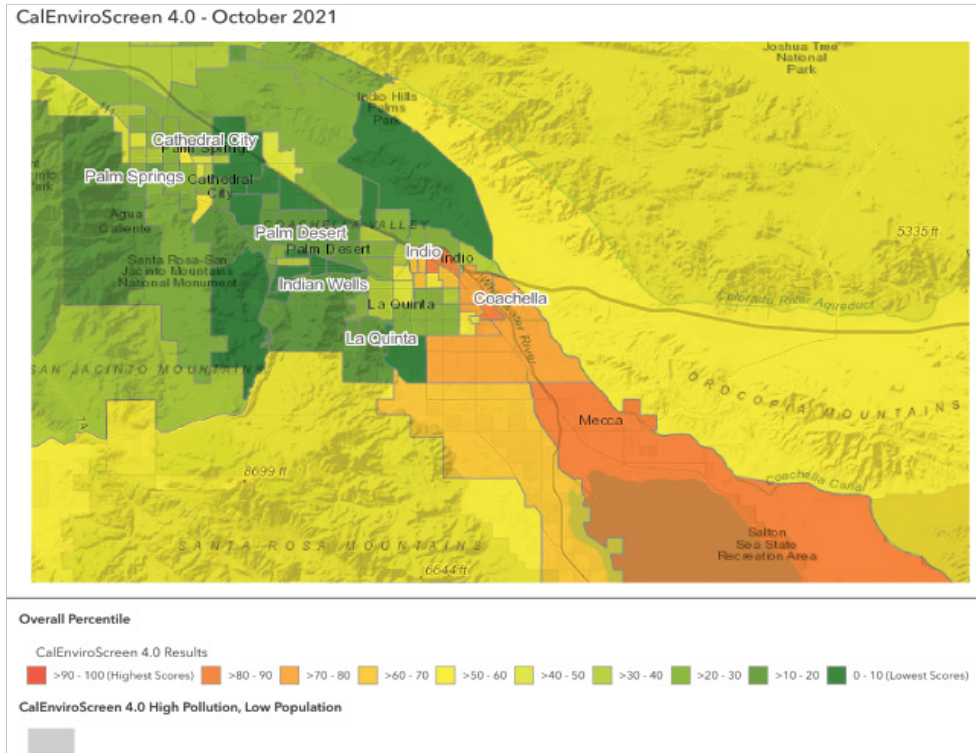


Figure 1.3. CES map of the ECV.

scores of 94 and 95. Risks from water quality and solid and hazardous waste are also elevated, which point to the overlapping infrastructure and environmental burdens that exacerbate health vulnerabilities, especially in communities with unregulated or substandard housing conditions, like Polanco Parks. Additionally, a study conducted by Health Assessment and Research for Communities (2024) compares CES scores by geography, revealing that the ECV “has an average [CES] percentile of 61.5, placing it above (and thus worse than) the California average (50.0), and substantially above the Western Coachella Valley average (27.6), Coachella Valley average (30.9), and Riverside County average (48.8).” The study determined that ECV residents endure more intense environmental conditions and significantly lower resources compared to neighboring regions.

The communities of Mecca and North Shore, including tribal lands in the ECV, are classified as “disadvantaged communities” under SB 535 Disadvantaged Communities – a California state law that identifies disadvantaged communities for investments from the State’s Greenhouse Gas Reduction Fund (CalEPA Designation of Disadvantaged Communities). As shown in Figure 1.3, the ECV faces significant burdens of concentrated poverty and environmental hazards

Census Tract 6065045609		Census Tract 6065045609		Census Tract 6065045609	
Pollution Burden:	76	Pollution Burden:	76	Pollution Burden:	76
Population:	4318	Population:	4318	Population:	4318
CalEnviroScreen 4.0 Percentile:	72	CalEnviroScreen 4.0 Percentile:	72	CalEnviroScreen 4.0 Percentile:	72
Ozone:	85	Ozone:	85	Ozone:	85
PM 2.5:	9	PM 2.5:	9	PM 2.5:	9
Diesel PM:	18	Diesel PM:	18	Diesel PM:	18
Pesticides:	94	Pesticides:	94	Pesticides:	94
Toxic Releases:	4	Toxic Releases:	4	Toxic Releases:	4
Traffic:	10	Traffic:	10	Traffic:	10
Drinking Water Contaminants:	75	Drinking Water Contaminants:	75	Drinking Water Contaminants:	75
Lead in Housing:	48	Lead in Housing:	48	Lead in Housing:	48
Cleanups:	50	Cleanups:	50	Cleanups:	50
Groundwater Threats:	67	Groundwater Threats:	67	Groundwater Threats:	67
Hazardous Waste:	62	Hazardous Waste:	62	Hazardous Waste:	62
Impaired Water:	77	Impaired Water:	77	Impaired Water:	77

Figure 1.4. Pollution Burden Results from the three ECV Census tracts (CES).

that exceed those in the west. Economic isolation and disparity continue to hinder this region from accessing the necessary resources for growth and development, both socially and economically. Furthermore, systematic marginalization of farmworker communities from political representation, planning and land use decision-making, and the ongoing environmental inaction and neglect, continue to perpetuate this state of inaccessibility and exclusion (London, et al 2013).

While some are drawn to the Coachella Valley's sun-drenched climate for a temporary retreat, year-round residents of the ECV endure far more extreme environmental and climate conditions. Often referred to as "the climate gap," frontline communities like the ECV are already experiencing the extreme impacts of climate change compared to less vulnerable populations, sometimes to a magnified degree. The community of Thermal, for example, averages about 139 days a year with temperatures upwards of 95 degrees Fahrenheit, with both the number of days and degrees expected to continuously rise over the next 30 years (Weil and Rodriguez Pons 2021).

Livability in the ECV is also impacted by worsening conditions in air quality, water quality and access, flooding and stormwater management, and extensive infrastructure gaps. Some of these

conditions are quite noticeable - the sidewalk ends driving east as soon as you exit Coachella's city limits, for example. While the San Jacinto Mountains offer a striking backdrop to the region's lush agricultural fields, tree canopy and green park spaces are severely lacking (Pérez 2023). As the main employment industry in the ECV, agriculture shapes the form and fabric of this area, leaving pockets for small MHCs like Polanco Parks, which renders them vulnerable to dust, smoke, and pesticide exposure from agricultural activity - both at home and at work (AB 617 ECV Community Nomination 2018; HARC 2024). Municipal services only provide for the ECV sparingly, with water and sewer infrastructure primarily servicing households in the communities of Mecca and North Shore. Thermal and Oasis are more vulnerable in this regard, as they rely on domestic wells for their main source of water; and given their proximity to agricultural lands, groundwater contamination is a serious threat to public health (Weil and Rodriguez Pons 2021; Hile, et al. 2022). In 2019, the United States Environmental Protection Agency fined Oasis Mobile Home Park - a large MHP on allotted Tribal land in the community of Oasis - for having "10 times the allowable limit of arsenic" in its water source (The New York Times 2022). These overlapping environmental, infrastructure, and regulatory underscore the urgent need

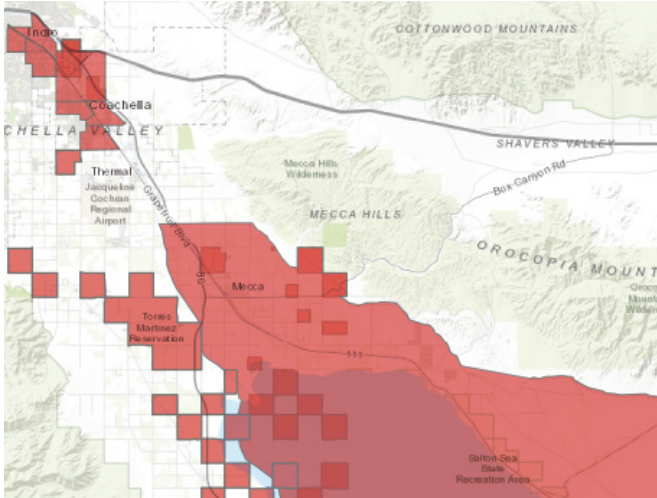


Figure 1.5. Disadvantaged Communities Map in ECV (CES).

of fast tracking planning, infrastructure, and design that prioritize community health, equity, and resilience in mobile home communities.

The region's electrical grid, which is serviced by Imperial Irrigation District (IID), is highly susceptible to storm damage which leads to frequent power outages across the ECV, impacting residents in all types of housing. These situations often result in states of emergency declared by IID (The Desert Sun). Polanco Parks face two problems when this happens: no power and no water. Parks with domestic wells require electricity to pump water - which impacts residents' ability to drink and bathe. Inadequate drainage is also a growing problem, both in and out of Polanco Parks, causing flooding and stagnant water. Unpaved roads in parks are unusable, and insufficient access to emergency services and shelters limits resident's ability to stay safe under these conditions.

These types of problems do not happen in cities like Indian Wells or Palm Springs - nor should they happen anywhere. Yet, communities like the ECV, with a population of primarily people of color and immigrant descent, face continued exposure to pollution and worsening environmental conditions. As a whole, the State of California is experiencing worsening climate conditions, but its vulnerable populations will experience the worst of these effects, causing additional stressors on critical infrastructure that is already vulnerable (California's Fourth Climate Change Assessment). The historical context and existing

infrastructural conditions of Polanco Parks, as well as the intersection of race, class, and informality compounds their vulnerability to extreme weather.

Gaps in Policy and Governance

Vulnerability in the ECV is also compounded by gaps in policy and varying levels of governance. An important marker of the ECV is its classification as "unincorporated" - defined by Riverside County as "a region governed at the county level, rather than a local municipal level, such as a city" (Riverside County Unincorporated Communities Initiative). Residents in unincorporated areas are more exposed to compounded environmental and social vulnerabilities due to a lack of municipal governance, poor representation, and minimal resources, which in turn leads to increased exposure to environmental hazards and limited accountability for health inequities (Gomez-Vidal 2021). This status unifies Thermal, Oasis, Mecca, and North Shore in their governance structure, and their rural and agricultural characteristics. The ECV is thus subject to additional layers of governance and administration from various agencies with their own distinct levels of authority and responsibility. This includes: the Coachella Valley Water District, Transportation and Land Management, Imperial Irrigation District, and Community Advisory Councils, among others. Though there is ongoing collaboration and coordination between such agencies and Riverside County departments, policy, planning, and development efforts face additional challenges that complicate progress. A common example of this is the permitting process for Polanco Parks, which requires the approval of several agencies and County departments to successfully reach County compliance. As I will discuss later, however, if a Polanco Park is unpermitted as a housing project, it is likely not going to be integrated in CVWD's plans for drinking water and sanitation service consolidation. This reflects a broader challenge in unincorporated communities, where issues are siloed by agency jurisdiction: housing falls under Riverside County, water and sanitation under CVWD, and energy under Imperial Irrigation District. As a result, overlapping and intersectional challenges - like infrastructure provision in informal settlements - frequently reach bureaucratic impasses. Committees like the established ECV Disadvantaged Infrastructure Task Force, the ECV Housing Review Committee, and the AB 617 Community Steering

Committee have been making progress towards cross-jurisdictional collaboration and coordination, but this is still one of the fundamental challenges with policy, planning, and development in the ECV.

The distribution of Tribal lands in the ECV can also add steps to the permitting process. As seen in Figures 1.2 and 1.5, tribal lands coexist with Riverside County and private property, forming a complex jurisdictional landscape that complicates development and land use regulation due to the fragmented, checkerboard pattern of land ownership and governance, particularly with the Torres Martinez tribe. Polanco Parks on fee lands may require tribal oversight during construction; while MHPs directly on tribal lands are not subject to County regulations or enforcement, which can be a challenge for residents when park infrastructure is not up to code.

Accessing public funding to address issues in the built environment has been a long-term challenge for the ECV. As unincorporated communities, their lack of direct municipal representation often leads to “political exclusion and diminished access to resources, especially for low-income communities of color” (Gomez-Vidal). Narrow and exclusionary eligibility requirements often limit marginalized and unincorporated communities’ access to state funding programs. California policy has led efforts to address these challenges, including Senate Bill (SB) 244: Disadvantaged Unincorporated Communities (Cal. SB 244, 2011) and SB 351: Equitable Climate Resilience Act (Cal. SB 351, 2019). Leadership Counsel for Justice and accountability (LCJA) co-sponsored SB 351 after the ECV completed their Action Plan for Climate Resilience,

which was funded by the State’s Transformative Climate Communities Program (SGC). However, despite developing a state-funded climate plan, the ECV’s unincorporated communities were ineligible for implementation grants under the same program. SB 351 thus called for eligibility expansion to ensure disadvantaged unincorporated communities could be eligible to receive such funds given their high vulnerability to climate change impacts (CA 2019). Density is often cited as a limiting feature of unincorporated communities, meaning that they do not compete as highly as urban communities applying for the same funds. Here, unincorporated communities are further systematically disadvantaged because of their rural characteristics. Such gaps in policy and governance limit the political voice and ability of ECV residents to adapt to environmental hazards and access resources to do so effectively. These types of structural marginalization and environmental injustice have shaped the lived experience of climate change in the ECV.

Conclusion

In examining Polanco parks, my research aims to uncover how informal housing developments serve as both a response to systemic barriers of oppression and discrimination, and sites of community resilience. By understanding the historical, legal, and environmental dimensions of these communities, I explore how new design and policy interventions can enhance livability in Polanco Parks (Figure 1.6). Despite the challenges they face, ECV residents have historically displayed an immense pride of place, revealing a community that is often rendered invisible (London, et al 2013).

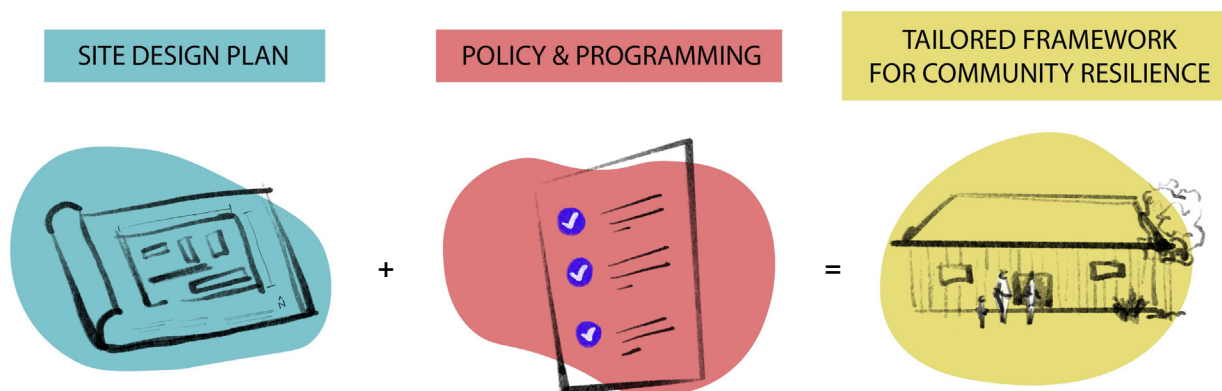


Figure 1.6 Thesis Outcomes Diagram.

1.2 Thesis Structure

This thesis is organized into six chapters, which begin with the historical and policy context of the ECV and Polanco Parks to frame the thesis, followed by a review of relevant literature, an explanation of the research design and methods, a presentation of the findings, and concludes with design and policy interventions.

Following this introduction, Chapter 2 describes the Polanco Park model, detailing its origins, legal framework, and existing conditions. It explores the challenges these communities face, particularly in terms of infrastructure, environmental vulnerabilities, and policy constraints. By situating Polanco Parks within the broader theoretical framework of informal urbanism and climate justice, this chapter establishes the foundation for the research.

Chapter 3 provides a literature review, examining the needs of Polanco Parks, ecological design strategies, and housing justice. This section contextualizes Polanco Parks within existing academic discourse and identifies gaps in research that this study seeks to address. The review informs the development of design interventions by drawing on best practices in sustainable housing and climate resilience.

Chapter 4 outlines the research design and methods used to investigate the conditions of Polanco Parks. It describes data collection methods, including site assessments and interviews, as well as the design and policy development process.

Chapter 5 presents the research findings and discussion, grounded in site visits and community interviews, emphasizing key environmental and infrastructural challenges faced by Polanco Parks. It explores the potential for small-scale, site-specific yet adaptable design interventions to improve climate resilience. Based on these findings, the chapter offers design and policy interventions aimed at enhancing the sustainability and livability of Polanco Park communities, captured through a conceptual site design. The thesis concludes with a summary and reflection of the findings, emphasizing their contributions to the broader discourse on informal housing, environmental justice, and climate adaptation. It also discusses the opportunities of the research for policymakers, designers, and community advocates. Finally, the thesis addresses the limitations of the study and considerations for future research.

By using informal housing and climate justice as a framework, I model how small-scale, place-based design interventions, accompanied with targeted policy structures, could considerably reduce the risk and vulnerability of Polanco Parks to extreme weather impacts. Rather than viewing informal communities solely through a lens of deficit, I highlight their resilience and place-based knowledge as central to shaping equitable planning and design responses.



Figure 1.7 Image of field in Mecca, California

02 a portrait of polanco parks



Figure 2.1 Image of a Polanco Park facing South.

California's ECV lacks affordable housing for farmworkers and other service sector workers. Since the early 1990's, small MHPs have emerged to meet this need. Unfortunately, many of these parks, known today as Polanco Parks (Figure 2.2), have developed informally and are overburdened by aging infrastructure and geographic isolation. Historic disinvestment and ongoing economic and racial segregation exacerbate the challenges faced by Polanco Parks. Within this context and because of additional compounding environmental injustices, Polanco Parks are growing increasingly vulnerable to extreme weather events as climate change worsens.

Polanco Parks inherited their name from former Assemblymember Richard Polanco of California, author of the Farm Labor Housing Protection Act of 1992, Assembly Bill (AB) 3526. The bill encouraged the construction and proper maintenance of agricultural employee housing (Cal. AB 3526, 1992). As part of its key provisions, AB 3526 was able to facilitate new employee housing by granting certain exemptions from standard regulations, including zoning and building requirements. This helped simplify the development process for these housing communities and allow for a rapid increase in the availability of affordable housing within the ECV. However, the legislation outlines certain restrictions and development parameters that maintain control over the size, location, and regulatory exemptions of these communities, ensuring that they remain small-scale housing developments while still adhering to basic health and safety standards. Initially, these communities were meant to include six units or less, eventually growing to a maximum of 14 units (Cal. AB 3526, 1992). This size limitation is one of the defining characteristics of Polanco Parks. In line with this small scale, Polanco Parks are largely serviced by state small water systems, which are designed to serve between 5 and 14 households (California State Water Resources Control Board). Once a community reaches 15 service connections, a larger community water system is required.

The enactment of AB 3526 led to a notable increase in the development of MHPs for farmworker housing, particularly in regions like the ECV. This type of housing became a prevalent option for affordable housing near employment opportunities for immigrant families. They also became a viable alternative to substandard accommodations that were common prior to the passing of the legislation.

Though AB 3526 provided reasonable accommodations for agricultural employers to build employee housing, there are gaps in the literature regarding their transition away from doing this. The community story of Polanco Parks today has played a crucial role in filling in the gaps left by formal documentation. Residents and advocates provide firsthand accounts of how the passage of AB 3526 shaped the development, expansion, and lived experiences within these communities in the years that followed. Mukhija and Mason (2015) present a particular case study in the ECV to explore the evolution and impact of the "Polanco Bill" on affordable housing. By focusing on the collective purchase of a MHP, the authors analyze how this approach secured long-term affordable housing for farmworkers and other low-income residents. This case serves as a potential model for understanding co-ownership and governance structures in MHPs, highlighting the benefits and challenges of collective action in securing affordable housing.

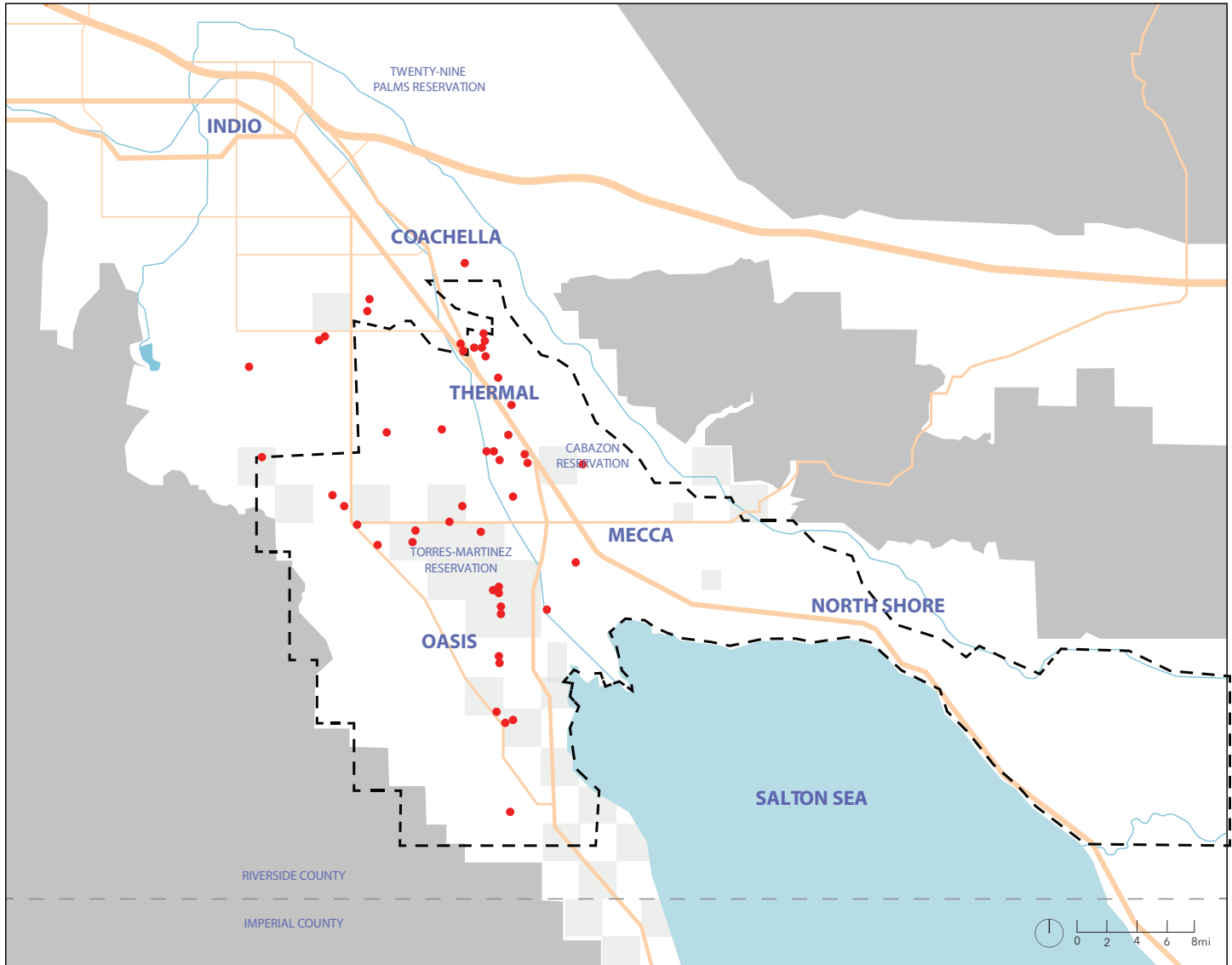


Figure 2.2 Map of Polanco Parks identified in the ECV.

