BEYOND THE TAP: WATER, CITIZENSHIP, AND THE REIMAGINING OF AMERICAN DEMOCRACY

By

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Abstract

More than one million households in the United States lack reliable access to safe drinking water, and the communities most affected are disproportionately Black, Latino, low-income, and located on the urban fringes of metropolitan regions where municipal service obligations end and county capacity is thin. This dissertation examines how that pattern is produced and sustained through a case study of Sandbranch, Texas, a former freedman's community in unincorporated Dallas County that has lived without reliable drinking water infrastructure for over four decades. Sandbranch sits at the southeastern terminus of Dallas's expansion, separated by a barbed wire fence from a 3,000-acre municipal wastewater treatment plant. The fence marks the point where the city's service obligations stop and the community's exclusion begins. Sandbranch is an extreme case, and that is precisely its analytic value: the institutional dynamics that produce water poverty in less visible communities are legible here in unusually concentrated form, allowing systematic analysis of how democratic failure in water governance is built, maintained, and reproduced.

Building on bounded citizenship, trust as institutional infrastructure, and Robert Dahl's Strong Principle of Equality, the study applies and extends the Drinking Water Governance Framework (DWGF), first articulated in Morales and Teodoro (2026), to analyze tensions between democratic ideals and what Dahl (1985) and this dissertation describe as quasi-guardianship. The DWGF rests on three interconnected principles: hydrologically-bounded citizenship, trust as institutional infrastructure, and equality in decision-making, operationalized through watershed-based regional integration combined with hybrid governance models that balance technical capacity with democratic accountability.

Using a mixed-methods approach that incorporates community-based research (CBR), archival analysis, surveys, and interviews, this study investigates four key questions: (1) how Sandbranch's specific historical trajectory led to persistent water access problems; (2) the role of institutional path dependency in perpetuating inequities; (3) what the case reveals about bounded citizenship in infrastructure planning; and (4) the broader implications for environmental justice and governance reform.

The dissertation documents critical empirical findings including cartographic erasure in institutional records, an unrecognized historic levee that challenges federal flood zone designations, severe economic precarity (75 percent unbanked, 90 percent below poverty line), elevated psychological distress linked to water insecurity, and sophisticated resident understanding of governance barriers. These findings reveal how bounded citizenship manifests in daily life while also documenting residents' clear visions for democratic reform centered on transparency, accountability, and community control.

Rather than accepting the prevailing narrative that frames water access issues primarily as problems of fragmentation and economies of scale, this research highlights how deep-rooted racial, ethnic, and income-based inequities create systematic exclusions from democratic participation in infrastructure decisions. The policy recommendations propose expanding colonias definitions, modifying utility territorial restrictions, requiring community representation in regional authorities, and establishing community benefit agreements, implemented through phased approaches that build coalitions across environmental justice advocates, public health officials, and regional utilities. The dissertation also identifies future research directions including emerging pressures from competing water demands such as AI data centers, deepening theoretical connections to environmental democracy and ecological citizenship, and developing methodologies to measure democratic governance outcomes.

This dissertation contributes to environmental justice, planning theory, public administration, and democratic governance literature by providing both normative principles and practical pathways for policy discussions on ensuring equitable water access within democratic frameworks, particularly for communities experiencing historical marginalization and contemporary institutional exclusion.

Preface

When I began this project, I expected to write a comparative case study on regionalization, structured in the conventional three-article format. The work became something larger. It is now the foundation of a book project that examines the federalist patchwork of drinking water governance that allowed a community in the United States to live without piped drinking water for more than forty years. The residents of Sandbranch, Texas, are an indefatigable people whose words and faces kept me writing and pushed the project forward.

When I present this work, audiences are often surprised that more than a million people in the United States lack reliable access to drinking water. As I describe the layers of public administration that deliver water to most Americans, the picture shifts: roughly thirty percent of the U.S. population lives in unincorporated areas governed by an idiosyncratic mix of counties, special districts, and ad hoc arrangements. This dissertation does not address tribal lands or very rural communities, though many face conditions parallel to Sandbranch.