2.1 Polanco Park Characteristics

A motivating factor in focusing my research on Polanco Parks stems from the unique characteristics that differentiate them from the commercialized operational structure of larger MHPs that are more prominent across the United States. In this section, I describe these distinctions and the role they play in contributing to the identity of Polanco Parks.

One of the essential traits of Polanco Parks is their ownership model. According to local residents and advocates, there are three main ownership

models. The least common model is a more formal operationalized structure in which the owner is an established housing developer organization or corporation. A second and more prominent model includes co-ownership amongst family members. In this case, all, or up to, 14 units are owned and occupied by relatives, with some having undergone a formal subdivision process. The third and most common model reflects single-family ownership. These parks were typically formed after single families purchased land to place their mobile home on. Historically, community residents in search of housing saw this as an opportunity to request a space rental from new local landowners. Unit by unit, these properties slowly evolved into full-scale Polanco Parks, which today form part of the over



Figure 2.3 Google Earth aerial image of two neighboring Polanco Parks in Thermal.

100 parks across the ECV (Y. Andrade-Magaña, personal communication, 01/28/25). This model represents a more traditional landlord and tenant structure. But given that the owners have also lived and worked in the region for many years and share similar backgrounds, landlord and tenant dynamics can be more understanding. The cultural and ethnic identities of local Polanco Park owners is a strong factor distinguishing them from commercially operated MHPs, though this does not negate the possibility of disagreements amongst tenants and owners. While it is essential to recognize that each model presents distinct advantages and challenges, I focus on the differences in governance, affordability, and atmosphere that the third model offers which contributes to the informality and community resilience of Polanco Parks.

Tribal lands within the ECV are also a contributing factor to certain development and land use processes. This region is home to four federally recognized tribes: the Twenty-Nine Palms Band of Mission Indians, the Cabazon Band of Mission Indians, the Torres-Martinez Desert Cahuilla Indians Tribe, and the Augustine Band of Cahuilla Indians. As seen in Figure 2.4, the Torres-Martinez Reservation takes on a “checkerboard” pattern (Riverside County Geographic Information Systems) through parts of Thermal, Oasis, Mecca and North Shore, extending beneath the Salton Sea. Many Polanco Park properties are located

within or adjacent to tribal boundaries, and may face distinct jurisdictional oversight. In this context, tribal land is distinguished by three categories: tribal lands which are owned and governed by the tribe, fee land which is privately owned land that previously formed part of the reservation and now falls under County jurisdiction, and allotted land which is tribal land that has been allotted to individual tribal members. Understanding these categories is important specifically for Polanco Parks located on fee land. Parks on fee land are subject to both County regulations and certain tribal regulations, primarily tribal cultural resource monitoring and oversight during construction (Transportation and Land Management Agency). Understanding the role of Indigenous communities is essential to making sense of the fragmented jurisdictional landscape in the ECV, where checkerboarded tribal lands contribute to complex land use patterns, inconsistent zoning, gaps in infrastructure, and development challenges that directly affect Polanco Parks and the broader housing landscape.

2.2 Social Networks, Governance, and Informality

The Polanco Park housing model has served as an incubator for grassroots organizing, self-governance, and collective advocacy for infrastructure, legal

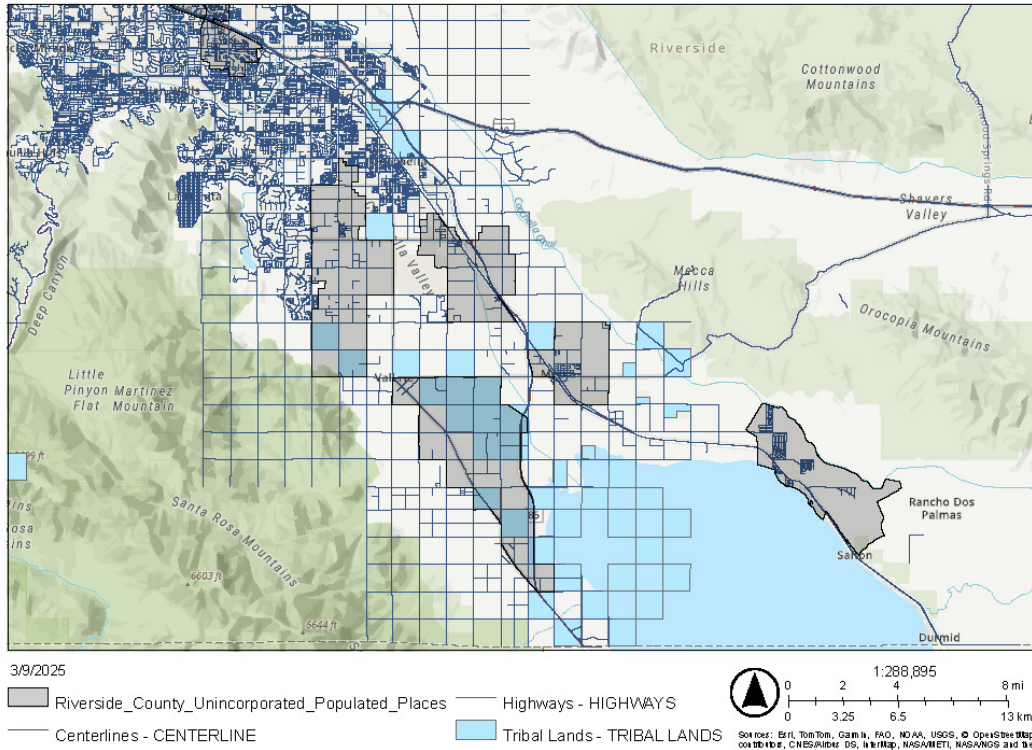


Figure 2.4 Map of Unincorporated and Tribal Lands in the ECV.

recognition, and health and safety for the ECV. A noteworthy entity is La Unión de Polancos (La Unión), which formed with support from Pueblo Unido Community Development Corporation (PUCDC) – a local organization focused on responding to the needs and concerns of underrepresented rural communities (PUCDC). La Unión is a community group of local Polanco Park owners (ranging from 30-50 parks throughout the ECV) who collectively advocate for equitable investments, meaningful representation, and climate justice. Under the guidance of PUCDC, they meet monthly to stay informed on local opportunities and programs that provide funding support for mobile home communities, but they also organize to influence local policy and government programs. As a collective, La Unión has successfully advocated for investments in well-retrofitting, in-unit weatherization and rehabilitation, tree planting, municipal service consolidation, and paving. Polanco Park owners are also able to share insights with each other on best practices, funding opportunities, and rely on La Unión for guidance in undergoing the permitting process.

Because park owners share similar cultural backgrounds, this group has found power in

collective action and organizing around shared interests and needs – an ability often lost in modern urban contexts. Other forms of informal networks and customs also reveal a tradition of mutual support and relationality. Tenants have built strong neighborly connections which contribute to a more connected and joyous environment. Both the spatial and cultural characteristics of Polanco Parks have become pillars that support mutual aid, cultural connection, and social cohesion within and across Polanco Parks.

2.3 Community-Led Adaptation and Resilience

As established in the preceding sections, Polanco Parks exist within a complex landscape of social, economic, and environmental challenges and constraints. Alongside the social networks that informality and a shared culture have allowed to prosper, lies the strength of community-led adaptation and resilience to the distinct impacts of climate vulnerability. Polanco Parks, both permitted and unpermitted, face a growing threat from extreme weather and environmental pollution. But the strength of Polanco Parks lies in the actions of residents to combat these impacts.

Some park owners are investing in gravel for dust suppression and traffic circulation if their park is unpaved. Others have built a playground for the kids in the park, or shade structures for gathering or waiting for the school bus, or even dug trenches to manage stormwater during heavy rain. Park owners frequently have to implement creative solutions for maintenance problems because of the high cost to access professional services. But many are successful in doing so as they also bring experience and knowledge of informal development practices from their hometowns in Mexico (Yaneth Andrade-Magaña 2025). Depending on their financial ability, many residents will retrofit their mobile homes on their own, replacing windows, air conditioners, doors, and adding insulation. Others build laminated porches on one or both sides of their mobile homes to provide shade for cars and outdoor space.

Residents also bring home both their farmworking skills and traditional land cultivation practices from their family and home country - planting flowers, nopales, date palms, citrus trees, and mesquites. In the evenings, residents can be seen watering their lots to suppress dust and make it better for kids to play outside. Each residence space within a park is unique in some way; but they all collectively represent a communal effort to build a comfortable and safe home environment with what they have available. These practices, while tantamount to revealing the community-led resilience tactics that tenants are employing, must also be viewed as part of a larger systematic failure of local governments to provide the necessary and basic infrastructure needed in the ECV to support safe housing and health equity.

These characteristics help paint a portrait of Polanco Parks that present opportunities to leverage community resilience and enhance site-specific design and adaptable policy interventions for improving resilience region-wide. Understanding the complexities and intricacies of ownership, landlord and tenant dynamics, infrastructure conditions, and environmental context of Polanco Parks therefore opens the door for integrated approaches for long-term livability.

2.4 Infrastructure Barriers and Visibility

Polanco Parks' history as informal settlements is dominated by bureaucratic barriers and cultural clashes. On one hand, they continuously face complex permitting and regulatory conflicts. Owners of family-owned parks often struggle with language access and financial barriers to undergo the formal permitting process. The formal and bureaucratic process can often clash with the cultural differences and customs of the community. This is often reflected in local planning processes in which owners and community residents are not meaningfully included in decision-making.

The local water authority, Coachella Valley Water District (CVWD), leads the ECV Disadvantaged Community Infrastructure Task Force (DACITF) which includes representatives from local non-profit organizations and regional governmental agencies and departments. In 2019, the DACITF and CVWD released two regional plans: the Domestic Water Supply Master Plan and the Sanitation Master Plan for the ECV which prioritize consolidation projects to connect small water systems and communities on septic systems to CVWD's services (DACITF). These plans were a major effort in planning for infrastructure expansion to the ECV and Polanco Parks. Expansions would provide critical services to thousands of residents, but also continue providing more opportunities for development of critical services and amenities in the ECV. These plans, however, do not identify or include unpermitted Polanco Parks. According to Riverside County, Polanco Parks are unable to connect to water or sanitation services if they are unpermitted (TLMA).

This is one of the ongoing and most detrimental challenges related to informality. Local advocates and residents argue that allowing unpermitted parks to connect to municipal services would provide significant health benefits, as well as position Polanco Parks to continue with the permitting process (Leadership Counsel, Pueblo Unido). Excluding specific communities from maps and plans effectively erases their spatial significance and existence, meaning that they are not accounted for in any way

for future development or planning efforts. Fabricius (2008) discusses a similar case in Rio de Janeiro in which Favela's are difficult to both formally define and identify spatially on a map. Informality requires a rethinking of mapping of both informal and formal areas - of the city as a whole (2008). Whether it is the Polanco Parks in California or the Favelas in Brazil, informal communities are systematically rendered invisible by urban planning practices.

2.5 Theoretical Framework

Polanco Parks, as an essential yet overlooked form of affordable housing, exist at the intersection of informal housing and climate injustice, making them a critical site for examining the relationship between housing justice and environmental resilience - "the capacity of a community to anticipate, plan for, and mitigate the risks - and seize the opportunities - associated with environmental and social change" (Mazur 2026). The current definition of climate justice is deeply rooted in the history of environmental justice (Schlosberg, Collins 2014). The start of this movement called attention to the "environmental risks [which] threaten everyday life" with a stronger focus on a definition of environment being one where "people live, work,

and play" (2014). Climate justice encapsulates a deeper understanding of the impacts of climate change - recognizing "the disproportionate impacts of climate change on low-income communities and communities of color around the world, the people and places least responsible for the problem" (UC Center for Climate Justice 2025). This movement seeks solutions to address the root causes of climate change while also addressing issues of social, racial, and environmental injustices.

Polanco Parks are very much at the center of climate justice. Their informality, unfortunately, compounds the impacts they experience as climate change worsens. An additional layer addressed is culture and the ways climate change can also have an impact on cultural practices and the capacity of a cultural group to adapt well and be resilient to environmental challenges (2014). One of the unique characteristics of Polanco Parks is a similar culture that unifies the residents, including the majority of Polanco Park owners. Social capital can significantly influence a community's ability to prepare for and recover from a hazard (Kuo 2003; Tidball, et al. 2010; Wolf 2015). Particularly with the Coachella Valley's history of social and racial segregation, a growing wealth gap, and environmental racism, Polanco Parks are already

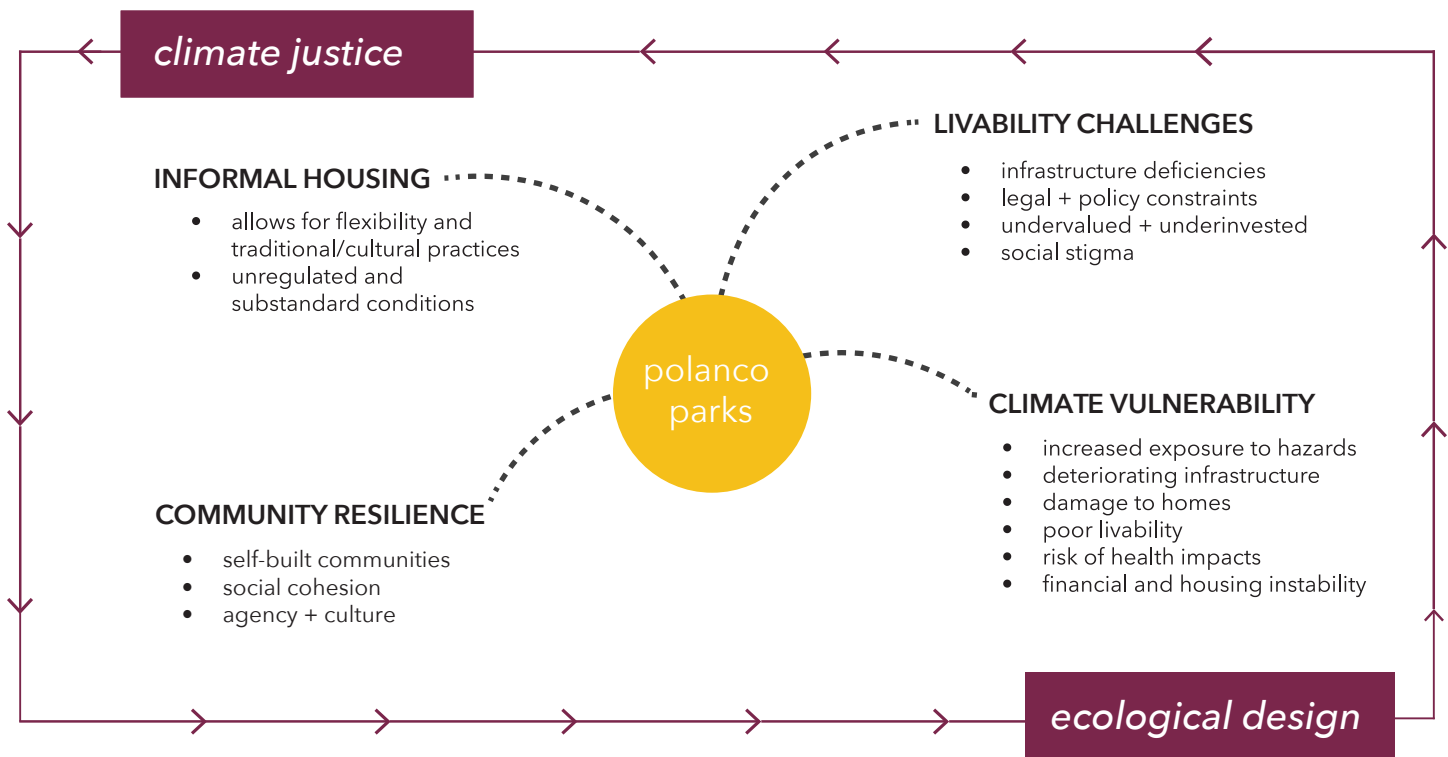


Figure 2.5 Theoretical framework diagram.

highly vulnerable to environmental hazards, and there is a higher risk of being underserved post-hazards. In discussing Caney (2006), Schlosberg and Collins (2014) specifically name climate change as a violation of “basic human rights of life, health, and subsistence.” Social cohesion and cultural unification are therefore not enough to protect a community from such violations, yet it remains integral to the strength and identity of Polanco Parks.

The informal character of the ECV is also no accident. It has been produced out of necessity and community self-determination. Roy describes this similar notion as a “mode of urbanization” rather than a sector often equated with poverty (Roy, 2005). After the transition away from former employee housing, the need for affordable housing spurred a community-led effort of self-help. The root of the problem, as identified by Baross and Dowall in discussing informal housing, is the absence of formal planning and regulation (Roy 2005, in discussing Baross, 1990 and Dowall, 1991). The lack of extensive and accessible affordable housing, critical infrastructure, and services in the ECV has, in fact, paved the way for informal settlements. Though some Polanco Parks and larger scale MHPs in the region may be fully permitted, informality continues even within the parks themselves. Ward (2014) also describes many low-income self-help housing communities as “rational responses to the aspirations of home ownership among low- and very low-income populations.” The same is true for Polanco Park residents who face significant barriers to homeownership. Many residents of informal housing settlements in the United States find that manufactured housing or mobile home communities are the primary affordable housing option available to them, but Ward argues that this opportunity comes at “considerable social costs: the hardship of living in relative isolation, with high transportation costs, poor housing conditions, and neighborhoods lacking adequate infrastructure and access to social services” (2014). Though he specifically discusses the colonia and informal homestead subdivisions commonly found along rural and border communities, the situation is very similar to that of Polanco Parks.

Polanco Parks have historically provided affordable housing for farmworker communities. They

exemplify a form of informal housing that emerges in response to a severe lack of affordable housing alternatives and a desire to maintain cultural connections among immigrant communities. Their informality and lack of regulatory recognition have resulted in persistent infrastructure deficiencies and limited access to essential services. But they persist. Tenants and owners of Polanco Parks have created self-built communities that operate within legal and infrastructural constraints while facing significant governance challenges. And while living within such challenging conditions should not be romanticized or revered, there is something to be said about the community’s fight for housing and well-being. Further, climate and environmental justice also argue for the right to be free of pollution (Schlosberg and Collins, 2014). As such, understanding Polanco Parks through the lenses of informal housing and climate justice reveals how systemic inequities in land use and planning, infrastructural investments, and environmental vulnerability and risk have historically shaped the character and story of Polanco Parks and the region. Through this theoretical framework, my research highlights the need for identifying resilient and community-oriented design interventions that address the structural barriers of informality and the disproportionate and compounding climate risks faced by Polanco Parks.

03 literature review



Figure 3.1 Image of small plantings around a tree in front of household.

"A home we can afford to rent does not mean much if it means living next to an incinerator or toxic waste facility that causes disease and cuts short our life span. A home we can afford to rent does not mean much if we cannot afford to turn on the air conditioning when temperatures climb. A home we can afford to rent is not really affordable if it's going to flood during intense rain or if the roof is going to blow off during a storm. A home we can afford to rent does not mean much if there is no place nearby for our kids to play, for us to purchase fresh food, or for us to feel safe and recognized as equal to everyone else living in the surrounding community." – Dana Bourland (2021).

Polanco Parks are positioned at the intersection of environmental vulnerability, housing precarity, informality, and climate injustice. Their specific housing typology and long history of underinvestment requires specific interventions and design approaches that tackle aging infrastructure and climate change. This section links these elements and examines design interventions to inform potential climate-adaptive solutions to extreme weather impacts and provides lessons from an informal urbanism case study. To establish a clear understanding of extreme weather in the region and the resulting impacts on Polanco Parks, I review a range of literature including narrative-based sources, news articles, community plans, documentaries, and academic and professional reports. These sources also expand on the content of Chapter 1 and 2 to further reveal the socio-economic barriers to climate adaptation. I then turn to literature on ecological design and resilient infrastructure that present varying opportunities for climate adaptation in Polanco Parks. I also draw lessons from similar communities and research on Colonias, re-emphasizing the role of informal community networks and resilience. This chapter establishes a framework for understanding the challenges with housing informality and allows us to begin to visualize and reimagine Polanco Parks as communities of climate resilience.

3.1 Environmental Vulnerability of Mobile Homes

As described in Chapter 2, Polanco Parks are severely challenged by the dearth of adequate infrastructure and investment. As under-resourced and isolated communities, Polanco Parks face the overwhelming burden of confronting disproportionate impacts of extreme weather. Mobile home communities in the ECV are not alone in this regard.

Some researchers might classify mobile homes – and by extension, Polanco Parks – as “gray housing” – a term used to describe dwellings that are older, inefficient, and located in outlying areas that lack easy access to jobs, quality schools, healthcare, and other essential services (Bourland 2021). This category of housing is not only shaped by social and spatial exclusion and isolation, but it is also associated with contributing to carbon emissions, because of its higher levels of energy consumption and environmental degradation from its existing infrastructure conditions. Polanco Parks unfortunately embody many of the characteristics of gray housing, but are also candidates for green housing interventions that prioritize health and well-being, environmental performance, and deeper community integration (2021).

Overall, mobile homes and their residents face heightened environmental vulnerabilities and health risks due to aging infrastructure and limited financial capacity for maintenance and improvements (Varfalameyeva, et al. 2021). Residents also face higher risk of flooding, wind, wildfires, hazards while being excluded from hazard planning and disaster recovery efforts (Smith 2022). One in seven mobile homes are located in high flood risk census tracts, compared to one in 10 of all other housing types (2022). These statistics highlight the disproportionate exposure of mobile home communities to extreme weather events, a trend that will likely worsen with climate change.

Pierce, Gabbe, and Rosser (2022) investigated the vulnerability of manufactured housing to climate-related hazards across California, such as extreme

heat and wildfires. The study highlights specific risks within mobile homes, including inadequate insulation, higher flammability, and geographic exposure to wildfire-prone areas, which are common in rural and lower-income regions. Using data from the U.S. Census Bureau, the California Department of Housing and Community Development, and climate and fire assessment programs, they conducted a quantitative analysis of the relationship between housing types and climate risks and found that manufactured homes – older units and those located in disadvantaged and “high-heat neighborhoods” in particular – face “a nexus of heat exposure, high sensitivity, and low adaptive capacity” (2022). Their findings underscore how socio-economically marginalized mobile home residents are disproportionately vulnerable to climate and environmental threats.

Similarly, Rumbach, Sullivan, and Makarewicz (2020) examine resident-owned communities (ROCs), a form of manufactured housing community (MHC) where residents purchase the land beneath their homes. Focusing on the work of ROC USA, the authors highlight how this model helps address rising housing costs and climate risk by fostering land ownership and co-governance. Despite the potential of ROCs, systemic barriers such as insecure tenure, limited decision-making power, and constrained resources continue to affect many communities. ROC USA’s model includes technical assistance to overcome these limitations and support collective action and inclusive planning. Regardless of ownership structure, however, MHCs still face “elevated vulnerability to hazards because of their heightened exposure and sensitivity” (2020, p. 20). The authors also emphasize the critical role MHPs play in the affordable housing landscape – serving about 2.7 million U.S. households – and note their accessibility compared to more bureaucratic alternatives. Benefits such as private yard space and fewer restrictions attract many residents, yet challenges including physical vulnerability, social stigma, and limited tenants’ rights persist.

Morales-Tilgren and Seaton (2021) expand this discussion by situating MHPs within a broader analysis of climate change and socio-spatial segregation. They argue that climate risks and race and income-based segregation “cut off entire communities from access and opportunity,” particularly in rural California. The authors critique how well-intentioned policies frequently fail to address the

historic neglect of inland valley communities like the ECV, leaving them disproportionately exposed to environmental risks. Their narrative-based approach reinforces the urgency of addressing compounded vulnerabilities in MHPs and provides critical insight into the structural barriers facing these communities in a changing climate.

Identifying Needs from Local Planning Processes

Polanco Parks and residents across the ECV have engaged in community-based planning and design projects for many years. Alongside local government agencies and community-based organizations, the region has produced a Regional Mobility Plan for the Unincorporated Communities of the ECV (2020), the ECV Action Plan for Climate Resilience (Dudek, 2018), the ECV Shade Equity Master Plan (2024) and a Community Emissions Reduction Plan and Air Monitoring Plan (South Coast AQMD). Additional agency-specific plans include the ECV Water Master Supply Plan and the Wastewater Master Supply Plan (CVWD, 2019). Community planning initiatives provide the first step for communities to inform future implementation decisions.

In 2017, the ECV was awarded a planning grant by the State's Transformative Climate Communities program which initiated a year-long planning process to engage communities in identifying climate resilient solutions and economic development opportunities. This effort led to the creation of the ECV Action Plan for Climate Resilience (2018) which provides context to the region's infrastructure and socioeconomic challenges. Residents highlight their concerns with substandard and dilapidated housing conditions across MHPs in general. They discuss stories of prolonged power outages, flooding, the extreme heat felt in mobile homes, unpaved road washouts impacting accessibility, and a host of other issues that impact livability and quality of life. The ECV Action Plan also offers specific insight into the challenges in Polanco Parks:

"Given the entrepreneurial, small-family-business characteristic of most Polanco Parks, these communities struggle to sustain

themselves in a way that sufficiently and safely provides the necessary accommodations for residents. Mobile homes are most often in dilapidated conditions and residents are unable to use their energy efficiently; the mobile homes often leak during heavy rain and are susceptible to air pollution entering the homes. Those who reside in Polanco Parks and mobile homes highlighted the need for financial assistance in meeting Riverside County standards, weatherization and rehabilitation programs" (Dudek, p. 2-7).

In developing this plan, residents identified potential solutions, including community solar projects, mobile home replacements and weatherization, sewer connections, greening, pavement, and transportation improvements (Dudek). These proposed solutions reveal the critical need for investments to tackle infrastructure needs that range in scale. The Plan also acknowledges the necessary regional improvements that residents identified to reduce geographic isolation and improve accessibility: public transit access and connectivity to Polanco Parks, green space and parks, sidewalk and street safety improvements, and increasing access to healthy food (Dudek).

Local water and sewer plans focus on expanding drinking water and wastewater services throughout the ECV (CVWD), prioritizing a list of community and small water systems for consolidation. Figure 3.2 shows which of these are located in Polanco Parks. When these plans were released in 2019, however, certain parks were missing, including Zaragoza MHP which was operating under a Conditional Use Permit at the time. This reveals how unpermitted parks or partially permitted parks may be excluded from planning efforts and future consolidation projects.

The erasure of certain parks in local planning efforts is a severe concern for communities needing access to critical services. One of the justifications for this omission is that Riverside County, which is the regulatory authority for Polanco Parks on fee and County land, is unable to ratify consolidation agreements for parks until they reach fully permitted status. This rationale, however, unjustly penalizes communities who are already at risk of significant health impacts without access to these services.

Other neighborhood-level plans - like the ECV Shade Equity Master Plan, the Thermal and Oasis Mobility

Plan, the Mecca and North Shore Mobility Plan, and the ECV Community Emissions Reduction Plan and Air Monitoring Plan – are strong examples of resident-led planning efforts that address specific infrastructure, environmental, and health challenges. The issue here lies in implementation – local efforts, both at the government and non-profit levels, are pushing for funding investments to implement projects identified in these plans. While some have been successful, implementation takes time and residents are often disillusioned by the lack of progress and change in their communities.

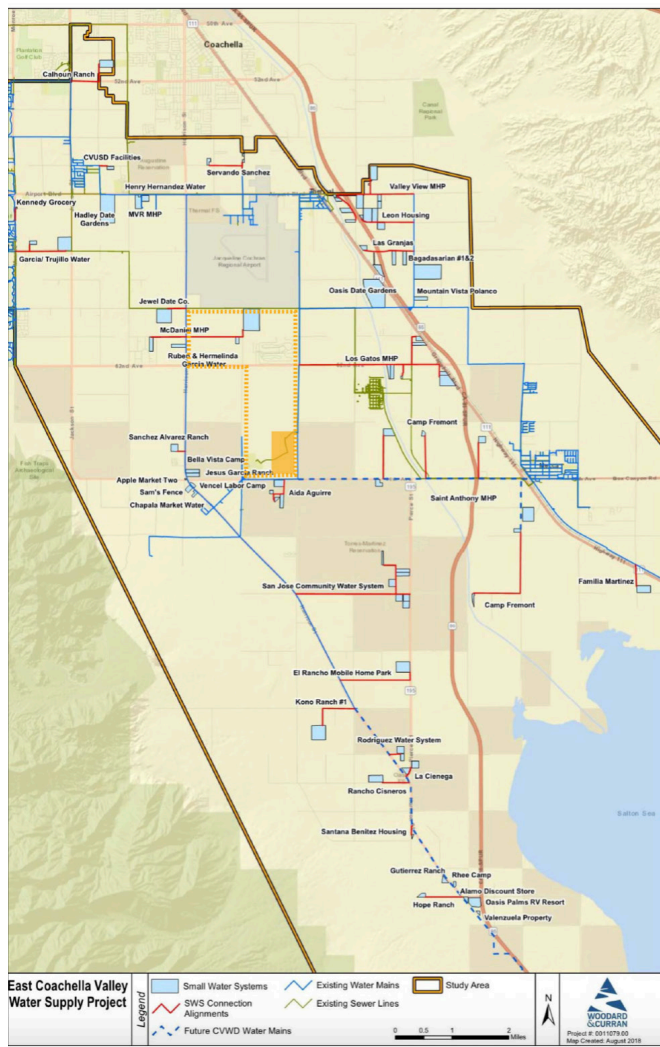


Figure 3.2 CVWD map identifying planned drinking water consolidation projects.

Barriers to Climate Adaptation

Although local planning efforts have been successful in engaging residents region-wide, and advocacy campaigns continue to elevate community voices and experiences across all levels of government, systemic and socio-economic barriers persist – inhibiting Polanco Parks from adapting to extreme weather.

From a historical perspective, the ECV region has experienced persistent underfunding of basic infrastructure and municipal services, including drinking water, sewer, and electricity. As rural and unincorporated communities, Thermal, Oasis, Mecca, and North Shore are ill-prepared and less competitive for capital investments. At the individual level, residents may be unable to make home improvements due to high costs (Dudek). Regional transportation challenges also further isolate communities from important social and economic services.

Most notably, the seasonal and low-wage agriculture industry limits the financial opportunity of local residents and their ability to prioritize home improvements. Consequently, economic precarity becomes a significant contributing factor to the existence of Polanco Parks and reveals the deep-rooted issue of poverty (London, Greenfield, Zagofsky 2013).

Residents of mobile homes and MHCs have a limited capacity to adapt to climate hazards and extreme weather events (Gabbe, Pierce 2020). Households with lower incomes face significant challenges from financial insecurity. Other vulnerable populations include elderly people; immigrants and in particular, undocumented residents; people of color; and people with disabilities (Rumback et al. 2025). Mobile and manufactured housing are often located on hazard-prone land, which is also likely located on the fringes of cities and away from critical infrastructure (Pierce et al. 2018; Sullivan et al. 2021; Sutter and Simmons 2010; Flanagan et al. 2011; Shen 2005). Evidently, mobile homes and MHCs are sidelined by climate policy and program interventions, which dramatically limits their ability to access the adequate resources and protections and thus their ability to adapt to the impacts of climate change (Urban Institute, 2025).



Figure 3.3 Snapshot of *Estamos Aquí*, featuring Yesenia, Conchita, and her daughter, Lesly. Conchita says “I try to help [my community] in whichever way I can.”

Self-Organized Resilience: The Role of Community Networks

With a deep-rooted history in grassroots organizing, mutual aid, and cultural entrepreneurship that fosters social capital, the ECV has built resilient community networks that continue to serve as a foundation for resisting systemic neglect. Local advocacy groups and residents document this ongoing struggle through documentaries and advocacy films that amplify the voices and efforts of community members. These visual narratives offer powerful, firsthand accounts of life in the ECV, shedding light on resident’s experiences and perspectives as they confront climate change and extreme weather events.

Estamos Aquí is a locally produced documentary that captures the story of resilience and community power in the ECV (2018). In showcasing residents and advocates of all ages, the film reveals the impacts of environmental injustice and the overburdened struggles of farmworker families. The film also highlights the Purhépecha community and the ways Indigenous customs have contributed to the local environmental justice movement. The film affirms that the ECV exists and is here to stay. It showcases the strength and knowledge of this community and their right to inform climate adaptive solutions and pathways that align with the cultural identity of existing

residents. Nereida Montes, a North Shore resident and local educator is featured in the film saying: “[t]here’s people who have a lot of wealth of knowledge and just because, you know, they’re migrants, or working in the fields, or working as housekeepers, or working in grocery stores doesn’t mean they don’t have creative solutions to environmental problems that impact their everyday life” (*Estamos Aquí*).

Nereida’s testimony highlights not only the desire among residents to lead solutions in their own communities, but also the need for planning and policy efforts to be more deeply rooted in local knowledge and cultural practices. Such grounding supports social cohesion and ensures that adaptation strategies are culturally-relevant, inclusive, and community-driven. The community networks in the ECV empower residents to push for public policy recognition and resource allocation through grassroots advocacy, cultural expression, and coalition building. They play a critical role in fostering trust, circulating local knowledge, cultivating leadership from within, and providing mutual aid and emergency response after extreme weather events. As such, they offer a powerful insight into how climate adaptation must be community led and culturally-informed, grounded in the realities of those most affected by systemic neglect and environmental risk. Fostering existing social networks is a key step towards climate justice.

3.2 Ecological Design Strategies for Climate Resilience

Ecological design integrates human needs with natural systems while minimizing impacts to the environment and enhancing ecosystem resilience (Van der Ryn and Cowan 1996; Steiner 2008). It is an interdisciplinary approach to shaping the built environment in sustainable, regenerative, and resilient ways. Ecological design strategies can be useful in enhancing climate adaptation and resilience in Polanco Parks, and these strategies can also bring about multiple benefits that contribute to livability (Wolf, 2015). This section explores the ecological design and low-impact development strategies that Polanco Parks can consider when looking for small-scale, cost-conscious, and multi-layered interventions that meet their needs.

Thermal Comfort and Cooling Strategies

Improving thermal comfort is crucial for protecting the health and safety of Polanco Park residents. Local advocacy and planning efforts are already underway to mitigate heat exposure across the region (KDI 2020, 2024; Dudek 2018). Mitigating

extreme heat can take different forms. Shade structures in particular, can have a significant impact in areas that have limited shade throughout the day, especially to improve accessibility and use of services like public bus stops (KneeDeep Times 2023). Tactical urbanism – a diverse movement and approach to “neighborhood building using short-term, low-cost, and scalable interventions to catalyze long term change” (Street Plans Collaborative 2016) – can be a helpful starting point for communities like Polanco Parks who would like to build upon their own adaptive measures. Increasing tree canopy is also an important strategy and can provide other benefits like enhancing biodiversity and increasing access to nature. Planting trees near public spaces or homes can also provide passive cooling benefits to mobile home units and help reduce energy consumption (Varfalameyeva, et al. 2021).

Weatherizing mobile homes is also an important intervention in both cooling homes and providing energy efficiency, which can help households save on high energy costs (Scott, Bartges 2004). Aging mobile homes are especially vulnerable to extreme heat as they lack proper insulation and air sealing. Weatherization can include properly maintaining heating systems, repairing and sealing ducts, insulating the roof cavity and floor, and air sealing the entire mobile home shell (2004). These

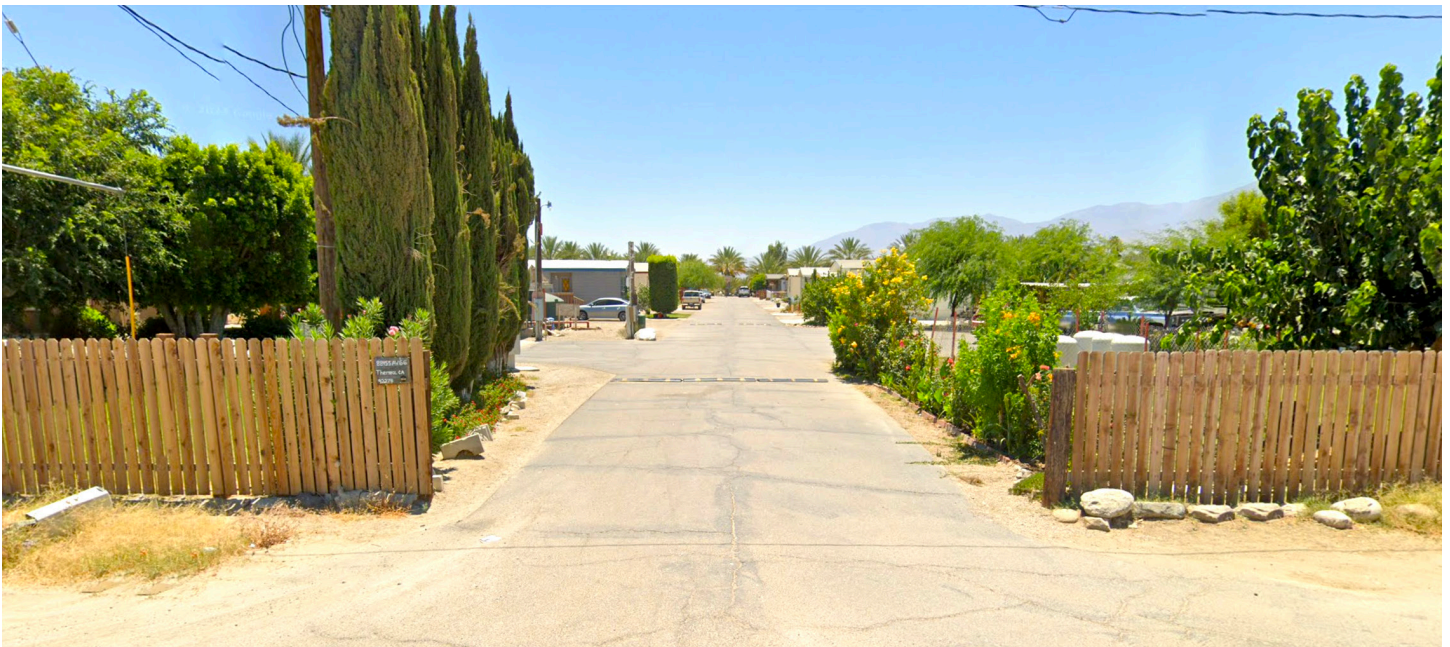


Figure 3.4 Image of a paved Polanco Park facing South (Rancho García).

improvements allow mobile homes to be both cooler during extreme heat, and warmer during extreme cold, while also providing the added benefits of energy efficiency and conservation.

Polanco Parks can also leverage the desert conditions of the ECV and explore off-grid or shared solar energy systems. By combining weatherization of mobile homes and community solar, Polanco Parks could tackle multiple environmental and economic impacts they currently experience, including, extreme temperatures, pollution, power outages and loss of access to water sources, and affordability.

Local advocacy efforts and extreme weather events have demonstrated that paving is a significant need in Polanco Parks (AB 617 Community Nomination 2019). Many parks have received public funding to pave their main access roads with asphalt which has reduced dust exposure and flooding impacts (The Desert Sun 2014). Paving interventions, however, can consider material alternatives to provide added benefits like reducing the heat-island effect - “a site-level localized effect or the built-up areas that are hotter than immediately surrounding areas, creating hot spots” (Li 2015) - and improve water filtration during heavy-rain events. Cooling technologies and permeable pavement alternatives can be a significant intervention for Polanco Parks - addressing their immediate needs to reduce dust emissivity from unpaved roads, but also begin building their resilience to extreme weather in multiple ways. Low-income neighborhoods in Los Angeles (Figure 3.5) and Phoenix (Figure 3.6) have tested these strategies and demonstrate that cool pavement can “reduce ambient air temperatures by as much as 3.5 degrees fahrenheit during extreme events” (Planetizen 2024).

Water Management and Drought Resilience

The lack of drainage infrastructure in Polanco Parks makes it difficult to manage stormwater during heavy rain, leading to stagnant water. Low impact development strategies like permeable pavement, infiltration basins, rain gardens, and bioswales are potential alternatives to urban drainage systems. Permeable pavement can be an important



Figure 3.5 Image of cool pavement in a Los Angeles community.



Figure 3.6 Image of cool pavement in a Phoenix community.

consideration and alternative to asphalt in Polanco Parks. Permeability allows water to pass to the soil through the materials pores or gaps (Santamouris 2012). Permeable pavement can also provide cooling benefits, mitigating heat islands; and eliminate contaminants and pollutants through the filtration process; and is particularly appropriate for low-traffic areas (EPA Types of Green Infrastructure). The Green Alleys project in South Los Angeles is a good example of how permeable pavement can help alleviate flooding, provide opportunities for added greening, reduce flooding damage and costs, and help capture stormwater that filters into groundwater basins (LAist 2023). Additional natural drainage interventions can mitigate flooding and stagnant water. Grading or human-made surface drainage swales are a good alternative to proper storm drains which are expensive to build and maintain (Corbett and Corbett

2000). This alternative would allow the ground to absorb and retain water, helping to replenish the aquifer and source Polanco Park water systems. The combined benefits of drainage, heat mitigation, dust suppression, and eased circulation make pavement alternatives a strong consideration for improving environmental impacts in Polanco Parks.

Greywater reuse presents a suitable opportunity for irrigation and conservation. Using California's definition, greywater means "untreated wastewater that has not been contaminated by any toilet discharge or infection, contaminated or unhealthy bodily wastes. Examples include wastewater from bathtubs, showers, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers" (California Environmental Protection Agency). Implementing greywater reuse and filtration systems offers residents opportunities to conserve water and increase green landscaping, especially in small-scales (Allen, 2017). Other irrigation technologies like drip irrigation can help reduce water usage and costs (Corbett and Corbett).