My interest in water governance has two sources. First, I had the opportunity to work in the United Kingdom, where I helped manage a proactive water network. Before that, I worked in environmental consulting, where I learned water resources through fieldwork on wetland delineations. It was in operations training in the UK, however, that I learned how to turn a valve. One day, the network's high-frequency pressure sensors, which sampled at 128 times per second and transmitted over a cellular connection, registered a surge: a main had burst. In the small village we served, my responsibility was to upload data manually because the cellular network was patchy. The questions residents asked were not about who would pay for the repair but about when the water would return. The utility delivered bottled water for the inconvenience.

During that same operations training, I struggled to turn a valve and worried I would fail the certification. My instructor told me that sometimes you have to turn a valve backward rather than force it forward. The metaphor stayed with me. I thought about that English village while my own family friends in Sandbranch waited on bottled water donations to meet basic needs. The contrast became the intellectual problem that animates this dissertation: why do some communities receive proactive maintenance and apologetic deliveries, while others receive nothing at all?

This dissertation does not tell a declensionist story. Five nonprofits worked alongside Sandbranch residents, and one of them, the Water Finance Exchange (WFX), succeeded in piercing the administrative layers that had kept the community without water for decades. The community has now secured funds to build infrastructure. As Chapter 4 documents, similar moments occurred earlier, but those funds were redirected into buyout programs that relocated residents rather than serving them in place. One of my committee members asked at the defense why WFX succeeded where others did not. My answer is that WFX narrows the distance between the political elite and the demos. The organization's engineers speak two languages: the technical vocabulary of infrastructure construction and the financial vocabulary of capital stacking, and they pair both with sustained engagement of community members. They broke the administrative dam.

I have come to think of this project as walking, in a small way, in Robert Dahl's shoes. In A Preface to Democratic Theory, Dahl describes himself as muddling through, attempting to salvage democratic theory by clarifying its assumptions. I have tried to do something analogous for water governance. As I have traveled across countries with different income levels, I have made a habit of asking strangers about their relationship to water. I have visited waterworks museums on several continents, and one common thread has emerged: a general public that wants to understand what practitioners call One Water, the integrated movement of water from watershed to tap. That observation strengthened my interest in hydrological citizenship. Protecting water and protecting democratic theory are connected projects, and both require buy-in from industry, utilities, and the demos.

I now talk about water with whoever will engage: legislative aides, foreign government administrators, the person sitting next to me on a bus. The knowledge produced in this dissertation should not sit on a dusty shelf. It belongs to people shopping for a new filter, wondering why their tap water tastes of chlorine, or facing the harder question of having no water at all. Texas A&M University, Indiana University Bloomington, and the University of Wisconsin–Madison invested in me through scholarships and fellowships so that I could do work in the public interest. That is the mission I will carry forward.

Acknowledgments

I began drafting these acknowledgments at the start of the project to ground myself in gratitude. Where I come from, people have jobs, not careers. One of my high school history teachers once told me, "Laura, remember you are the exception, not the rule." I carry both lessons with me. My path has been shaped by many people, and I did not arrive here alone.

I have thought about this moment for years, reflecting on an educational journey guided by strong women who navigated me through situations that could have postponed this milestone indefinitely. For my future students and advisees: I was once a student like you, and this is among the most personal pages of any dissertation.

Shanice Whetstone read several drafts and consistently grounded me with two questions: "So what?" and "How much will this cost?" Although our marriage did not last, the financial discipline she brought from her corporate finance background remains part of how I manage grants and write proposals, and it is knowledge I plan to pass on to my advisees.

Dr. Michelle Taylor-Robinson offered the early mentorship that set me on this path. A conversation after her freshman seminar talk at Texas A&M led, eventually, to this dissertation. During my master's at Indiana University, Dr. Claudia Avellaneda introduced me to the inner workings of university administration, a crucial but often invisible dimension of academic life.

My time at the Institute for Research on Poverty (IRP) was formative. I am grateful to the administrative staff for the daily conversations I will miss. For future faculty like myself, IRP demonstrated what mission-oriented administrators can do for the dreams of scholars and their students. I thank Dr. Hilary Shager and Dr. Katherine Magnuson in particular. The IRP Graduate Fellows Program's interdisciplinary structure shaped my approach to poverty research and led me to take the public economics sequence in the economics department alongside Economics Ph.D. students who share that commitment.