Biodiversity and Green Infrastructure

The majority of Polanco Parks lack spaces that support biodiversity and access to the outdoors. Landscaping can be an impactful element for sustainable design, especially for climate control and productivity (Corbett and Corbett). Plants can be an invaluable resource in mitigating exposure to and controlling weather impacts (Corbett and Corbett). Large scale windbreaks or buffers can protect households from wind and sun, while smaller plantings can be more useful in controlling wind direction and suppressing dust. Strategic placement of plants can also shield buildings and outdoor spaces from the sun and offset higher temperatures. Plantings can also be used as safety measures by forming edges and barriers around areas that need extra protection, like playscapes or pedestrian paths. It is important to ensure that landscaping for Polanco Parks is drought-tolerant and supports the surrounding native ecological systems already in place (KDI 2025). In addition, landscaping can double as food production. Food production at the individual, group, or neighborhood level can be an ecologically-sound

endeavor that provides multiple benefits to residents - like increased access to healthy foods, climate-appropriate landscaping, energy savings, and social cohesion (Corbett and Corbett). Integrating edible gardens and agroecological practices in Polanco Parks can be a successful intervention, leveraging the skills and knowledge of a farmworking community. Even at a small scale, community gardening can address food security and provide opportunities to build more connections to the environment and ecological sustainability practices. Green infrastructure interventions - crucial for advancing sustainability and resilience - are also great measures for supporting the social fabric of communities by facilitating programming and collective action. In looking at sustainable development and biodiversity, design strategies must be able to support all living things. Recognizing the interrelationship between people and the environment is essential to creating resilient, inclusive, and mutually flourishing spaces. Having access to nearby nature, even at a small-scale, "directly contributes to quality human habitat [Kuo 2010] and is profoundly important for health of mind and body" (Wolf 2015).

Identifying scalable and adaptable strategies for improving sustainability, climate resilience, and biodiversity in Polanco Parks is an important step for long-term resilience and climate justice. Considering the existing challenges that parks face in terms of infrastructure and livability, interventions like cool and permeable pavement, greywater reuse, small-scale stormwater management, native plantings, tactical urbanism for shade and play, and mobile home weatherization are important solutions to consider in developing a long-term plan for Polanco



Figure 3.7 Image of small garden in a Polanco Park.

Parks. It is also critical to identify ways in which these solutions can coalesce with residents' ideas and how they can be culturally responsive, appropriate, innovative, and affordable.

3.3 Lessons from Colonias: Understanding the Shared Vulnerabilities and Policy Gaps in Informal Settlements



Figure 3.8 Image from news article discussing Colonias (U.S. News and World Report 2018).

Polanco Parks are not alone in their pursuit of climate and housing justice. Colonias, a similar type of housing settlement prevalent in South Texas, share similar characteristics to Polanco Parks – both in their spatial form and demographic composition. Primarily found in the peri-urban areas of border towns, Colonias also lack adequate housing and basic services (Rivera, 2014). Scholars have studied Colonia settlements to better understand the impacts they face from climate change and extreme weather, and to capture certain experiences and unintended consequences that existing research and datasets fail to represent regarding Colonias (Rivera, 2014; Rivera et al., 2022; Rivera, 2023; Ward, 2014). As a result, Colonias face structural shortcomings that perpetuate underinvestment and alarmingly poor representation which manifest in the inadequacy of the built environment (Rivera 2014). Rivera specifically examines how flooding from even light rainstorms causes severe damage to Colonias – an issue exacerbated by a lack of stormwater management systems

and the area's severe flood risk (2014). Further research also assesses the implications of where Colonias are typically located – the peri-urban or unincorporated rural areas which similarly applies to the ECV. This condition plays a significant role in local planning, zoning, public policy and decision-making. Unincorporated communities often face additional challenges related to their rural characteristics, particularly when it comes to expanding infrastructure due to high costs, lack of political will, or the overlapping jurisdictions that make it difficult to hold any single agency accountable (2023). This shared dynamic amongst Polanco Parks and Colonias reveals how impactful local decision-making and government accountability are in ensuring that informal and low-income housing communities are well-equipped for the impacts of extreme weather.

This analysis further emphasizes how rural communities are more susceptible to “procedural vulnerabilities,” which Rivera argues “generate inequitable outcomes” related to hazard mitigation and adaptation in such areas (2023). The stigma surrounding MHPs also exacerbates these risks by influencing preparedness and recovery efforts. Following disasters, recovery policies often disadvantage MHP residents, restricting options for rebuilding and perpetuating cycles of vulnerability. Following Tropical Storm Hilary in 2023, the ECV was drastically impacted by heavy rain and flash flooding; mobile homes and MHPs across the region suffered significant damage due to already poor drainage infrastructure and structural integrity. When trying to access recovery resources, residents faced bureaucratic and eligibility barriers for lack of proper permits, immigration status, or other administrative requirements that excluded them from FEMA and county-level response funds (CalMatters 2023). This dual marginalization which stems from the informal status of parks and the administrative exclusion of their residents, reveals how spatial informality and systemic neglect compound vulnerability in disaster recovery processes. Despite their potential to serve as vital support systems for those most at risk, disaster resilience strategies and policies leave many marginalized communities behind. Disadvantaged unincorporated communities are thus less prepared for future environmental and climate-related hazards which disproportionately impacts low-income communities

and communities of color (Rivera et al., 2022). The case of Colonias presents patterns of infrastructural neglect and environmental vulnerability that closely parallel the conditions in Polanco Parks, where informal development, regulatory exclusion, and environmental hazards intersect to shape similarly precarious living conditions. These parallels underscore the roots of climate injustice and call for an urgent reevaluation of how disaster resilience frameworks engage with informal and unincorporated communities. Without inclusive planning and equitable resource allocation, communities like Polanco Parks and Colonias will remain disproportionately burdened by environmental risks, perpetuating cycles of exclusion in an era of escalating climate threats.

3.4 Conclusion

Polanco Parks face unique climate related challenges that require significant interventions for sustainable adaptation. The design strategies presented in the review offer meaningful insight into what those interventions can be. Looking at small-scale interventions in particular, like greywater-irrigation, pavement alternatives, measures for energy efficiency, and other multi-benefit infrastructure and design strategies can inform how Polanco Parks phase into enhancing their climate and social resilience. This research also underscores the need for policymakers, planners, and designers to recognize the specific vulnerabilities of Polanco Parks and to develop inclusive strategies for disaster preparedness and recovery within broader systemic frameworks.



Figure 3.9 Image of a Texas *Colonia* with deteriorating road and stagnant water (Methodist Healthcare Ministries 2024)

04 research design + methods



Figure 4.1 Image of a design exercise for Zaragoza MHP.

This thesis employs qualitative research methods to explore the intersecting dynamics of housing precarity, environmental risk, and underinvestment in Polanco Parks for the purpose of identifying potential solutions to address climate vulnerability. Qualitative methods are well-suited for this study because they enable a nuanced understanding of the lived experiences of residents and the socio-spatial conditions shaping informal settlements in the ECV.

As described in the Prologue, my positionality and prior work experience in community-based and environmental justice settings shaped the lens through which I approached this research. My experiences and prior knowledge informed the development of a theoretical framework grounded in the realities of rural and informal settlements—spatial contexts that are overshadowed by dominant urban-focused research. This research aims to extend that discourse by positioning Polanco Parks as an emergent model of climate resilient and self-organized communities in peri-urban and rural contexts.

The methods integrate multiple data collection and analysis techniques to triangulate Polanco Parks' infrastructure needs and climate adaptation strategies. This chapter details each phase of the research process, including data collection methods, analytical approaches, and limitations, ensuring a systematic exploration of the research question. By employing these methods, this study aims to produce a practical and evidence-based resource that can inform adaptive design strategies for Polanco Parks, contributing to broader discussions on the resilience of informal housing communities in climate-vulnerable regions.

4.1 Data Collection Methods

Literature Review

I conducted a literature review seeking to accomplish three goals:

1. To understand the historical, legal, and social context of Polanco Parks and the ECV.
2. To identify design interventions that address climate-related vulnerabilities identified through goal 1.
3. To review prior research on informal urbanism, climate justice theory, and related case studies.

I identified a range of sources, including academic articles, planning documents, news articles, and case studies. I also compiled contextual information and community-identified recommendations from advocacy group reports and news articles. Additional sources include film and media sources that document resident experiences.

I used the University of Washington's online library database to find primary and secondary sources using keyword searches like "informal housing," "polanco parks," "climate in Eastern Coachella Valley," "climate resilience in mobile home parks," and "farmworker housing and environmental justice," among other related terms. I accessed policy, planning, and advocacy reports that I was already familiar with from my experience working in the ECV, including resources from community-based organizations, agencies, and local government departments. For legal context, I requested a copy of AB 3526 to be mailed to my home address from the California State Archives. I was unable to access this legislation online since the State does not keep an online record of legislation passed prior to 1999.

Supplementary Sources

Additional data sources, such as case studies, community engagement reports and plans, as well as news archives and community narratives of diverse media, help further establish patterns of vulnerability and intervention opportunities.

Community Interviews

To supplement knowledge acquired from existing research (e.g. Rumbach et al.) and that of community data collected by community-based organizations and agencies, I conducted seven semi-structured interviews with members of the community, including Polanco Park tenants (appendix) and owners, as well as local advocates working directly with park owners and residents on several social and environmental justice issues. I utilized a purposive sampling strategy to guide participant selection to ensure diverse perspectives - across age, length of residence, and roles in the community. I relied on existing relationships to request interviews of people I knew and recommendations from interviewees as well. Tenants provided important perspectives, speaking to the unique challenges that come with having little control over land use and infrastructural issues. Owners, particularly those collaborating with advocacy organizations including La Unión, also offered insight into their day-to-day operations, management, collaboration with government agencies, and financial decisions.

In my former role with LCJA, I developed significant familiarity with the local entities most active in supporting or working with Polanco Parks and MHCs. As such, I interviewed two organizational leaders

who could speak to the historic, cultural, and technical intricacies associated with this topic. Both LCJA and PUCDC offer unique expertise informed by extensive community organizing, policy advocacy, and economic development campaigns in which they collaborate directly with community residents across the ECV to address significant social and environmental injustices.

I conducted the interviews within two periods: January and March. Four interviews (see Table 1 for list of interviews) were held over Zoom for convenience, which allowed me to begin the interviewing early on in my data collection process. The final two interviews were conducted in person and on-site during a second round of site visits in late March 2025. All interviewees were given the option to remain anonymous if desired. Below are the steps I took to coordinate interviews:

- Step 1:** Contact participants via email, text, or phone with a project overview and interview request.
- Step 2:** Send calendar invite with confirmed time and Zoom link upon receiving availability.
- Step 3:** Share reminder and interview template with project description and guiding questions two days before the interview.
- Step 4:** Conduct and record interviews with participant consent using Zoom or the iPhone Notes app.

Table 1. List of Interviews

Name	Affiliation	Medium	Language
Yaneth Andrade Magaña	Local Advocate	Zoom	English
Isabel Ramos-Tenorio	Polanco Park Tenant	Zoom	Bilingual
Mariela Loera	Local Advocate	Zoom	English
Olivia Rodriguez	Polanco Park Tenant	Zoom	English
Azucena Beltrán	Mobile Home Park Tenant	Zoom	Bilingual
Hermelinda Tejas	Polanco Park Owner	In-Person	Spanish
Ramón Zaragoza	Polanco Park Owner	In-Person	Spanish

Data Analysis and Thematic Coding

All interviews and field notes (Appendix 1) were transcribed (Appendix 3) and analyzed using thematic coding. Below is a list of predetermined codes used during the analysis process:

1. Mobile Home Quality and Needs
2. Community Adaptation and Resilience Practices
3. Government Action
4. ECV Regional Context
5. Legal and Regulatory Processes
6. Polanco Park Background and Historical Context
7. Intervention Ideas and Priorities
8. Resident Agency and Advocacy
9. Basic Infrastructure Issues
10. Extreme Weather Impacts and Vulnerability

I used thematic coding because it is a useful method in organizing large amounts of qualitative data, including field notes and community interviews; revealing patterns and themes across sources and types of data; linking data back to my research question through theme development; and connecting lived experiences to design solutions grounded in community testimonies. Below I outline the step-by-step process for analyzing the community interviews through thematic coding:

- Step 1:** Conduct and record interviews using Zoom and Apple Notes for transcription.
- Step 2:** Download, review, and format transcripts to ensure accuracy based on Zoom recording (or Apple Notes recording if held in person).
- Step 3:** Upload formatted transcripts to Dedoose (qualitative data analysis software).
- Step 4:** Develop codes for thematic analysis.
- Step 5:** Systematically analyze each interview transcript using Dedoose, applying predefined codes through a structured color-coded highlighting method, refining them as needed throughout the coding process.
- Step 6:** Develop overarching themes that capture key insights from the interviews.
- Step 7:** Refine themes as needed.
- Step 8:** Synthesize the key insights into a cohesive analysis that integrates direct quotes and examples to support thematic interpretations.

I developed a first iteration of codes after completing three interviews with advocates and tenants, capturing common narratives and experiences. Once I completed the remaining interviews, I further refined, added, and finalized my set of codes. I used Dedoose, a qualitative data analysis tool, to upload the interview transcripts and assign the codes, which I did while reviewing each transcript. During this process, I refined the codes as needed. Thematic coding allowed me to identify commonalities among the interviews and pinpoint the areas of concern that residents have; this provided the basis for the design component of my thesis. After completing the interview coding, I compiled quotes for each code into a table and used this to develop the themes presented in Chapter 5 (see Appendix 4).

Site Visits, Field Observations, and Project Site Selection

Site visits and field observations serve as the primary method to assess existing conditions, allowing for direct documentation of environmental stressors, infrastructural deficiencies, and areas of potential improvement. I used this method to spend time in Polanco Parks, observing the built environment, social interactions, and shared space use. This method helped document instances of daily life and environmental conditions that may not have surfaced through interviews alone. In tandem with site visits, I used photography, field notes, and sketches to record physical features of the parks, including roads, mobile home structures, drainage systems, and natural features. These methods are used to supplement narrative data and support spatial analysis.

Polanco Parks are found across the ECV and given their range in permit status, a comprehensive public inventory of Polanco Parks is not available. Local knowledge about the exact number of Parks regardless of permitted status varies, with over 100 parks being the average answer. I acquired multiple sources of local data and developed a map (Figure 2.2). Given the extensive number of parks and the time constraints I faced as a student based in Washington, I conducted five visits to the parks identified in Figure 4.2 over in December 2024; and conducted three more visits to the selected project site in March 2025.

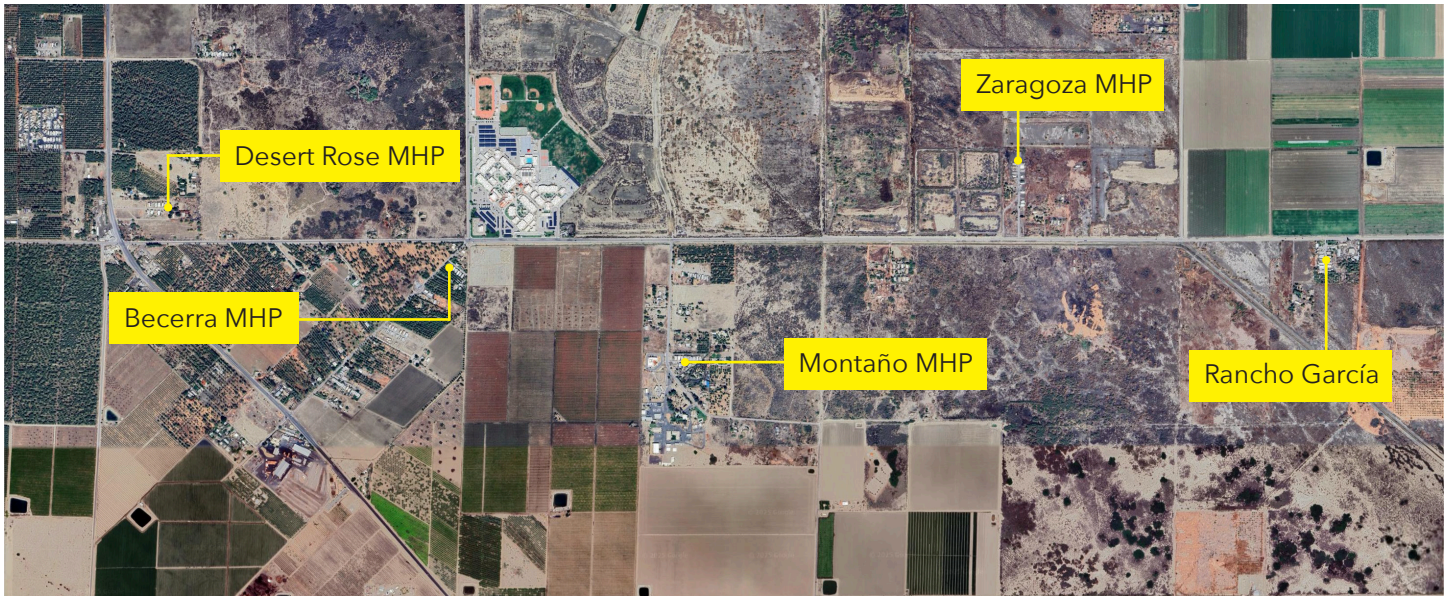


Figure 4.2 Map of the Polanco Parks selected for site visits.



I selected the five parks for field study, based on my previous knowledge and experience visiting these areas. This allowed me to select parks that I was already familiar with and whose owners I knew personally. These parks are located along the same area which allowed me to conduct multiple visits in one day. In addition to my familiarity with these parks, they also present varying features and scales which contributed to the selection of the project site.

To select a project site for further analysis and exploration of design interventions, I considered the following questions:

- Does the site's scale offer more opportunities for design interventions?
- How do conditions vary across sites?
- Do the existing conditions allow for an exploration into diverse types of climate-based design interventions?
- What type of access to the site and community do I need in order to develop a site design?

These questions allowed me to select a project site with the fewest government funded interventions that would enable me to consider low-cost, low-barrier design interventions that could be undertaken by the community and inform future phases of design. Desert Rose MHP and Zaragoza MHP were great options with similar conditions, but I opted for Zaragoza MHP due to my personal connection and deep familiarity with the site. This familiarity ensured greater access and insight, providing valuable contextual knowledge to build upon - an important advantage given the limited timeframe for completing this project.

Once the site was selected, I mapped the area and documented its existing conditions. During site visits, I took inventory of the infrastructure, materiality, spatial use, and patterns of resident activity and behavior. Afterward, I reviewed my notes and conducted a site analysis to draw connections between these conditions and my research question. This process directly informed the methods behind the design development phase discussed later in this chapter. By drawing on observed site conditions, resident narratives, and prior research, I was able to identify key areas where targeted design interventions are needed to address the impacts of extreme weather.

4.2 Design Development Process

In researching small-scale design interventions to reduce climate vulnerability in Polanco Parks, this thesis also seeks to propose a conceptual design using a specific park in order to visually represent how the identified interventions can be applied to Polanco Parks. The methods behind the design and policy development process included: developing design criteria, design iteration, community consultation, mapping and analysis, and synthesis.

Design Principles and Criteria Development

To bridge research findings with spatial interventions, I developed a set of design principles grounded in the results from thematic coding and site analysis. This method allowed for a direct translation of identified challenges into actionable design concepts and priorities. I utilized the themes from community interviews and established criteria focused on improving the problems identified in the research related to place, access, well-being, and resilience, which are sub-themes informed by my theoretical framework. For example, the identified issue of “exposure to extreme heat” informed the need for increased shade structures and tree canopy throughout the site. Issues surrounding fragmented infrastructure or underutilized spaces led to prioritizing multi-use communal areas that support biodiversity, daily activity, and social cohesion. These principles served in evaluating and generating site-appropriate interventions that respond to the environmental risks and social dynamics of Polanco Parks. These interventions, informed by thematic insights directly tied to spatial conditions, are also conceptualized to be adaptable across Polanco Parks.

Iterative Design Development

The design process followed an iterative and research-informed approach, beginning with conceptual drawings, site diagrams, and exploratory sketches that responded to the site-specific challenges and interventions (see completed Table 2, Chapter 5). These initial diagrams served as working tools and evolved throughout the design process as I refined my understanding of spatial conditions and community needs. Iteration allowed for greater specificity in addressing key issues from the site analysis and ensured that spatial interventions were responsive to both practical constraints and lived realities. During a visit to the project site, I was also able to participate in a design charrette with the park owner to identify site-specific design ideas that considered the location of critical infrastructure and other constraints. This opportunity allowed me to ask additional questions and learn more about the project site, but also test ideas that came up during community interviews and work through certain scenarios with the owner.

To strengthen the design concepts, I participated in peer reviews and informal critiques, where I received feedback on design ideas, graphic representation, and conceptual clarity. These sessions were useful in thinking through design challenges, such as how to prioritize interventions through a phased-approach, and incorporate landscape architecture opportunities.

This iterative cycle of sketching, reflecting, and revising ensured that the design process remained flexible, grounded in the research findings, and attentive to the local context. As a result, the set of proposed interventions are place-based, scalable, and adaptable to other Polanco Parks with similar conditions.

4.3 Policy Development

Though this thesis is focused on proposing design interventions, policy interventions are equally essential

for achieving lasting and transformative change in both the built environment and social well-being of Polanco Park residents. Design alone cannot address the structural barriers - such as disinvestment, regulatory exclusion, and environmental injustice - that contribute to heightened climate vulnerability in these communities.

Thus to supplement the design outcomes, I synthesized key findings from the literature review, community interviews, and site-based design explorations into a set of policy proposals. These proposals aim to address systemic challenges. However, given the urgent need to strengthen resilience in Polanco Parks, the proposed policy and advocacy pathways are contingent on sustained funding support from local, state, and federal governments. Despite this reality, proposed design and policy interventions provide a more holistic framework for improving resilience, equity, and livability in Polanco Parks.

4.4 Conclusion

These methods were designed to center the lived experiences, spatial realities, and systemic conditions that shape climate vulnerability in Polanco Parks. By drawing from multiple sources, the research provides a layered understanding that connects infrastructure gaps to resident priorities and policy limitations. Site selection and contextual knowledge gained from prior engagement enabled a grounded and relational understanding of conditions within the selected Polanco Park. These methods laid the foundation for developing targeted design principles, policy and advocacy pathways that respond to the identified climate and infrastructural challenges. Although time constraints limited the amount of interviews and formal engagement activities I could participate in, the research methods allowed me to leverage existing relationships and access diverse data sources to mitigate these gaps.