The Health Policy Research Scholars (HPRS) program, supported by the Robert Wood Johnson Foundation through the Johns Hopkins Bloomberg School of Public Health, provided more than financial support. It offered career coaching, writing retreats, lectures, and a national network of colleagues committed to improving public health. Attia and Valerisa have been one email away with guidance throughout my career. My broader HPRS community taught me to celebrate wins and to ask for help. Clarice and Lauren, my HPRS writing accountability partners, kept me focused and moving forward.

Ken Genskow and Manuel Teodoro, my co-advisors, persevered with me from the first proposal through the final defense. They read drafts I plan to keep so future advisees can see that everyone's early work needs revision. They wrote recommendation letters, took my calls, and kept my feet on the ground while encouraging ambition. Ken stepped in during the final round of editing, and any remaining errors are mine alone. I still remember the day Ken handed me Martha Derthick's Between State and Nation; her intellectual tracing of regionalism shaped my own. Manny met with

me almost weekly for several years and pushed me to keep reading Dahl. I have now read nearly every book Dahl wrote alone. I am grateful to both of them for the steady forward pressure.

To my full dissertation committee, Dr. Ken Genskow, Dr. Manuel Teodoro, Dr. Carolina S. Sarmiento, Dr. Gabriella Carolini, and Dr. Kurt Paulsen, thank you for your guidance, your critical feedback, and for shaping me as a scholar and a mentor. The breadth of your expertise made this work stronger.

My departmental peers will be future co-authors. I thank my brother, who walked me to pre-K and bought me advanced books during elementary school while he was in college, and my sister, who watched me grow into a stubborn and curious person and who shares my commitment to public health. Friends and family listened patiently as I worked out obscure concepts aloud. My Tokyo "team," Rachel Cohen, Tsukiko Watanabe, and Wakana Zen, helped me think about how to translate findings for audiences outside academia and outside the United States.

Michael Jones-Correa, my postdoctoral supervisor at the University of Pennsylvania, gave me the time and space to finish this dissertation. I have learned many things from him; the most important is patience with myself. He is supervising an early career researcher who arrives most days with three new ideas drawn from political theory and econometrics, and he has reminded me to go home at a reasonable hour and to let projects develop. Stephanie Rivera-Kumar picked me up from surgery and cared for me when I first moved to Philadelphia, even though we had only briefly met at a conference. I expect we will be lifelong friends and colleagues. Calaia Jackson has helped me think through hard problems and has kept me honest. Aisha Fletcher's reminder that "if you are not at the table, you are on the menu" continues to guide my professional choices. Cheryl insists on celebrating milestones I would otherwise let pass; rest does not come naturally to me, and I am grateful for her persistence. Muna, you are now my sister. Iman, more recent in my life, has already taught me to keep faith and to reimagine time, and I expect we will produce comparative work on the Drinking Water Governance Framework together.

David Tidwell, Sarah Anderson, and their families provided rides to mandatory banquets and internships in years when those rides were the difference between attending and missing out. I thank the residents of Sandbranch for participating in interviews and surveys; this dissertation could not exist without them. I thank Water@UW–Madison for the pilot grant that launched the project and HPRS for the additional award that helped me finish it.

Finally, I thank my mother, my father, and God for life and protection. The humble beginnings I came from continue to guide my research agenda.

If I have inadvertently left anyone out, I am sorry. The list of those who have supported me keeps growing, and your contributions mean more than I can say.

Table of Contents

Table of Figures

List of Tables

Chapter 1: Introduction and Overview

"And what," Socrates said, "will be the best limit for our rulers to fix when they are considering the size of the State and the amount of territory which they are to include, and beyond which they will not go? Which limit would you propose?"
Glaucon replied: "I would allow the State to increase so far as is consistent with unity; that, I think, is the proper limit."
— Plato, The Republic