05 research findings + discussion



Figure 5.1 Image of resident admiring flowers on site.

Local organizing and advocacy efforts have raised awareness of environmental justice issues in the ECV for decades. These efforts continue to raise awareness about the infrastructural needs in Polanco Parks. In fact, community-led campaigns have successfully advocated for statewide funding and policy change to address issues like air quality, drinking water and sewer expansion, and expanded access to state funding for unincorporated communities. Despite such efforts, however, the history and present conditions of Polanco Parks are not thoroughly researched or documented, particularly at the academic level. A critical goal of my research is to connect with local tenants, owners, and advocates to capture experiences and perspectives to contextualize Polanco Parks within the broader history of climate justice advocacy in the ECV.

This chapter presents findings from site visits and observations, a site inventory and analysis of one Polanco Park, and community interviews. Building on Chapters 2 and 3, which examine the history of Polanco Parks and existing research, this chapter also explores specific design and policy opportunities as outlined in my proposed outcomes (Figure 1.6).

This chapter is grounded in the lived experiences of Polanco Park residents, whose daily practices and adaptations provide essential insight into the spatial, environmental, and socio-economic circumstances shaping informal MHCs in rural and inland California. This research recognizes residents as active agents and leaders in climate adaptation and community building, advancing a culturally grounded research approach aimed at preserving their communities. Centering their voices and allowing my research to be guided by community needs was essential to understanding local perceptions of Polanco Parks and informal communities. By foregrounding resident knowledge and experience, this chapter aims to expand the discussion on inclusive planning, climate justice, and the importance in recognizing social capital and well-being as critical to building climate resilience overall.

Throughout this research, I remained mindful of my positionality and the potential power dynamics involved in conducting site visits and community interviews. As a member of this community, my goal is to honor the experience and knowledge of a farmworker community - to elevate their perspectives and ideas for design and policy which have not been extensively documented in academic research. As such, the findings I discuss in this chapter reflect a collaborative process in which residents acted as co-producers of knowledge, helping shape the direction and framing for the final design and policy opportunities presented in this research.

Finally, this chapter concludes by encouraging ethical and reciprocal research in which community residents are actively integrated into planning processes, ensuring that future design, policy, and programming interventions are grounded in lived experience, cultural knowledge and values, and mutual accountability.

5.1 Findings from the Field

This section outlines insights gathered from site visits and observations in Polanco Parks, focusing on the built environment and spatial practices. Several key themes emerged from the fieldwork, reflecting how residents navigate infrastructural precarity, adapt to environmental and climate stressors, and embed cultural meaning in the built environment (see Appendix 1 for an excerpt from my field notes).

Observations from Site Visits

Observation 1: Fragmented Infrastructure and Services Across Sites

Observation 2: Environmental, Climate, and Spatial Conditions Inhibit Social Interaction

Observation 3: Spatial Adaptations Respond to Climate Stressors

Observation 4: Expressions of Culture and Identity in the Built Environment

Observation 1: Fragmented Infrastructure and Services Across Sites

Field observations reveal fragmented infrastructure and services across Polanco Parks, shaped by permitting status, minimal public investment, and varying levels of private investment.

Road Conditions and Public Funding

One of the most visible differences among parks is the condition of internal roads. Some parks feature fully paved asphalt roads, while others rely on gravel, mulch, road base, or remain unpaved. Dirt roads are the most emissive – producing plumes of dust as vehicles pass – raising air quality concerns and accessibility challenges during heavy rain. Gravel roads, while more stable, require regular maintenance to prevent uneven surfaces and water stagnation.

Park owners and residents attributed differences in road conditions to inequitable access to public funding. In 2014, several parks received paving assistance from AB 1318 using air quality mitigation fees from a former natural gas-powered electricity generation plant in the region (Coachella Uninc. 2015). Parks that did not receive this support were either unpermitted or excluded due to limited funds. Outside of opportunities like this, owners resort to self-funding alternative road treatments and expressed a strong need for continued paving assistance.

Core Infrastructure: Water, Electricity, and Wastewater

Permitted Polanco Parks typically include more developed and up-to-code service infrastructure. These parks commonly have one to two domestic water wells classified as state small water systems, one to three septic systems per mobile home unit, individual electrical meters, and trash collection (via either individual bins or communal dumpsters). Fire suppression systems are also generally present.

By contrast, unpermitted parks often rely on shared master meters for electricity and lack fire suppression systems – heightening risk and vulnerability during extreme heat and wildfire events. These disparities illustrate how permit status significantly affects access to adequate and essential services.

Shade, Spatial Layout, and Resident Modifications

Access to shade is another indicator of infrastructural disparity. Parks with shared spaces may offer limited communal shade, but many residents rely on self-built, out-of-pocket solutions such as aluminum porches, modular shade structures, or shade sails. These adaptations reflect both the environmental stressors residents face and their resourcefulness in mitigating them.

The layout and size of parks also vary, typically reflecting property boundaries. Most Polanco Parks are organized with two rows of six to eight units each, divided by a central road. The main unit which belongs to the owner, is often set apart. In parks with septic systems, the use of in-unit washers and dryers is discouraged due to high water and energy demands, though enforcement varies by park. Some parks prohibit their use entirely, while others allow them by charging additional fees for frequent septic maintenance like Becerra MHP.

Amenities and Access

The availability of shared amenities like laundry facilities and shared spaces is inconsistent. Relatively none of the sites had designated areas for play or gathering. The main amenity observed was at Zaragoza MHP, which includes a communal coin-operated laundry, offering all residents an alternative to in-unit appliances. This alternative also ensures that individual septic systems are not heavily impacted by in-unit appliances. This kind of facility underscores how fragmented service access can be, even among parks of similar scale or layout.

Overall, the quality and availability of certain infrastructure is observably varied across Polanco Parks, reflecting broader patterns of diverse and informal governance and uneven public investment. While permit status often determines access to essential services, individual park owners play a key role in shaping the availability and quality of non-mandated amenities. This fragmented infrastructure not only reflects governance gaps but also shapes residents' daily comfort, safety, and access to basic services - especially during extreme weather events.

Observation 2: Environmental, Climate, and Spatial Conditions Inhibit Social Interaction

During the times I conducted site visits, outdoor activity in parks appeared to be limited. Despite visiting at different times and days of the week, I observed minimal outdoor presence beyond vehicles entering and exiting the parks. Activity increased slightly around sunset with children playing near the main roads, residents walking dogs, or tending to plants, but activity remained minimal overall.

High temperatures, even as early as March, are a key deterrent to spending time outdoors, and the absence of shaded or shared communal spaces further discourages casual interaction among residents. For most adults, time outside tends to revolve around functional tasks and chores, rather than leisure or social engagement. There is noticeably higher engagement among youth and extended relatives who live in the same park, including in multi-generational families living in closely situated units. These familial connections often help strengthen the core of social interaction in parks where broader community ties are limited by environmental conditions and a lack of shared space. Family networks serve as a potential substitute for communal infrastructure, offering other ways to stay connected in the absence of built gathering spaces.

While many parks do have enough open space to accommodate events like family gatherings or celebrations which tend to occur during the evenings, these are not everyday occurrences. Social cohesion and engagement could be stronger if parks had more amenities and shared spaces where chance encounters are more likely to happen. However, the open space that many parks have allows

for residents to host celebrations or family gatherings which are often staple cultural events. Meanwhile, people's front porches or surrounding trees provide those small spaces for connecting with each other.

Social cohesion is essential for building community resilience - not only in responding to extreme weather, but in improving day-to-day livability and well-being. Increasing the availability of shared spaces and amenities can enhance both climate adaptability and the social fabric of Polanco Parks.

Observation 3: Spatial Adaptations Respond to Climate Stressors

Building on the findings of **Observation 2**, where environmental and spatial conditions impact the likelihood of residents spending time outdoors and connecting with each other, there are also observable ways in which they are creating their own strategies for adapting to climate stressors.

Spatial modifications include makeshift awnings or porches, elevated foundations and skirt installations under units, improvised solar shading on windows, pavers, and landscaping. Metal roofing sheets are used for porches on one or both sides of the unit, creating shaded outdoor space. Some residences increase shade coverage by adding shade sails around the sheets. Elevated foundations are less common in Polanco Parks, but skirt installations using wooden panes are often needed for flood protection and temperature regulations, as well as for protection for the unit. One of the most commonly observed modifications was solar shading on windows, which either includes using aluminum foil or styrofoam sheets. One park specifically created two trenches to redirect stormwater away from units to protect them from flooding. Such modifications reflect resident's responses to extreme heat, flooding, and seasonal weather patterns like strong winds. But they also connect back to the informal nature and practices common to Polanco Parks. In addition, they reflect the need that residents have to be creative, self-sufficient, and resourceful in order to cope with extreme weather and inequitable infrastructure access.

The appearance of spatial adaptations also varies by park, but the key observation here is the resourcefulness of residents in not only responding to environmental conditions, but finding ways affordable to them to build a safe and comfortable space; a home. Informal modifications in Polanco Parks are largely driven by necessity rather than desire. These adaptations emerge because formal systems - such as urban planning and public governance - have been unsuccessful in meeting the immediate needs of residents,

particularly in peri-urban areas like the ECV. This process of self-sufficiency and pragmatic intervention from residents reflects a deep-seated need for adaptation, where the act of transforming one's living space becomes an essential survival strategy.

However, these non-traditional and informal spatial adaptations are frequently viewed negatively by non-Polanco Park residents as they may be considered unsightly or unsafe, reinforcing the stigma associated with living in MHPs and informal communities. While resident-led adaptation may be dismissed by others as unsophisticated, they reveal the reality and vulnerability of Polanco Parks to extreme weather, public health risks, and the need for dedicated public investments that support long-term resilience and well-being.



Figure 5.2 Image of household with shade structures using different types of materiality.



Figure 5.3 Image of shade structure / bus stop built by Ramon Zaragoza.

Observation 4: Expressions of Culture and Identity in the Built Environment

A common thread across Polanco Parks is the expression of cultural identity that residents display within their individual homes and outdoor spaces. Many many of these elements reflect a sense of home, cultural heritage, values, and traditions unique to residents. I observed signs that welcome visitors, lingering holiday decorations, religious altars, Mexican flags, and personalized fences with family initials. Homes are also painted distinctly since the majority of Polanco Park residents own their mobile homes. Despite the lack of shared spaces in most parks, residents take advantage of their individual spaces to foster a sense of home and belonging. These personal expressions are not merely decorative but serve as acts of place-making and cultural continuity within a marginalized and informal context.

As expressed in Chapter 1, Polanco Park residents and owners primarily have immigrant backgrounds from Mexico and other parts of Latin America. In displaying elements of their cultural heritage, they are able to represent and stay connected to their culture and traditions in a new context. The ability to do this also supports a stronger feeling of pride, belonging, and ownership, which is particularly important in low-income, informal, and isolated communities. In addition to cultural representation and belonging, personalized expressions in the built environment can also reflect certain values like hospitality, family cohesion, and provide opportunities for residents to create edges, if desired.

Observation 2 and 3 highlighted various issues that impact social cohesion and well-being. In this case, culturally-informed spatial modifications are also thus providing opportunities for residents to connect through their culture in the absence of formal space. In connection to Observation 2, this type of spatial practice can significantly support the social cohesion that is critical to building overall resilience in parks. A dominant narrative surrounding informality and MHPs often frames these communities as inherently temporary or transitional. But in displaying cultural, religious, or other forms of personal expression in and around the home, residents are able to enhance their sense of home and permanence, especially in uncertain situations heightened by immigration concerns stemming from federal policy.

Expressions of identity and culture offer more than an aesthetic function - they are tied to agency, belonging, and resistance. Observing these types of expressions is also essential in designing more inclusive and responsive planning policies for informal communities and communities of color, as they reveal how residents actively shape their environments and assert presence in the face of systemic neglect.



Figure 5.4 Image of self-built mailbox with decorative bird house on top and small light fixture.



Figure 5.5 Image of a Mexican *Lavadero*, or washboard, traditionally used for washing clothes, dishes, or other objects by hand.

5.2 Interview Findings: Perspectives on Place, Access, Well-Being, and Resilience

Community interviews offered essential insight into how residents and park owners navigate daily life and climate challenges, revealing grounded priorities around design, social connection, quality of life, and resilience. The following five themes synthesize these lived experiences and perspectives to inform more responsive and equitable planning approaches for Polanco Parks.

- Theme 1:** Resident-led adaptation is foundational to reducing vulnerability in mobile homes and Polanco Parks. Adaptation is often collective and evolving, with family and neighbor networks.
- Theme 2:** There is a strong desire for beautification, biodiversity, and connection to nature as expressions of pride and placemaking.
- Theme 3:** Polanco Parks are a distinct and valuable housing typology; and residents continue relying on their affordability, sense of community, and cultural connection.
- Theme 4:** Climate justice for Polanco Parks requires comprehensive planning and inclusive collaboration to strengthen local resilience through regional integration.

Theme 1: Resident-led adaptation is foundational to reducing vulnerability in mobile homes and Polanco Parks. Adaptation is often collective and evolving, with family and neighbor networks sharing resources and best practices.

Residents living in mobile homes and Polanco Parks have long acted in response to and in preparation for extreme weather events. Big or small, these self-initiated interventions indicate vulnerability based on housing type and the need for investment in mitigation and climate resilient infrastructure in Polanco Parks, particularly those that are unpermitted. As previously discussed, informal communities face limited access to resources. In the case of Polanco Parks, this limitation leads to resident-identified solutions that help mitigate the impacts they feel in and outside of the home. In fact, such solutions have enhanced over time, shared amongst neighbors, and passed down through generations. Olivia Rodriguez, who has lived most of her life in a Polanco Park and is now raising her family there, emphasizes how climate preparation is often rooted in shared, intergenerational knowledge:

"[M]y dad helps me out with some of these things. I'll ask him, '[H]ey, what do I need to do? I want to get ready because the summer might get here earlier.' So it's about making sure we're maintaining the AC's; and I look for guidance from my dad. Honestly, it's a lot like: what should I do to make sure that the trailer is ready for the summer time? So sometimes it does mean blacking out the windows - and that's something that I learned from my mom. She's like 'okay, do this to the windows, add the styrofoam, that's the best thing.'"

Olivia's account highlights how residents adapt their mobile homes using low-cost, family-taught methods - like blacking out windows with aluminum foil or foam insulation. These informal practices reflect both ingenuity and necessity, underscoring how cultural and familial knowledge systems fill critical gaps in infrastructure and preparedness.

At a different yet critical scale, Ramón Zaragoza - who used to work in construction and agriculture - intervenes during heavy rain events to prevent water damage by digging trenches to redirect stormwater. He shared:



Figure 5.6 Image of Ramón Zaragoza describing the bench built to redirect stormwater.

“Cuando llueve, me fijo dónde se queda el agua, y lo que hago es una zanjita..nomás para que corra el agua y que no se estanque. Lo que hice de emergencia [un día] que estaba lloviendo... hice zanjas y fui a la calle y donde yo miraba que estaba detenida el agua, le abría para que corriera por la calle hacia allá...y así fue como el agua ya no se estuvo metiendo [hacia las trailas].”

“When it rains, I watch where the water collects, and what I do is dig a little trench... just so the water can flow and not get stuck. What I did in an emergency [one day] when it was raining... I dug trenches and went out to the street, and wherever I saw the water was stopped, I opened a path so it could flow down the street that way... and that’s how the water stopped coming into [the trailers].”

Ramón further reflected on how the trenches he built can become more permanent while not being obstructive or dangerous - envisioning properly sealed trenches that redirect water to support greening along the property’s frontage - but this vision quickly becomes a challenge as he recognizes how costly it would be. As a park owner, Ramón’s responsibility includes protecting not only the physical property, but also the safety of the families living there. His account reveals how quickly residents and owners must act during extreme weather events, especially in the absence of formal stormwater management infrastructure. Such ad hoc interventions illustrate the kind of labor, creativity, and local knowledge required to manage environmental risks in Polanco Parks. Ramón’s actions exemplify how informal climate adaptations often rely on on-the-ground awareness, improvisation, arduous physical labor, and personal initiative rather than institutional and government support.

These small-scale adaptive interventions shed light on an additional burden that Polanco Parks face: the added stress of having to physically adapt your home and environment to protect your health (and that of others) as much as possible. Uplifting these actions is not meant to romanticize them, but to recognize and acknowledge the significance of lived experience and everyday ingenuity in the face of systemic neglect and underinvestment. Testimony and firsthand knowledge from Polanco Park residents must be central to informing any intervention aimed at addressing climate resilience, infrastructure, and equity.

“What should I do to make sure that the trailer is ready for the summer time? So sometimes it does mean blacking out the windows - and that’s something that I learned from my mom.”

- Olivia Rodriguez

Theme 2: There is a strong desire for beautification, biodiversity, and connection to nature as expressions of pride and placemaking.

In searching for input on small-scale design interventions that could help reduce vulnerability to extreme weather in Polanco Parks, the interviews provided significant insight into other yet tangential needs, including shared gathering spaces, shade structures, tree cover, and playscapes. This revealed a longing for beautification and biodiversity measures that can also improve livability, mental health, and access to nature - particularly in Polanco Parks that are more isolated to regional services and amenities like community parks.

Yaneth Andrade-Magaña, Director of Community Capacity Building with PUCDC and life-long resident of the ECV, has a strong connection to both residents and owners that allows her to co-explore a broader vision for Polanco Parks. In discussing opportunities for being more resilient to extreme weather impacts she says, *“It’s like they’re confined to their home. And I think that’s where we need to be more creative*

because there's a lot of room, and these developments could be encompassed in one acre, but there is enough room to be creative." The call for creativity here is a powerful one. On one hand – and as described in **Theme 1** – the experience of living in Polanco Parks is already producing small-scale interventions to reduce impacts and vulnerability, but if these were scaled up and built upon by a comprehensive and community-engaged process, Polanco Parks could meaningfully demonstrate how to incorporate climate resilience and social cohesion strategies to enhance the experience of place and long-term resilience.

Hermelinda Tejas shared her perspective on this topic, adding to the importance of infrastructure to enable a stronger connection to nature and the outdoors:

"Pasto, bancas, árboles, y pues más que nada: banquetita [y] lo que es un parquecito; aunque sea pequeño, pero eso va muy bien para la gente. ¿Por qué? Porque todo el tiempo trabajando, todo el tiempo encerrados, y dan ganas de salirse uno a un parque. Si no tienes otra, y si lo tienes ahí mismo, la gente se sale. Y es muy agradable que un parqueadero bien hecho tenga su parquecito."

"Grass, benches, trees, and more than anything, a little sidewalk and a small park, even if it's small, that's really good for people. Why? Because people are always working, always indoors, and you feel like going out to a park. If you don't have any other option, and if it's right there, people will go out. And it's really nice when a well-made mobile home park has its own little park."

Hermelinda emphasizes the mental and physical need for relief from work and confinement through access to nature and the outdoors. She suggests that even small-scale interventions like a modest parkscape can significantly improve daily quality of life, while also signifying that proximity and accessibility matter. This also illustrates how residents' calls for beautification and green infrastructure are essential, not optional, for well-being and social resilience, reinforcing the findings in **Observation 2**.



Figure 5.7 Image of a play structure purchased by family and placed on their rental space.

Theme 3: Polanco Parks are a distinct and valuable housing typology; and residents continue relying on their affordability, community-oriented environment, and cultural connection.

Today, Polanco Parks represent a unique housing type rooted in necessity and resilience. They provide affordable housing for farmworkers and other low-wage workers in the peri-urban area of the Coachella Valley, a region that is rapidly becoming unaffordable and highly exclusive. For many immigrant families, Polanco Parks also offer flexibility in ownership, land use, and dwelling types. Residents highlighted how Polanco Parks allow for more culturally-rooted and family-oriented living, which may be harder to foster in other subsidized housing typologies. Despite not having access to diverse types of spaces or amenities, Olivia, for example, manages to find the beauty in Polanco Parks:

"I think there's something magical about them...it really allows for you to get to know your neighbors in a close way and just really interact with them. And I think a lot of it [is because] there's a lot

of open space around us...And I think it's something so beautiful and magical that I've only experienced in Polanco parks."

She also talks about her family's preference for Polanco Parks:

"I know my mom would say this a lot, and I think I would ask her, 'would you ever consider moving to an apartment?' And she would say 'Nope. No. We might rent the space, but just knowing that we own the traila (Spanish for trailer or mobile home), it gives me just more freedom and more of like, I can do this or that. This traila is mine.' So that always stayed with me, that she would just say no, I'd rather live here because I have that sense of ownership, like I own the trailer; I might not own the land, but at least I own this, and this is mine regardless of whatever happens. So I always liked that she said that, and of course, that she had a space to be outside, too."

My connection to Polanco Parks is that they're my home, they're my roots. I grew up there and I still continue to live there since the day I got here to the United States. It's really meaningful because that's where I grew up. But I also got to see a lot of challenges, or the resources that we didn't get compared to other houses.

- Isabel Ramos Tenorio

Olivia's perspective reveals how the intersection between affordability and homeownership helps strengthen the agency of people facing other socio-economic barriers as low-income and immigrant residents living in the United States. As the Coachella Valley expands its tourism and hospitality industries, Polanco Parks are becoming increasingly important for immigrant families seeking cultural continuity. As revealed by Observation 4, Polanco Parks offer a sense of belonging and familiarity in the shared customs and traditions that many residents bring with them from Mexico and other countries and display in and around their home - creating communities that transcend affordability. Olivia reflected on her experience, saying:

"I just really like the family sense and close knit community that I've had growing up in a Polanco Park. It's something really special that I've only experienced growing up in a Polanco Park that wasn't even family-owned, but I feel like there's so many lessons that must come out of growing up in that setting. So I feel like when it comes to thinking about housing development or developing any spaces...what are some of the elements that Polanco Parks do have that promote that sense of community or that allow for that?"

Olivia's experience is representative of how social cohesion and cultural connection flourish with the informality of Polanco Parks. Shared identities, backgrounds, language, and professions help create unity and comfort for residents.

Isabel Ramos-Tenorio, who has lived in the same Polanco Park since immigrating to the United States at the age of six, also appreciates the communal character of parks. She has seen her neighbor, who is also her Aunt, provide food distributions from her home to anybody in the park who might need it. It is unclear if her Aunt has the support of an organization to be able to do this, but it is a good example of how park residents are supporting each other within their small communities.

Azucena Beltrán also grew up in a MHP; though it is slightly larger than a Polanco Park, she spoke to the similarities between them and highlighted how land use and development decisions are

impacting housing affordability across the region. Cities across the Coachella Valley are primarily building apartment complexes and single-family homes (some even luxury developments), including the nearby City of Coachella, which borders the unincorporated ECV to the North. Azucena considers this to be “culturally insensitive” as affordability is an issue, but also the lack of outdoor opportunities for residents in apartments to build gardens and build social cohesion. *“Culturally, I don’t think it’s a solution...and I don’t think they’re invested in looking at alternate solutions,”* she said, reacting to the historic underinvestment in Polanco Parks. Similarly, Olivia spoke about her experience living in other housing types during small periods of time, finding them all to be quite different from Polanco Parks – more restrictive, socially isolating, and unsafe in other ways. What she kept coming back to is how she experienced joy and community in Polanco Parks that was difficult to find elsewhere. Azucena and Olivia’s insights reveal that housing choice should also be available to low-income residents, including well-funded Polanco Parks. Despite their challenges in infrastructure and resilience, Polanco Parks are a housing typology that residents in the ECV value and wish to see improve through direct public investment.

Theme 4: Climate justice for Polanco Parks requires comprehensive planning and inclusive collaboration to strengthen local resilience through regional integration.

Theme 4 emphasizes how vital Polanco Parks are as a source of affordable housing, yet their informal origins and varied permitting status complicate their inclusion in formal planning at all levels of government. As a result, parks face disproportionate exposure to extreme climate risks – extreme heat, air pollution, and flooding – all exacerbated by historic disinvestment (London, et al 2013). In adopting a climate justice framework, my research argues that equitable climate adaptation for Polanco Parks requires not only targeted support, but also regionally integrated, inclusive planning approaches that recognize residents and owners as key stakeholders.

Interviewees have varying degrees of involvement in community advocacy, yet they all acknowledged that collaboration across jurisdictions and agencies is essential to providing the appropriate and comprehensive interventions needed in Polanco Parks, particularly in the development of regional climate strategies. Further, the informality background of Polanco Parks reveals that further research is needed to ensure that planning and policy development processes are done equitably and inclusively. Unpermitted parks must be identified, considered, and consulted with as regional planning is conducted, ensuring that no community or household is overlooked during critical opportunities to improve access, well-being, and resilience.

Field observations and interviews reveal that while community members have varying levels of involvement in advocacy, there is consensus on the need for cross-sector, cross-jurisdictional collaboration. As Mariela Loera notes:

“It’s a full circle thing...the historic disinvestment in the region then leads to what we’re seeing right now in terms of a lack of safe and affordable housing, a lack of infrastructure – water and electrical – and also access to resources like clinics and resilience centers. Then you’re seeing the climate crisis that’s happening across the region, and it’s impacting communities like the [ECV] or Polanco Parks more because of the lack of infrastructure and lack of investment.”

Isabel adds another layer to this concern by highlighting isolation and lack of access to basic services: *“I feel like we don’t have a lot of resources. We don’t have anything. We don’t even have a park. I think we don’t have facilities or services that can be provided to residents in that area. I think the only thing we have [nearby] is schools.”* For Isabel, transportation has been a big challenge. She not only noted that accessing community parks, clinics, and higher education institutions is a big challenge for people living in the ECV, but she also identified the lack of emergency services in proximity to Thermal and Oasis which face frequent fires and infrastructure damage from extreme weather events.

Such testimonies underscore the urgency of planning frameworks that acknowledge both site-specific needs and regional interdependencies. While many challenges, such as housing or landscaping, can be addressed locally, broader infrastructure systems like transportation, emergency services, and utilities require regional coordination.

Finally, the informal nature of most parks underscores a critical gap in regional climate resilience efforts: the need to include unpermitted and underrecognized communities in climate planning processes. Addressing these gaps would not only strengthen physical resilience, but also affirm the social and political inclusion of historically marginalized populations.



Figure 5.8 Image of project site visit and discussion with Ramón.



Figure 5.9 Image of Hermelinda tending to her date palms using practices she learned from working in the date harvest.

5.3 Towards Design and Policy Interventions

This section provides an example of how the findings can be applied in a selected Polanco Park.

A Conceptual Design and Adaptable Vision for Polanco Parks

The methods that guided my research were critical to understanding the ways in which Polanco Parks and their residents experience extreme weather. Community interviews were particularly insightful for identifying the social and public health impacts that are compounded by the often deteriorating infrastructure of Polanco Parks.

At the beginning of my research, I sought to identify the small-scale interventions that could help reduce the vulnerability of Polanco Parks and their residents from extreme weather impacts. This section presents a series of design interventions directly informed by the site visits, literature review, and community interviews. I present a site plan for Zaragoza MHP that responds to the existing conditions, challenges, and opportunities. Although this plan is specific to one site, my findings show that the proposed design interventions are replicable to other Polanco Parks given their shared characteristics in layout, conditions, and regional setting. This section is outlined as follows: design intervention matrix, regional site analysis, project site inventory and analysis, project site concept design, and design intervention diagrams.



Figure 5.10



place

Recognizes the importance of cultural identity, attachment to home, and social connection. Place-based design ensures that interventions honor the existing social fabric of a community and strengthen it.

access

Addresses the foundational need for access to basic services and utilities that support safe and healthy living conditions. Access to infrastructure is the backbone of livability.

well-being

Connects housing and environmental conditions that foster mental and physical health, stability, opportunity, and joy.

resilience

Acknowledges and fosters the capacity of communities to anticipate, adapt to, and thrive despite structural and climate vulnerabilities.

DESIGN PRINCIPLES

Site visits and community interviews revealed that there are both positive and negative characteristics of Polanco Parks that either support or hinder resilience and livability. Residents discussed the strong sense of community, cultural continuity and connection, and autonomy over their spaces as sources of pride and resilience. At the same time, however, they shared concerns about deteriorating infrastructure, limited access to resources like clean drinking water and reliable electricity, and a lack of public services and spaces that impact daily well-being and climatic comfort.

These conversations highlighted the need for design principles rooted in the lived realities of residents, and offer a framework for equitable, grounded, and future-oriented interventions: place, infrastructure, well-being, and resilience.

PLACE	<p>Recognizes the importance of cultural identity, attachment to home, and social interaction.</p> <p>Place emphasizes the cultural and emotional ties that residents have to their homes and communities. Place-making is more than just location, but about preserving a community's identity, memory, and belonging. Place-based design ensures that interventions honor the existing social fabric of a community and strengthen it.</p>
ACCESS	<p>Addresses the foundational systems that enable safe and healthy living conditions.</p> <p>Infrastructure is the backbone of livability. Inadequate and/or failing systems create unsafe living conditions and compound vulnerabilities during extreme weather events. Improving capital infrastructure ensures that climate resilience is long-term.</p>
WELL-BEING	<p>Encompasses both physical health and mental health, and a sense of dignity and stability for social restoration.</p> <p>Well-being connects housing and environmental conditions that foster mental and physical health, stability, opportunity, and joy.</p>
RESILIENCE	<p>Acknowledges the capacity of communities to adapt and thrive despite structural and climate vulnerabilities.</p> <p>Resilience is about building a community's capacity to endure, adapt, and succeed in the face of social, economic, and environmental challenges. Resilience is also more effective when it is community-driven, place-based, and structurally supported through policy and public investments.</p>

Together, these design principles form a holistic approach that bridges the gap between everyday lived experiences and long-term planning goals, ensuring that future interventions in Polanco Parks are rooted in justice, dignity, culture, and sustainability. **Table 2.** presents how the proposed design interventions address these design principles and the climate stressors and problems identified through the data collection process.

DESIGN INTERVENTIONS

Table 2. Design Interventions by Climate Stressor and Impact

- PLACE
- ACCESS
- WELL-BEING
- RESILIENCE

STRESSOR	IMPACT	DESIGN INTERVENTION + ENHANCEMENT
extreme heat	mobile home overheating stress on energy grid higher utility bills unsafe exposure to high - temperatures (in- and outdoors)	● ● ● weatherization (insulation, air sealing, efficient appliances, cool roofs)
		● ● ● ● exterior shade structures (solar sails), passive ventilation, cool pavement/cool pavement murals
		● ● tree canopy
rain	flooding + pooling water roof leaks road damage foundation erosion	● ● ● small drainage channels redirected for irrigation, stormwater management integration with play spaces, rain gardens, bioswales, permeable pavement unit skirting, permanent foundations, grading around units
drought	food insecurity unhealthy plant life inability to garden reduced water supply	● ● ● community gardening, raised wooden planting beds, permaculture design, greywater irrigation, drought-tolerant landscaping
wildfire risk	mobile homes at risk poor air quality damage to wildlife + biodiversity	● ● fire-resistant materiality buffers around mobile homes, strategic spacing ● green buffers for air quality
wind	poor air quality high exposure to particulate matter low outdoor visibility damage to infrastructure + units power outages (additional impacts to drinking water access + other daily necessities like cooking, air conditioning)	● ● native groundcover and grasses for dust suppression, green buffers
		● ● ● weatherization (air sealing), roof restoration
		● ● ● community solar, battery-storage, back-up generators, wind power, gravel, alternative paving materiality
social disruption	inaccessible outdoor spaces barriers to outdoor activity isolation of elderly + vulnerable residents risk of displacement additional financial stress increased threats to public health + safety decline in mental + emotional wellbeing loss of connection to nature	● ● ● shaded communal areas, modular gathering spaces, outdoor seating, integration of habitat in communal spaces, community gardens, nature-based playscapes
		● ● ● threshold spaces, lighting, shared street design
		● ● ● community programming, little free libraries, shared tool libraries, bulletin boards, community pantry

PROJECT SITE

Zaragoza mhp



Figure 5.11 Aerial image of project site.



Zaragoza MHP is located on Avenue 66 in the unincorporated community of Thermal. It is a 10-acre parcel with 14 mobile homes. West of the site is a former fish farm that is now unused. East of the property are other parcels with 1-3 mobile homes. South of the property is vacant tribal land.



Figure 5.12 Image mobile homes on site.

NEIGHBORHOOD ANALYSIS



Figure 5.13 Neighborhood analysis map of area around the project site.

The project site is located within 1 mile of the nearest school and is near other Polanco Parks along Ave 66 and Harrison Street. The park is also located next to a former unlawful dumping and burning site. Dry vegetation on neighboring properties has also led to frequent fires, impacting park residents and heightening risks of homes catching on fire.

SITE INVENTORY + ANALYSIS

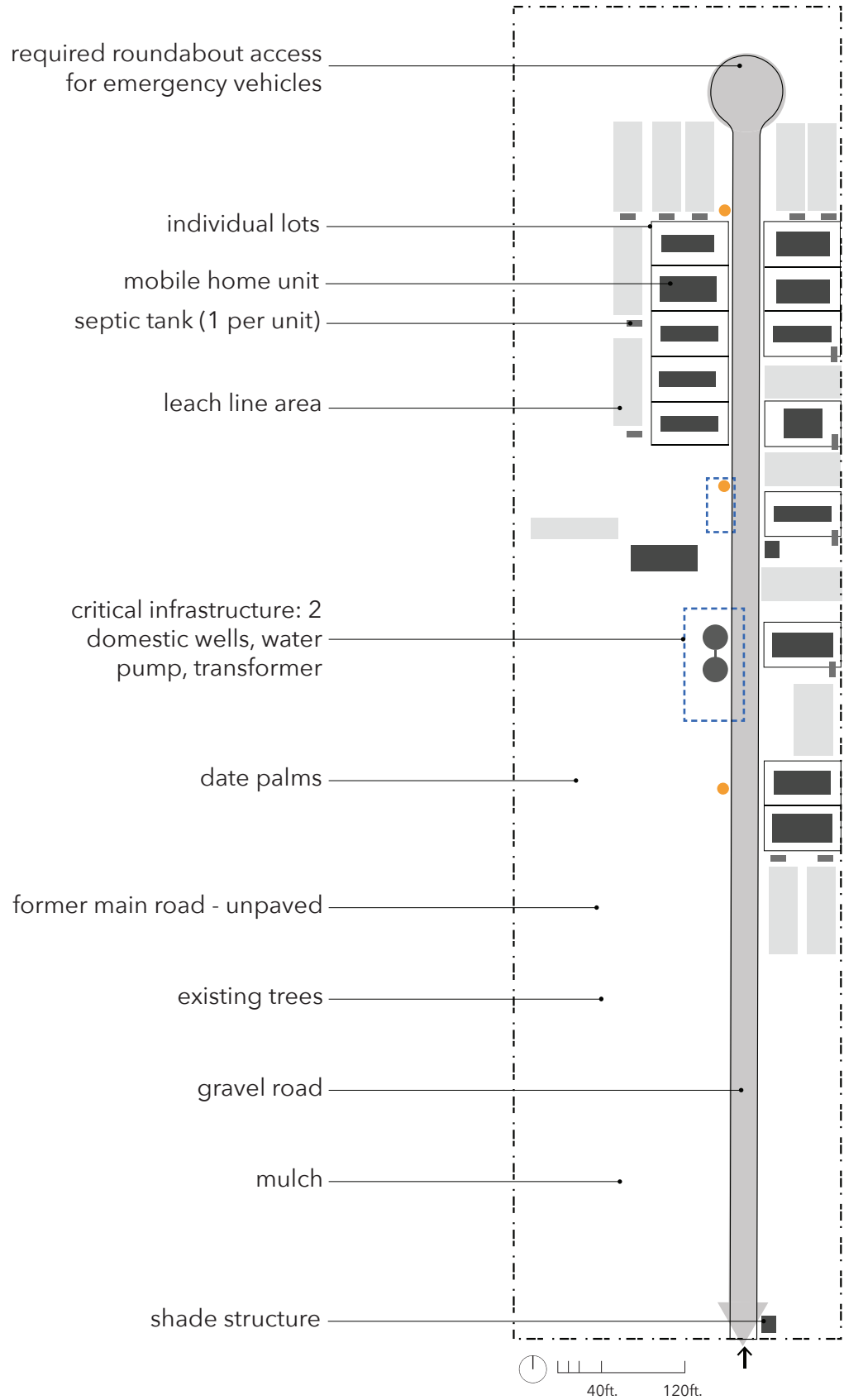


Figure 5.14 Site Inventory Diagram.

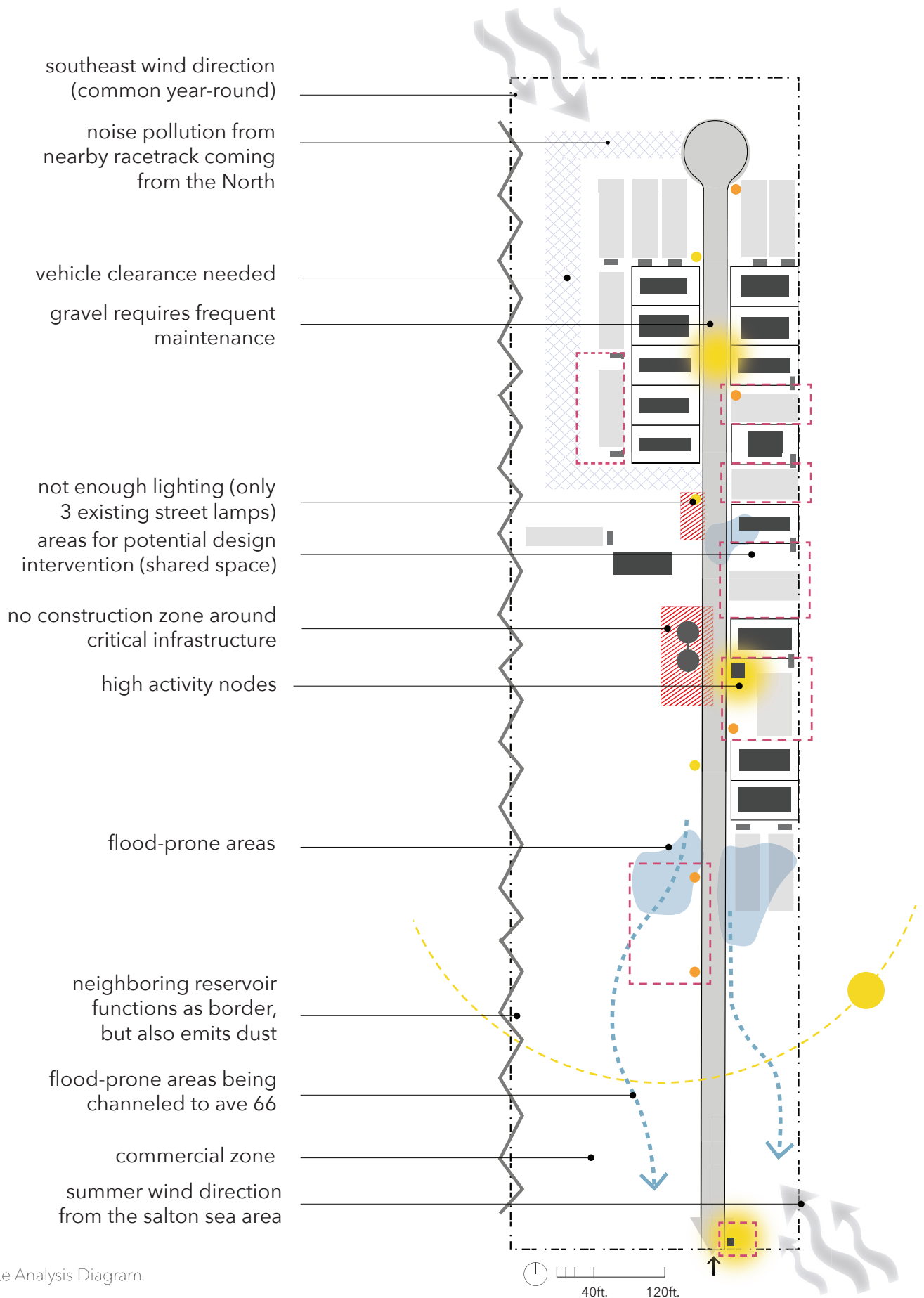


Figure 5.15 Site Analysis Diagram.



Figure 5.16. Image of area ideal for design typologies 1-4.

Figures 5.14 and 5.15 show the existing conditions of the project site. The site inventory is especially important because it reveals where the parks septic systems are located, which are areas that need to remain accessible for maintenance. This means that low plant cover and herbaceous vegetation are the main intervention that can be implemented above drainage fields. Modular furnishings and shade structures can also be incorporated in these areas. Proper use and pumping of septic tanks will ensure that design interventions remain uninterrupted as much as possible.

A significant portion of the site is unused, primarily covered in mulch, shrubs, or bare soil. Empty lot space in between mobile homes, where the septic systems are located, are also unused and can be test sites for flexible design interventions.



Figure 5.17 Image of blankets hanging on fence to dry.



Figure 5.18 Image of existing shade structure and site of *La Parada*.

There are also nodes of high activity (Figure 5.5), including the main road, the laundry room area, and the bus stop at the site's entrance. These areas point to the built infrastructure that provides more comfort for outdoor activity: walking and bike-riding is easier and more comfortable on a gravel road; socializing with neighbors is easier to do in an air conditioned room while doing laundry; and waiting for the bus is more tolerable under a shade structure. The built environment within the park is thus a contributing factor to the amount of time that residents spend outdoors, the type of activity, and the level of comfort.

The project site is also home to residents of all ages, many of whom have lived there from childhood to adulthood. Therefore, design interventions should offer diverse outdoor opportunities that residents of all ages can engage with.

The following section provides five performance goals that guide design interventions based on the research findings.

NOTE: In responding to the research question: "what are the small-scale design interventions that can address climate vulnerability in Polanco Parks?", this project is primarily looking at small-scale interventions that can be built upon as the first phase of long-term capital improvements, and is not meant to design for the full scale of the project site.

SITE APPLICATION OF DESIGN PRINCIPLES

1. Implement or strengthen existing mitigation measures against extreme weather impacts.
2. Create shade and new spaces to gather and connect.
3. Add new spaces for sport, play, and recreational learning.
4. Integrate more vegetation to support biodiversity on the site.
5. Denote vehicle and pedestrian pathways with added safety measures.