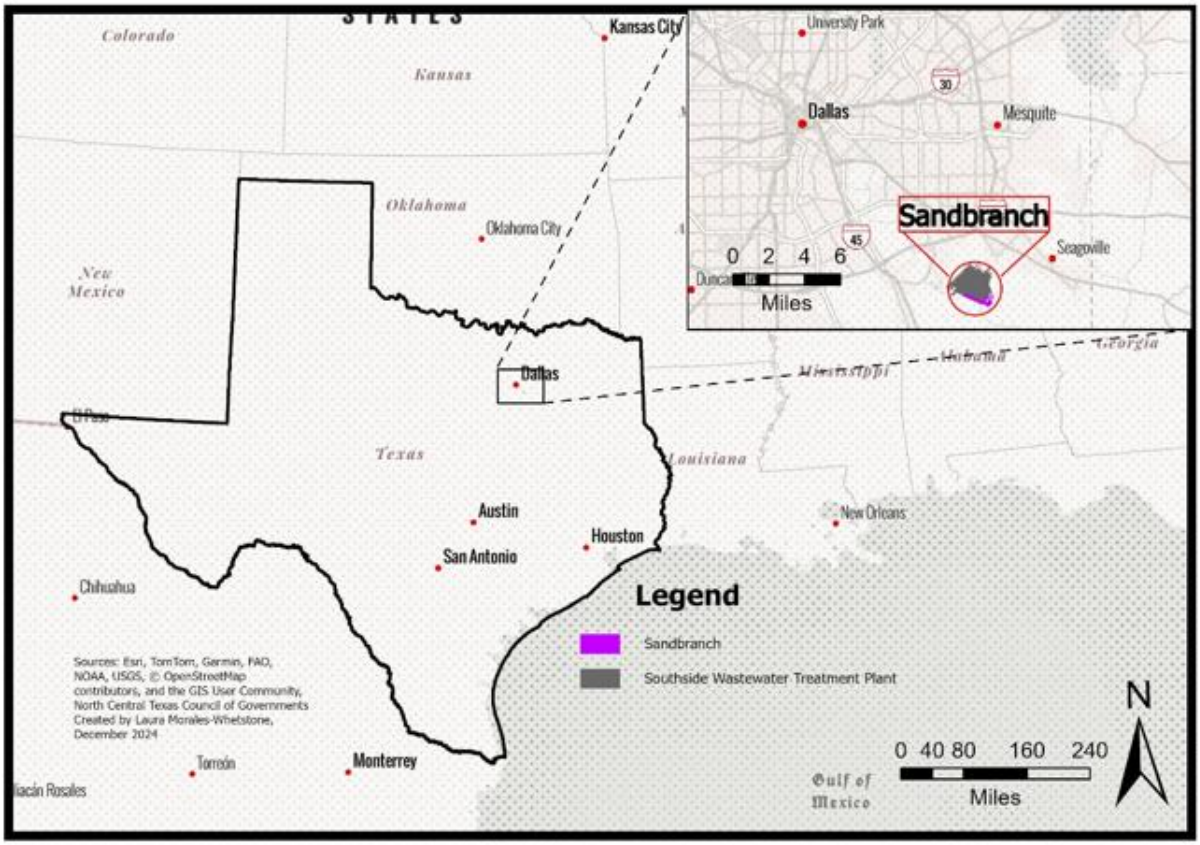
In this two-thousand-year-old dialogue between Socrates and Glaucon lies a fundamental question that resonates through time: What defines the boundaries of community, and who determines the limits of belonging? This ancient philosophical inquiry finds urgent contemporary expression in the question of who constitutes the demos in our democracy—a challenge that takes visceral form not in the marble halls of Athens, but in places like Sandbranch, Texas, a community of 80 households on the urban fringe where the boundaries of citizenship are etched into the very terrain.

Sandbranch is a former freedman's community, built in the decades following emancipation as part of what historians now recognize as a vast network of "independent rural communities of African American landowners and land squatters that formed across the South" (Sitton and Conrad 2005). Like hundreds of similar settlements from north Florida to the Pine Barrens of western South Carolina, these communities represented formerly enslaved people's determination to secure their own "forty acres and a mule." These communities formed when people moved "from plantation districts to wilderness areas of cheap land" where they could establish autonomous communities (Sitton, Conrad, and Orton 2005, 21).

Today, a barbed wire fence cuts a sharp line, separating this small low-income community of Sandbranch from a municipal wastewater treatment plant. This is not merely a physical boundary, but a powerful metaphor for the invisible lines that define the demos in a democracy, lines that echo

the original boundaries these communities drew around themselves as protective spaces where they could exist beyond the reach of institutionalized white authority. Figure 1.1 highlights the location of Sandbranch and its downstream abutting location to the Southside Wastewater Treatment Plant owned by the City of Dallas.

Figure 1.1 Location of Sandbranch



Although adjacent to the city of Dallas and its wastewater infrastructure, residents of Sandbranch lack access to clean water—and they are not alone. Over half a million urban households in the United States lack drinking water access (Meehan et al. 2020) with households of color facing disproportionate challenges (Meehan et al. 2024). Allaire et al. (2024) found that 37% of Americans live in unincorporated communities that often lack essential water and sewer services, due to limited county governance and selective municipal expansion. In northeast Texas, Reyes (2024) identified

128 informal settlements, including Sandbranch, characterized by inadequate water access and substandard housing conditions, such as poor construction materials and a lack of basic facilities.

Many of these communities face political, legal, and governance challenges to obtaining access to drinking water. They are often systematically excluded from service, largely because land use laws leave the area in a precarious state (Johnson et al. 2004; MacDonald Gibson et al. 2014; Workman and Shah 2023). Communities like Sandbranch are too close to existing municipalities for separate incorporation, yet not deemed worthy of annexation due to high service costs (Allaire et al. 2024). These complex challenges defy simple solutions and underscore the need for interdisciplinary approaches to problem solving that engage planning, political theory, and water resource management to address drinking water governance inequities comprehensively.

In this dissertation, I explore environmental justice in relation to democratic theory and its implications for drinking water governance by using Sandbranch as a case study. The broader research question asks: how have historical institutions shaped racialized inequities in drinking water access, and what governance reforms could promote equity and strengthen democratic principles? I focus on historical institutions because current legal and political challenges result from institutions that perpetuate racialized inequities. In addition, exploring democratic theory in relation to how water resources are governed offers new understanding of democratic principles.

1.1 Conceptual Foundation: Core Terms

This section introduces key terms that form the foundation of this dissertation's analysis. I define and explore two central concepts: water poverty and quasi-guardianship, which frame the analysis presented in subsequent chapters. The boundary problem, a third key concept, is developed fully in Chapter 2's literature review.

1.1.1 Water Poverty – Focusing on Those Impacted

While existing scholarship has examined drinking water access through the lens of environmental justice (Bullard 1994), this study uniquely synthesizes democratic theory with empirical analysis to interrogate the historical roots and contemporary manifestations of water poverty. Water poverty is a condition in which households or communities lack adequate access to drinking water along one or more of three dimensions: safety, affordability, and reliability.

- Safety refers to water quality that meets health standards and poses no risk of contamination or illness.
- Affordability refers to water costs that do not impose undue burden on household budgets or force tradeoffs with other essential needs.
- Reliability refers to consistent availability of water service without frequent interruptions or uncertainty.

A household or community may experience water poverty along any combination of these dimensions. Sandbranch, Texas, the case examined in this dissertation, experiences water poverty across all three: residents lack access to a centralized water system (reliability), rely on wells of uncertain quality (safety), and bear costs of bottled water and well maintenance that constitute significant economic burdens (affordability).

The term "water poverty" is used here in place of scarcity or insecurity, drawing on Meehan et al. (2023, 15), who assert that water scarcity is "relational and constructed" and more specifically an "outcome of uneven conditions, logics, and practices." Additionally, Huby (1995) employs water poverty to describe affordability problems. This dissertation builds on these foundations while providing a more precise, multi-dimensional definition that enables systematic assessment of water

access conditions. Specifically, it investigates how institutional arrangements and governance failures produce water poverty in specific communities, and how that experience shapes residents' trust in water governance institutions. The relationship between water poverty and trust is not definitional but empirical: this study documents how decades of exclusion from infrastructure investment have generated profound distrust that persists even when technical solutions are proposed. Understanding this relationship is essential for designing governance reforms that can succeed not only technically but democratically.

This focus acknowledges that social factors such as race, ethnicity, and income often compound water poverty as individuals navigate racialized institutions. However, the definition itself is not restricted to particular demographic groups. Water poverty can affect any community lacking adequate access along these three dimensions, though it disproportionately affects communities marginalized by race and class.