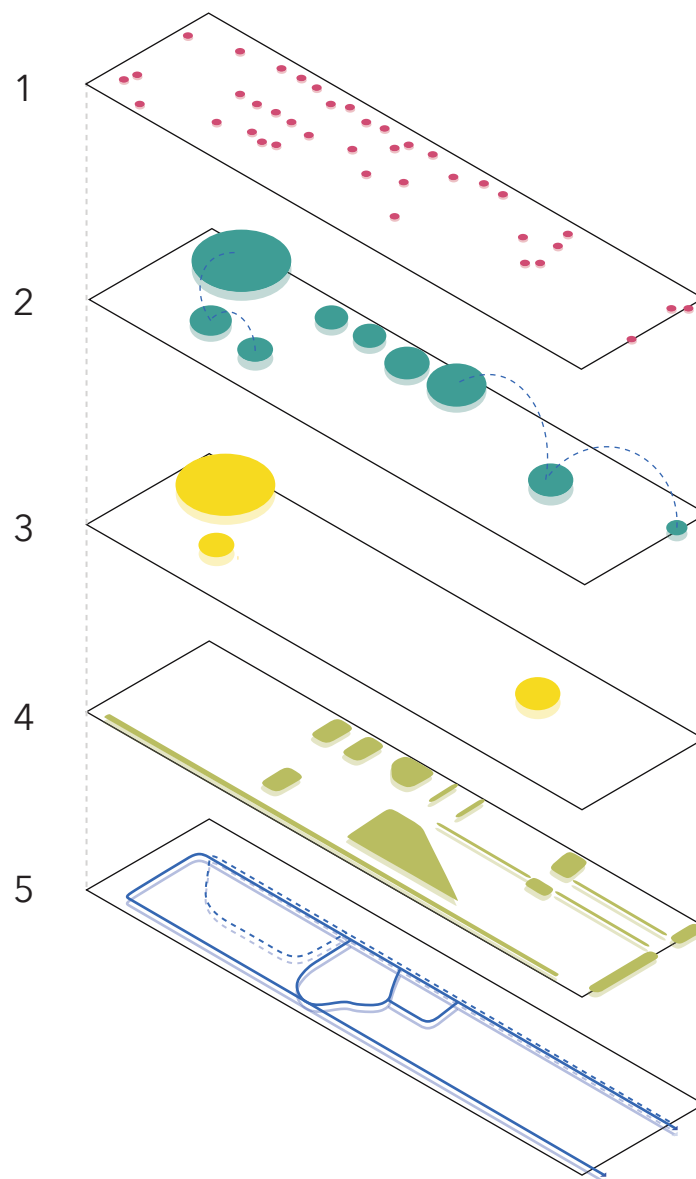


Figure 5.19 Axonometric diagram of design typologies 1-5.

CONCEPTUAL SITE PLAN

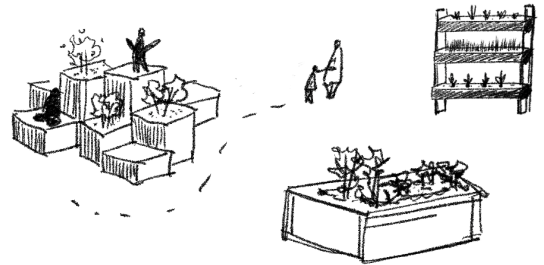
The following section presents conceptual design interventions for Zaragoza MHP; they are informed by the research findings and existing site conditions, as reflected in the design principles in Figure 5.10. Although this conceptual site plan is site-specific, interventions can be adapted and built upon for other Polanco Parks given their similar characteristics and site conditions.

Both the size and the existing layout of Zaragoza MHP provide opportunities for enhancing the “in-between” spaces, which I am referring to as “Podscapes” – designed spaces of a particular theme or program that make use of small and in-between spaces to build resilience and well-being.

PODSCAPES

EL HUERTO

El Huerto is a new shared gardening space where residents can grow food and plants, picnic, hold gardening workshops, and connect through outdoor and nature-based activities. A small trail connects *El Huerto* with the play field and the main road.



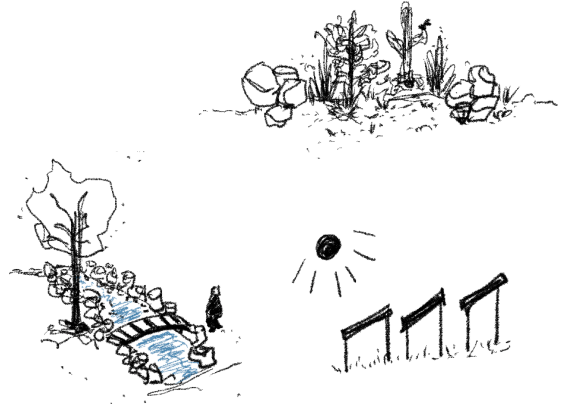
LAS LAVADORAS

The existing laundry facility is already highly frequented. Design interventions here are meant to support social interaction by creating a central and casual gathering spot and place for sharing resources, and integrates greywater irrigation and biodiversity.



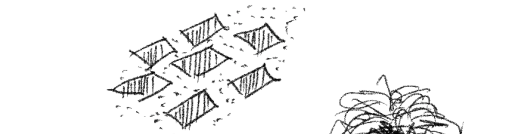
EL PARQUESITO

Incorporating a small community play space will provide better and safer opportunities for children to play outdoors, while also creating space for residents of all ages to gather outside with more shade and seating.



EL SALON

Park residents often hold family gatherings and celebrations. *El Salon* integrates a larger modular shade structure that allows for formal gatherings, meetings, and other programming to take place.



LA PARADA

La Parada builds on the existing shade structure at the front of the property serving as the school bus stop. Interventions include expanding the structure, adding seating, vegetation and tree cover, as well as a small berm for views, play, and stormwater management.



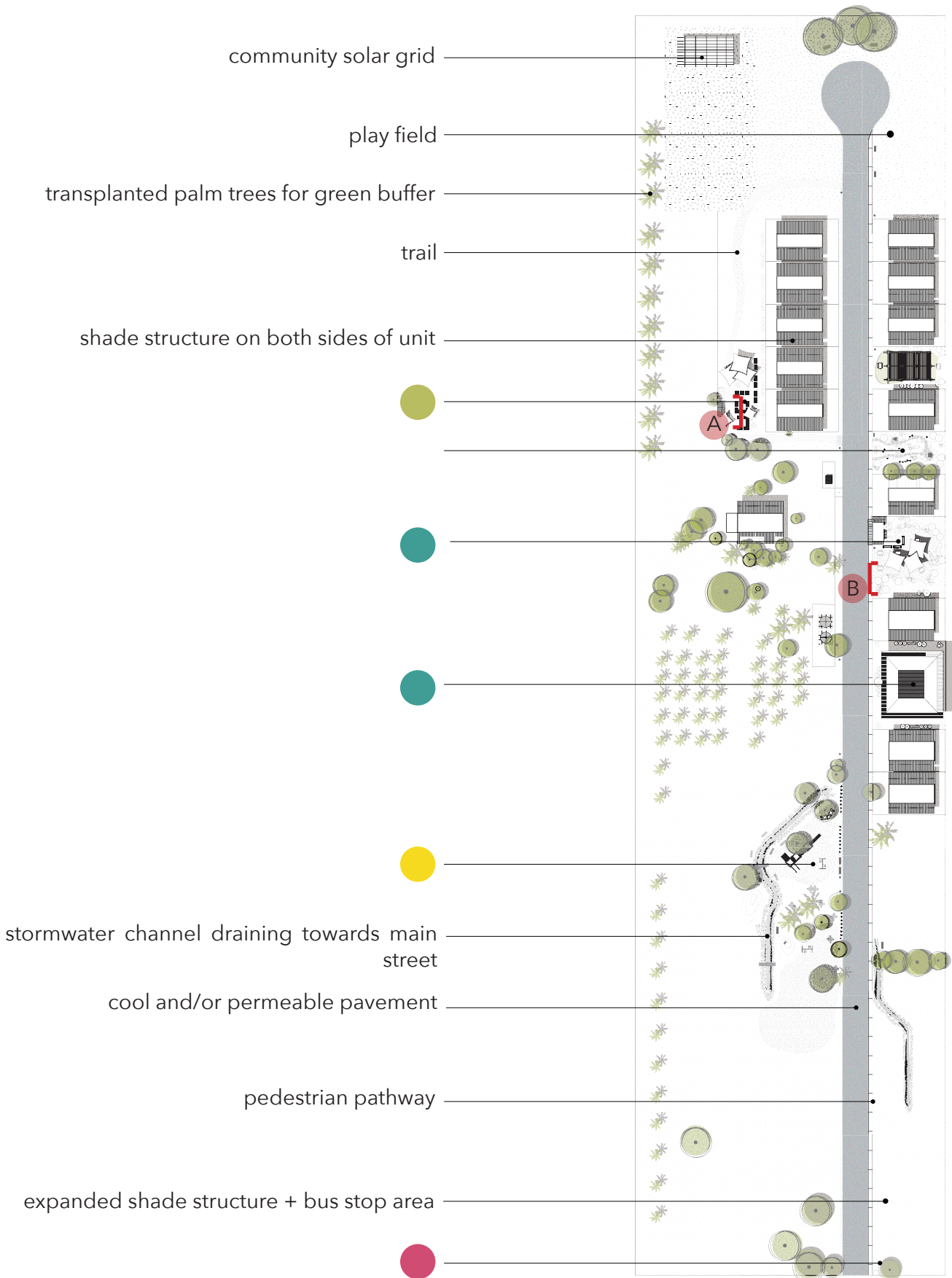
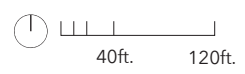
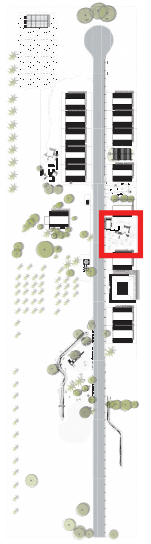


Figure 5.20 Conceptual design plan for project site.



LAS LAVADORAS

- Vegetation to absorb greywater
- Plant cover above drainfield, like grasses or herbaceous vegetation
- Shade sails, awnings for laundry facility, seating
- Connected to main road and pedestrian path
- Clothing lines for laundry facility
- Grading for greywater irrigation pond / stormwater capture
- Bulletin board for information, resource-sharing inside laundry facility
- Open space for play



1:NTS

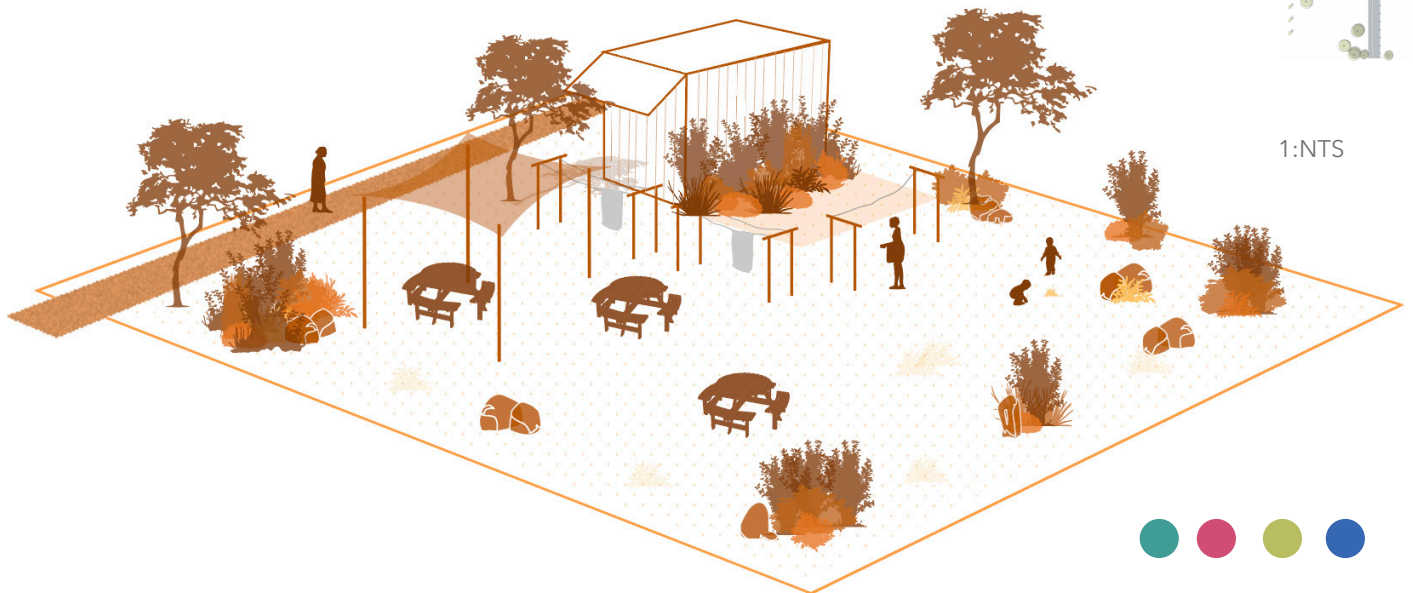


Figure 5.21 Conceptual design for Las Lavadoras Pod.



Figure 5.22 Image of existing laundry room and surrounding conditions.

EL HUERTO

- Shared Planting beds
- Picnic spaces + retractable canopy for gatherings, programming activities
- Tables and seating
- Smaller planting beds for demonstrations
- Drip-irrigation where needed
- Small trail connecting *El Huerto* to the rest of the park
- Vertical planters for herbs
- Tool-sharing shed
- Small tank for stormwater capture and irrigation
- Permeable pavers
- Modular shade sails



1:NTS

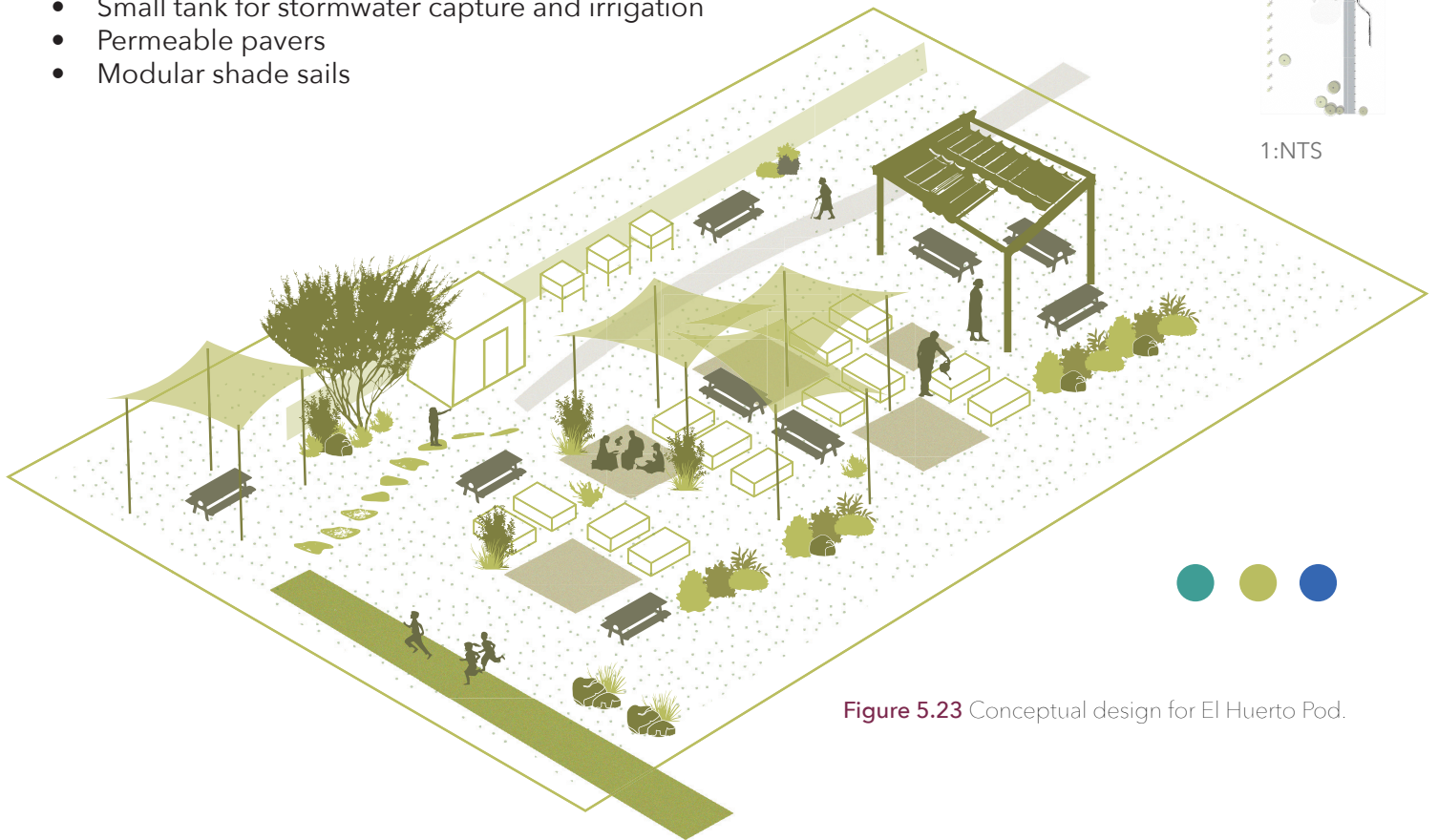


Figure 5.23 Conceptual design for El Huerto Pod.



Figure 5.24 Image of planters outside a residence, including organic strawberries and solar-powered lamp.

Planting Palette

Groundcover
1-4" HT



Small Shrub
3-5" HT



Large Shrub
6-20" HT



Tree Canopy
8-60" HT



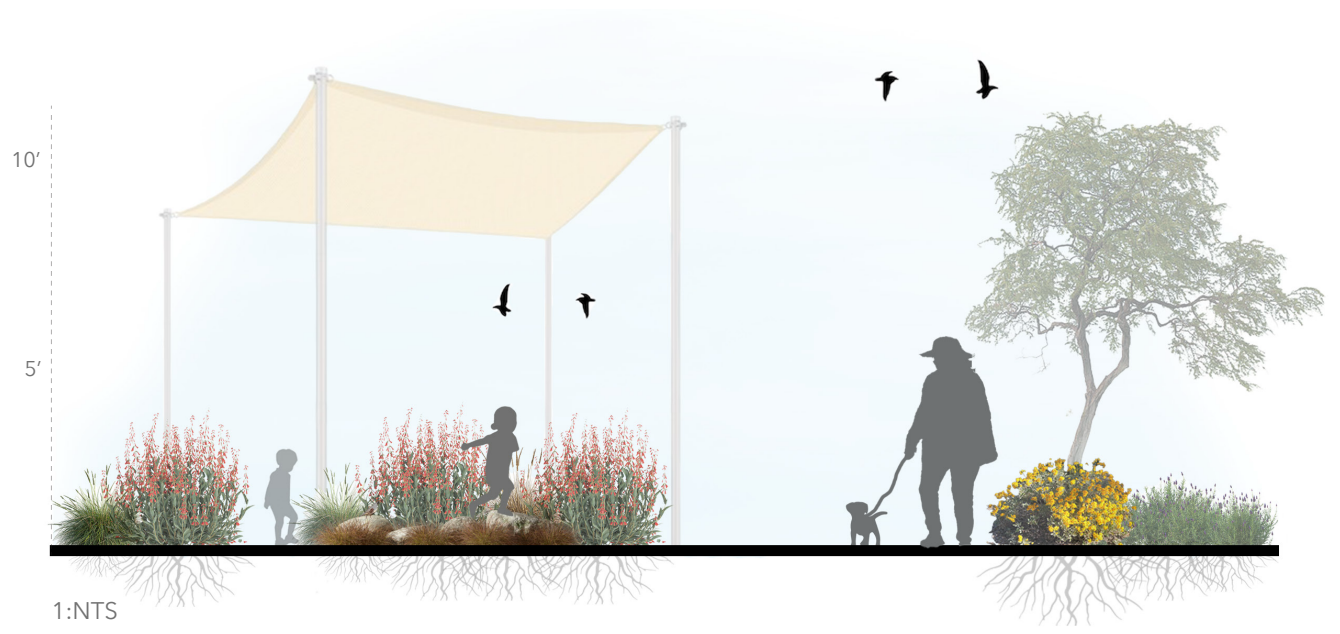
Table 3. Planting Palette Details.

#	Botanical Name	Common Name	Sun	Water	Maintenance
1	Penstemon 'Yaput' Lilliput Rose	Beardtongue	Full Sun to Part Shade	Dry to Medium	Low
2	Muhlenbergia Capillaris	Pink Muhlygrass	Full Sun to Part Shade	Dry to Medium	Low
3	Festuca Californica	Fescue	Full Sun to Part Shade	Dry to Medium	Low
4	Nassella Pulchra	Purple Needle Grass	Full Sun / Partial Sun	Low	Low
5	Plectranthus 'Mona Lavendar'	Swedish Ivy	Part Shade	Medium	Medium
6	Encelia Farinosa	Brittlebush	Full Sun	Low	Low
7	Sphaeralcea Ambigua	Desert Mallow	Full Sun	Low	Low
8	Salvia Apiana	White Sage	Full Sun	Low	Low
9	Justicia Californica	Chuparosa	Full Sun	Low	Low
10	Asclepias Subulata	Desert Milkweed	Full Sun	Low	Low
11	Tithonia Rotundifolia	Mexican Sunflower	Full Sun	Dry to Medium	Low
12	Fallugia Paradoxa	Apache Plume	Full Sun	Low	Low
13	Fouqueieira Splendens	Ocotillo	Full Sun	Low	Low
14	Condea Emoryi	Desert Lavender	Full Sun	Low	Low
15	Bougainvillea	Bougainvillea	Full Sun	Medium	Medium
16	Polygonum Convolvulus	Wild Buckwheat	Full Sun	Low	Low
17	Prosopis Pubescens	Tornillo / Mesquite	Full Sun	Low-Average	Low
18	Parkinsonia Florida	Blue Palo Verde	Full Sun	Low	Medium
19	Phoenix Canariensis	Canary Island Date Palm	Full Sun	Medium	Medium

A



B



A Phased Approach for Long-Term Resilience

1

PHASE 1

immediate
interventions



2

PHASE 2

essential
infrastructure



3

PHASE 3

reconfigure
housing



4

PHASE 4

adapt for long-
term resilience

Goal: Implement rapid, low-cost design strategies that improve safety, health, and quality of life. Build trust, improve well-being, and demonstrate responsiveness to impacts of extreme weather without displacement.

Examples of Phase 1 Interventions:

- Shade structures, wayfinding, lighting
- Small-scale stormwater management with native vegetation
- Safe playscapes and social pods
- Community gardens
- Educational and recreational programming

Goal: Build out essential infrastructure connections and formal services to Polanco Parks to protect public health and improve safety and long-term habitability through incremental pathways and public participation.