As Plato observed in *The Republic*, "any city, however small, is in fact divided into two, one the city of the poor, the other of the rich; these are at war with one another" (110), and this division manifests clearly in water access, where the most vulnerable populations, those in poverty, are denied basic access to safe drinking water or experience systemic failures through unaffordable rates, deteriorating infrastructure, regulatory non-compliance, and unreliable service.

However, this dissertation does not concentrate its argument on classism or the moral problem of poverty. Political theorists such as Iris Marion Young demonstrate that clustering into particular groups is not itself a moral problem; rather, it is the assigned structural inequality that is traceable to governance choices that perpetuates conditions like water poverty and hinders democratic engagement (Young 2002). Young advocated for the eradication of structural inequalities in order to promote democracy, although questions remain about how democratic principles apply when

technical expertise and institutional complexity obscure the governance choices that produce such inequalities.

The structural inequalities Young identifies require attention to how democratic principles apply or fail to apply in water governance. The following section introduces quasi-guardianship, a concept that captures how technical expertise and institutional arrangements can undermine democratic participation even within formally democratic systems.

1.1.2 Quasi-Guardianship: Expert Control versus Democratic Governance

Central to this analysis is the tension between democratic ideals and what I term "quasi-guardianship" in water governance. This concept builds on Dahl's (1985) exploration of the democracy-guardianship dichotomy in *Controlling Nuclear Weapons: Democracy versus Guardianship*. Dahl observed that in domains requiring technical expertise, "We have in fact turned over to a small group of people decisions of incalculable importance to ourselves and mankind, and it is very far from clear how, if at all, we could recapture a control that in fact we have never had" (p. 7). Crucially, he noted that "given the political culture of this country the Guardians may resist being identified as such" (p. 7). This resistance to identification is precisely what makes quasi-guardianship analytically important: it describes governance arrangements that function as guardianship while maintaining the institutional vocabulary and formal procedures of democracy. The guardians do not announce themselves as such; they speak the language of public participation, technical necessity, and administrative procedure. Identifying quasi-guardianship, therefore, requires looking beyond formal structures to examine whether democratic participation is substantive or merely procedural.

I adapt this concept to water governance, where similar dynamics of expert control and democratic exclusion operate. Quasi-guardianship is a governance arrangement in which decision-making authority over essential services is concentrated among appointed officials or technical experts rather

than representatives accountable to affected communities. Under quasi-guardianship, formal opportunities for community input may exist, but they are procedurally inaccessible—meetings held at inconvenient times or distant locations, comment periods requiring technical expertise to navigate, or decisions effectively made before input is solicited. Information flows are asymmetric: technical knowledge relevant to decisions is held by authorities but not made accessible to affected communities in usable form. The result is governance that operates *within* nominally democratic institutional frameworks while *structurally limiting* the democratic participation those frameworks formally permit.

Water governance arrangements can be understood along a continuum from democratic governance to full guardianship, with quasi-guardianship occupying the middle range:

Table 1.1: Continuum of Guardianship

← Democratic ——— CONTINUUM OF GUARDIANSHIP —— Full Guardianship →

Feature	**Democratic Governance**	**Quasi-Guardianship**	**Full Guardianship**
Decision-makers	Elected by or directly accountable to affected community	Appointed experts or distant officials with nominal accountability	Appointed experts with explicit authority; no democratic accountability
Community participation	Substantive; shapes decisions	Formal but procedurally limited; rarely shapes outcomes	None expected or permitted
Information access	Transparent; accessible to community	Technical; held by authorities	Explicitly restricted
Justification for authority	Community consent	Technical expertise + nominal democratic legitimacy	Technical expertise alone

Quasi-guardianship differs from *neglect*, which involves inattention or low prioritization of a community's needs without active governance involvement. It differs from *exclusion*, which involves formal denial of membership or standing in a political community. It differs from *full guardianship*,

which Dahl (1989) describes as explicit rule by a small group not subject to democratic processes. And it differs from *paternalism*, which involves making decisions *for* a community's perceived benefit while overriding their expressed preferences—paternalism assumes it knows what is good for people, whereas quasi-guardianship is characterized less by benevolent intent than by structural arrangements that simply bypass community voice regardless of intent. Quasi-guardianship is distinctively characterized by the *presence* of governance—active decisions, infrastructure investment, regulatory frameworks—coupled with the *absence* of meaningful democratic participation in that governance.