Examples of Phase 2 Interventions:

- Incremental upgrades to power, sewage, water services until full consolidation and up to code standards are met
- Feasible permitting pathways
- Sustainable waste management solutions
- Emergency access and fire safety improvements if not already available
- Weatherization

Goal: Engage residents in co-designing more stable and resilient housing forms, balance formalization with flexibility to ensure long-term residence, build equity, and continue shaping the character and resilience of their communities.

Examples of Phase 3 Interventions:

- Use of alternative and sustainable materials for mobile homes
- Micro-grid or shared energy systems
- Policy interventions to support affordability and access to weatherization programs
- Replacement of mobile homes with innovative and resilient modular units

Goal: Continue embedding long-term adaptability and resilience into the built environment of Polanco Parks by investing in design and policy interventions that support place, access, well-being, and resilience.

Examples of Phase 4 Interventions:

- Modular and reconfigurable structures that evolve with resident needs
- Green infrastructure for added climate resilience
- Flexible public spaces
- Continued investments in essential infrastructure, services, and housing

Tailored Policy and Advocacy Pathways for Polanco Parks

Design can be a meaningful tool to equitably improve conditions in the built environment. Through an engaging and iterative process, policy-makers and community residents can co-develop creative and culturally-informed solutions to support physical and social resilience. While design is an important component in developing a cohesive vision for development, it faces limitations without the accompanying policies to support innovative and engaged design processes.

This thesis documents the extensive areas of concern when it comes to Polanco Parks. Neither design nor policy have been able to move forward collective action to improve infrastructural and living conditions in a way that responds to the current and future threats of extreme weather and climate change. To support a vision of resilient, equitable, and joyous communities within Polanco Parks, I outline the following policy interventions as potential pathways for addressing more immediate challenges at a regional scale:

1. Establish microgrants or matching funds to support small-scale livability enhancements in Polanco Parks through Riverside County's Unincorporated Communities Initiative. Enhancements can support health, comfort, and quality of life, including shade, green space, waste management, air quality, and communal amenities.
2. Prioritize the implementation of Policy H-19 of the Riverside County 2021-2029 Housing Element (County of Riverside 2024) that directs the Transportation and Land Management Agency and others to create a Polanco Park housing directory and virtual map. This inventory must include all mobile home parks and Polanco Parks regardless of permit status to accurately inform current and future planning and policy efforts. This pathway can help provide formal recognition of unpermitted MHPs and integrate them into local funding opportunities.
3. Develop a resource guide with local, regional, state, and federally available funding opportunities open to Polanco Parks. Funding opportunities can include planning grants, implementation grants, as well as tree planting, home weatherization, appliance replacements, paving, solar installations, mobile home replacements, and other programs that support the built environment, climate resilience, and livability of parks.
4. Establish a state-backed financing mechanism to provide low- or no-interest loans, forgivable microgrants, and technical assistance for critical infrastructure improvements in mobile home parks, with a focus on informal or historically excluded communities in unincorporated areas, like Polanco Parks.

This list of pathways is far from comprehensive, but it affirms the on-the-ground work that residents, advocates, and other stakeholders have led for many years. These policy interventions also aim to recognize and begin to shift away from a pattern of disinvestment, complacency, and discrimination within governance processes.

06 conclusion + research contributions



Figure 6.1 Image of cactus fruit.

This research is grounded in my own upbringing in a Polanco Park – an ode to home and place, rooted in the dreams of my immigrant parents. Long before I knew the language of planning, policy, or environmental justice, I slowly recognized what it meant to live in a place that was vulnerable, yet full of life. To me, the Polanco Park that my parents built was an endless playground – a place where all the kids in the park met up at sunset to ride bikes or play soccer; where everyone would get invited to each other’s family celebrations; a place where our mom’s would run into each other at the laundry room and chat for hours; where I would run across the way to my Aunt’s house to ask for tomato’s when we ran out; where my Uncle would create makeshift playscapes out of scrap material. My memories of this place remain a cherished part of my story, but they are also heavy; they ground this research in lived experience. This thesis is not just an academic inquiry, but a conversation with the place and people who shaped me. In this final chapter, I reflect on what this research reveals, what remains unanswered, and how planning, policy, and design can evolve to recognize the value of informal and resident-driven housing models like Polanco Parks.

As I have shown throughout this research, Polanco Parks are situated at the intersection of informality, resilience, and neglect. They continue to be disproportionately impacted by extreme weather events as a result of historic disinvestment and inadequate infrastructure. But they are also places of deep cultural connection, care, and adaptation. In reflecting on how my experiences of adaptability growing up continue to be a reality for current Polanco Park residents, and with the understanding that these experiences endure due to a lack of resources, I began this research with a guiding question: what are the small-scale design interventions that can address the vulnerability of Polanco Parks to extreme weather impacts? This question indicates the existing vulnerability of Polanco Parks to extreme weather impacts while alluding to the potential barriers they might face in implementing large-scale infrastructure interventions to eliminate such vulnerability. As part of my theoretical framework, I explore the layered realities of this housing typology born from informality and necessity, and follow their shared path towards climate justice.

The essence of this work lies in the lived experience of real people, providing a closer look at the socio-spatial dynamics of Polanco Parks, their function, and how they might inform more sustainable and equitable housing solutions for farmworkers, migrants, and other low-income workers. This research affirms and substantiates many of the claims that residents and community advocates have long expressed about the environmental injustices and impacts to quality of life that are entrenched in the ECV. This research can thus serve as a resource (or be critiqued and adapted) for advocacy, design, policy and planning developments, and ongoing research.

In exploring my research question, community-focused interviews were instrumental in identifying opportunities to improve resilience. The resulting themes reveal the depth of the collective action taking place in Polanco Parks to support a healthy environment, but they also point to larger systemic inequities that deter change. I find that there is a long history of adaptive strategies that residents employ to create livable environments in spite of systemic barriers. The informal or community-led nature of such strategies reflect a form of grassroots planning that challenges conventional design and planning paradigms. Planners and designers can learn from these practices and lead more inclusive, creative, and flexible approaches to rural housing design and development. Pride in place was also a significant highlight of the interviews: Polanco Park communities wish to enhance biodiversity onsite while also beautifying outdoor spaces that support community connection and celebrations. This signifies the long-term home- and community-building that Polanco Park residents are working towards despite the temporary housing connotation that “mobile home” living may portray. I also find that Polanco Parks are not comprehensively understood. Further research is needed to gather more qualitative and quantitative data to inform efforts to improve climate resiliency specifically in MHCs and Polanco Parks.

Despite their marginalization in planning, policy, and academia, MHCs like Polanco Parks are not peripheral. They represent a vital housing typology where communities in rural and peri-urban areas are challenging dominant

assumptions about housing, ownership, cultural cohesion, and value in the built environment.

Finally, in exploring the opportunities for site-specific and replicable design interventions, I find it critical to also recognize the importance of regional integration and inclusive planning more broadly to move towards climate justice. Polanco Parks are an integral part of this region and must be comprehensively included in regional efforts in order to address the inequity in and around Polanco Parks. The design and policy interventions proposed in this thesis are not intended to be comprehensive solutions, but rather a first step (informed by past and current efforts) to advance climate justice in Polanco Parks through a phased approach. However, there are certain limitations to this research. While many residents expressed a desire for aesthetic improvements and beautification, such upgrades are not enough to address the underlying infrastructure deficiencies of Polanco Parks, and infrastructure improvements alone cannot fully address their layered social, economic, and environmental vulnerabilities. Upgrading or formalizing informal communities also carries potential social risks, including displacement, cultural erasure, or shifts in community dynamics, agency, and comfort. These limitations underscore the need for community-led and context-sensitive approaches to design and policy developments to ensure that resilience efforts do not further disadvantage certain communities. Furthermore, the climate and infrastructural vulnerabilities in Polanco Parks do not exist in isolation. Although my research is focused on climate resiliency, there are greater issues at hand that must be addressed through systemic change. The structural barriers that continue to impact Polanco Park communities require further research and community engagement to devise equity-based and just policy to dismantle the barriers of economic inequality and environmental racism.

6.1 Research Contributions

This research highlights the complex and often overlooked realities of MHCs, underscoring their potential to serve as models for affordable, sustainable, and climate resilient housing. It identifies opportunities to deepen existing research on ecological design, community self-determination,

and climate adaptation, particularly in rural and informal contexts. By examining infrastructure interventions tailored to the living conditions of Polanco Parks, this study also offers insights into strategies that can mitigate the ongoing and increasing disruptions caused by extreme weather.

In the context of a worsening national housing crisis, it is urgent to reimagine affordable housing solutions in rural areas - not only to support existing communities and prevent displacement, but to also improve long-term public health, environmental outcomes, and housing and climate justice.

6.2 Opportunities for Further Research

Further research will fill in the gaps that are beyond the scope of this thesis. Opportunities include analyzing local policy effectiveness in addressing informality in unincorporated communities, mobile home alternatives that fit the model of Polanco Park communities and further support resilience, as well as more in-depth community interviews that represent the extent of Polanco Parks in the ECV. Additional research could explore tenant-landlord dynamics and informal governance structures within parks, the longitudinal impacts of climate change on these communities' adaptive capacities, and the role of culturally-informed infrastructure design in promoting health, well-being, and long-term livability. Comparative studies on rural informal housing across different regions could also help uncover scalable design and policy strategies for equitable development.

Note: I used ChatGPT to draft outlines for and improve structure and organization of certain sections in Chapters 2 and 3.

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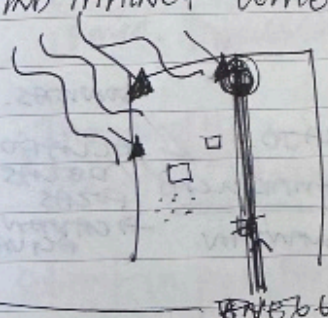
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appendix 1

Field Notes Excerpt

- WATER + ELECTRIC INFRASTRUCTURE IS WELL PROTECTED.
- FENCES ARE USED FOR HANGING ITEMS, LIGHTS, ESPECIALLY LAUNDRY.
- SPACES HAVE PLANTERS, TREES. (NOT ALL)
- SOME SPACES HAVE UNIQUE PATIOLS ON FRONTAGE.
- ALL UNITS HAVE FRONT / BACK ENTRANCES.
- 2 RESIDENTS SEEN USING LAUNDRY ROOM (NEIGHBOURS)
 - 1 on FOOT
 - 1 by CAR
- SOUND CAN BE HEARD FROM NEARBY RACE TRACK.
- WIND MAINLY COMES FROM THE WEST / NW



- MAYBE ADD SOME TREES ON NW SIDES.

- LANDSCAPE HAS PALMS ON FRONT OF UNIT. NATURAL / PARTIAL.
- OLD ENTRANCE OF ROAD IS BLOCKED OFF.
- UNIT MAIN ENTRANCES ARE SHADDED / ON SHADDED SIDE.
- EDGES OF "PARK" IN BACK ARE FENCED / LOGGED OFF
- ROUNDABOUT / TURNING CIRCLES @ END OF ROAD W/ LOGS.
- GREEN COMPOST ON UNUSED PART OF PROPERTY.
- VISIBLE - OLD OCCUPIED SPACES.
 - ↳ LINGERING TREES, PLANTS, GREENING.
- 3 ROAD LIGHTS.
- SOME HAVE COOLERS | OTHERS AL. → NOT ALL VISIBLE
- SOME WINDOWS HAVE BEEN COVERED W/ TINFOIL → SOME UNUSED.

appendix 2

Interview Template - Tenant

This interview is being conducted as part of a research project for Rebecca Zaragoza's completion of the Master of Urban Design and Planning at the University of Washington.

Project Title: Embracing Informality in the Eastern Coachella Valley: Building Climate Justice through Design in Polanco Parks

Research Question: What are the small-scale design interventions that can help reduce the vulnerability of Polanco Parks to extreme weather impacts?

Reminders: Consent
Permission to Record
Project Overview

Historical Context and Background

What is your connection to the Polanco Park community?
How would you describe a Polanco Park to others who are unfamiliar with them?
What are some of the key challenges your community has faced historically, and how has it adapted to these challenges?
Do you find that there has been external support for Polanco Parks?
Either from advocacy groups or other entities?

Climate Resilient Design

Is climate change an issue for Polanco Parks? If so, how? Can you share any stories of how climate change has directly impacted you when living in the park?
What are the most pressing impacts of extreme weather on Polanco Parks today?
Do you think that these events have evolved in any way over time?
Have they gotten worse, are there new impacts, etc.?
Have you seen any changes happen in your park that you think are making a difference?
From your experience, how did you and your community respond to these weather events?
In your opinion, what design or infrastructure changes could improve the parks' resilience to extreme weather events?

Policy Recommendations

Do you think the local government has provided support to your park?
Where do you see gaps that need to be addressed?
How do you think the local governments can better support the Polanco Park community?

Vision and Future Directions

What would an ideal Polanco Park look like in terms of housing, infrastructure, and ecological features?
How can parks be designed to honor the cultural and historical significance of Polanco Parks while addressing current challenges?
How do you envision these communities adapting to future challenges, such as increased climate pressures or population growth?

Other

Is there anything else you think is important for me to understand about Polanco Parks?
Are there other residents you think I should speak with?

appendix 3

Interview Transcript Excerpt

Olivia Rodriguez

Question: Talking about climate change issues specifically... you've already said that climate is impacting Polanco Parks. Do you have any specific stories about how it's impacted you or even now when those types of events happen?

Yeah, actually one specific event does come to mind. And I also want to add to the issues like also like power outages. I totally forgot about that one. We just experienced one last week, but it was a major one, not just the Polanco parks. But anyways, yes, I think I think about like an incident that happened like 2017. I'm not sure about the year, but it was, I think, I think they even said it was like a, it was a hurricane or tornado, something crazy like that, that went through thermal. And I remember it knocked down the power lines around there. So the light went out, and it was during the summer. And I remember it took them like a week or so to fix it.

A few days, but it felt like a week to like, like figure out that situation. And I know, well, we were like at night because my parents were like, oh, maybe usually in the power outages were like, oh, like, let's just stay here at night and regroup in the morning. We'll figure it out, like if we need to go like over to a friend's or whatever it may be. But I remember it happened that night and I was coming home, and I would tell my parents, I'm like, no, I think we need to like the, the poles are like on the floor. This is not going to be something they fixed really quick. So I think that night, because it was so hot, we went to Desert Mirage, which was like the emergency, the shelter that they offered in the gym. And I think all our neighbors were like, this is like, like we can't be here. It's really hot. So we went to dozen mirage and then the next day, I think we just went to our family in LA. We're good meaning to visit around that time. So we're like, let's just stay over with them until this is fixed. But it did it did take a couple days to get fixed. And I will say like in other emergency, like a power outages when they're maybe they're not as extreme as that, but I do we do notice that if it's if it's just in our Polanco park that the light goes out, it takes a while for it to get fixed. Like it might not be like as it, it, the solution is just not immediate, like whether I'm not sure why, but like whether it's like us communicating with our ID or the landlord, we're like, if it's just us, it's going to take a while. But like last week, for example, when the park went out, it went out I think in all of Mecca because I was driving towards Mecca and all the lights were out. So I, that kind of made me a little bit like, oh thankfully it went out for a lot of people. That means it's going to get fixed faster. And it, and it was, it was fixed like then in the morning, the light was back and I was just like everyone kind of like, unfortunately we know like if it's a bigger outage, it's going to be fixed fast versus if it's just us. And so I will say that power outages are a big thing. And then I think when extreme heat, I think it's just like with kids, I'm always concerned about like, OK, like right now it's just like, kind of like making sure the ACS are maintained on my end of like, OK, I want to make sure. Cuz I mean, this week we hit 90°. We didn't turn on the ACS. But I'm also kind of like already like, and my dad helps me out with some of these things about like, hey, what do I need to do? I'll ask him. You know, I'm like, OK, I want to get ready because I'm like the summer might get here earlier. So it's also like making sure we're maintaining the ACS and I look for guidance for my dad. Honestly a lot of like what should I do to make sure that the trailer is like ready for the summer time? For them and comfortable. So sometimes it does mean also like blacking out the windows. And that's something that I learned from my mom. She's just like, OK, do this to the windows, like the Styrofoam thing, like that's the best thing.

She's like, don't do anything else. Just put that on the windows. Like who cares if it looks ugly? It's going to cool it down significantly. Like the ACS are not going to be enough. So I'll do that for the windows in the summertime and it'll be really dark inside, but it's really it's, it's cooler and I'd rather have it cooler. So in the summer, like, for example, there's some of the things that we've had to do just to make it like livable inside because, yeah, the ACS sometimes won't be enough.

appendix 4 Excerpt From Thematic Coding Analysis

ORGANIZING CODE	QUOTES (DIRECT FROM DATA)	KEY INSIGHTS
Mobile Home Quality and Needs	<p>"Casi todos le han hecho a sus trailas", "I've definitely seen a few families talk about how they're doing their best to like reinforce their unit" , "mobile home units are not very energy resilient" , "They were passed down from owner to owner without the proper processes" , "I think just like better material too or just something that could cool them down more"</p>	<p>Mobile homes do not offer enough protection from extreme weather due to age and deteriorating conditions.</p> <p>Residents invest as they can to improve conditions of their homes.</p> <p>Public investment could help increase weatherization of mobile homes.</p>
Community Adaptation and Resilience Practices	<p>"This is actually very close to some of the um hometowns in Mexico." , "they felt very comfortable adapting the need for a septic system" , "basically it was out of need to find housing, that they mimicked or they duplicated the mobile home parks, that they were living in under their growers, um in spaces that they were able to access" , "a community driven community venture to creating housing for themselves" , "that was, like, my main challenge, like, adapting it to a hot place," "and my dad, I think he put something so that the sun no le pegara directamente. And sometimes no enfriaba bien el aire so we had to put like aluminio en las paredes. Or like foam or persianas." , "So sometimes it does mean also like blacking out the windows. And that's something that I learned from my mom. She's just like, OK, do this to the windows, like the Styrofoam thing, like that's the best thing. " , "cuando llueve me fijo dónde se queda el agua, me fijo dónde se queda el agua y lo que hago es una sanjita así, en frente de todos los, porque ahí entran los carros y para que no tenga una sanjota, una sanjita, no más para que corra el agua,"</p>	<p>Generations of families are living in Polanco Parks.</p> <p>Best practices for adaptation are shared between family members and neighbors.</p> <p>Residents apply their knowledge and best practices from their hometowns in Mexico.</p> <p>Planning ahead for extreme weather is critical to ensure comfort and safety.</p> <p>Landlords are responding to impacts with small-scale interventions.</p>
Government Action	<p>"y luego le hablé al inspector que mandan a ellos a la luz para que se pueda conectar y no les preguntó, vayan a chequear, dijo, aprueben este medidor, aprueben este pedestal y fue como resolvi el problema," , "y que se los hicieron sin que ellos se intervindieran." , "En mi caso, cuando me cayó el condado fue así. Empecé a hacerlo por que cayó el condado." , "a literal emergency people's lives are at risk it could be taken a little bit more seriously", "sadly, what we're seeing with mobile home units, even newer ones, is an unwillingness from government to retrofit them or invest into them." , "más que nada para todos nos falta los fondos", "creo que había dinero para para ayudar a hacer los polancos", "That is a great policy and changes that could help with that. If there's of course more investment into it and, and, and there's a constant, a steady investment into the program", "And as much as the county has progressed in terms of communication and assistance, there's far more that needs to be done. " , " Polanco parks still have a lot to offer in terms of like, Hey, when the county, when representatives haven't provided options for us in terms of housing," , "don't think I've seen any type of support provided to Polanco parks."</p>	<p>Local government has not done enough to support the development of diverse affordable housing options for residents.</p> <p>Stronger collaboration between local government and residents could help inform more effective policies and investment decisions.</p> <p>Funding is critical to bring about change in Polanco Parks.</p>
ECV Regional Context	<p>"a lot of the people that worked with these growers depended on the housing situation," , " there is no water or there's no water pipes or sewer system for most of the area in the eastern coachella Valley" , "So some of them were very much in the position where they struggled to find housing" , " basically it was out of need to find housing, that they mimicked or they duplicated the mobile home parks" , "it counts for 25% and probably more now of the affordable housing availability in the coachella Valley" , "it's a housing option that people look for. Um we have to think of rural America, rural California. " , "Just with the conditions themselves in Polanco Parks have not been the best historically, um and that is due to the lack of investment." , "We don't have, like, busses like, we don't even have bus stops to go and like, if we have to go, like, to a bus stop we have to walk far. " , "I feel we don't have a lot of resources, like clinics or like, like, maybe los bomberos." , "I feel like also the climate has impacted since where I live, it's mostly agriculture. " , " it's like a community solution that folks have found because of the lack of housing, because of the lack of like planning on like the counties end in terms of housing" , "unfortunately we know like if it's a bigger outage, it's gonna be fixed fast versus if it's just us." , "all of the luxury development that's happening, that's always something that comes to mind", "Antes de terry, yendo por la capulina. Y eso tenía frenado todo ese lado porque estaba todo contaminado, olía bien feo, Ahí tiraban basura. " , "gente que migran venían a buscar renta gente que anda bien desesperada porque viven lugares como el que dejamos nosotros en condiciones muy malas y este y mucha gente quería y quería" , "terms of demographics, it's I mean, it's continues to be like farm working, housing, ag workers, communities of color, people of color, non like non English speakers", "aquí no se construían casas, aunque se concentraba mucha gente a trabajar. Hasta abajo de los árboles vivían, por que no había dónde rentar o los parqueaderos estaban bien feos. La gente empezaba a quejarse de que no había vivienda, que no invertían en vivienda."</p>	<p>Historic disinvestment in the Eastern Coachella Valley has significantly contributed to the lack of affordable housing and infrastructure needs in Polanco Parks (and the region as a whole).</p> <p>ECV experiences heightened vulnerability as a result of historic disinvestment.</p> <p>Residents and farmworkers highly depend on Polanco Parks for finding affordable and stable housing.</p> <p>Residents feel isolated form regional public and commercial services and institutions.</p>