The manifestation of quasi-guardianship varies across communities and contexts. Cases like Flint, Michigan; Jackson, Mississippi; and metropolitan water authorities in Arkansas illustrate this phenomenon across different points on the continuum. In Flint, the appointment of emergency managers represented a form approaching full guardianship—explicit displacement of elected officials, though still operating under state legislative authorization. Jackson experienced a water crisis under nominally democratic governance that nonetheless exhibited quasi-guardianship characteristics: formal accountability structures that failed to translate community needs into responsive action. A particularly revealing example comes from Central Arkansas Water, where a utility executive candidly described refusing board representation to smaller communities joining the system: "my response was no and if that's a deal breaker then we you know let's save everybody some time and money and just go our separate ways" (Webinar 2025). Instead of formal representation, the executive argued that "it's really the newspaper and the television stations" that provide oversight. This substitution of media attention for democratic representation exemplifies quasi-guardianship's structural logic: participation is formally possible but structurally discouraged, and accountability flows through indirect channels rather than democratic institutions.

Sandbranch exemplifies quasi-guardianship rather than neglect because institutions actively governed the region—constructing a 3,000-acre wastewater treatment plant adjacent to the community, administering Dallas County buyout programs that affected residents' property and community capacity, enforcing zoning and land use decisions, and including Sandbranch in regional planning jurisdictions. The community was not ignored; it was governed. However, residents were structurally excluded from meaningful participation in these decisions. This is the defining characteristic of quasi-guardianship: governance without democratic participation, infrastructure without citizenship.

1.2 Significance of the Study Through Governance Reform:

This dissertation intervenes in ongoing debates about water governance reform at a critical moment. The Environmental Protection Agency's proposed Water System Restructuring Assessment Rule seeks to promote regionalization and consolidation of water utilities, responding to decades of scholarship characterizing America's drinking water challenges as problems of fragmentation and economies of scale (Beecher 1994; Teodoro, Zuhlke, and Switzer 2022). With approximately 50,000 community water systems in the United States—many serving fewer than 500 people and facing significant financial and operational challenges—regionalization has emerged as a prominent policy solution.

Yet much of the literature highlights deep-rooted racial, ethnic, and income-based inequities in water access that existing reform proposals fail to adequately address (Gu et al. 2023; D. Switzer and Teodoro 2018; Wutich et al. 2022). This study's significance lies in its examination of how governance reforms may inadvertently reinforce quasi-guardianship over essential resources rather than addressing the root causes of water inequities. For communities like Sandbranch, poorly designed regionalization could strip residents of democratic voice while absorbing them into service

areas where they have no meaningful participation—replicating the exclusionary governance structures that created their marginalization in the first place.

By documenting the historical origins of water poverty in Sandbranch, identifying critical turning points in the community's trajectory, and incorporating resident perspectives alongside institutional analysis, this research provides a comprehensive view often missing from policy discussions. The central finding: that regionalization's form matters more than regionalization itself, offers concrete guidance for policymakers seeking to extend water access without perpetuating the democratic failures that produced water poverty.

This study is uniquely positioned to provide insights into the lived realities of those affected by water poverty. Through resident interviews, governance questions naturally emerged regarding who would manage water systems and how residents perceived potential management structures. The household survey addressed critical institutional design considerations, including affordability program barriers and rate preferences. The historical research established the institutional background of how current conditions developed. Together, these methods contribute to a growing body of literature on environmental justice, planning theory, and democratic governance.

1.3 Case Study Selection: Sandbranch, Texas:

Why study Sandbranch? I approach the case as a balancing act, adopting a dialectical approach. On the one hand, Sandbranch serves as an illustration of water poverty as a democratic failure operating across multiple scales (local, state, and federal) where governance systems have systematically failed. On the other hand, I maintain inductive flexibility to give the remaining legacy members of Sandbranch a sense of authority over the work as the evidence unfolds, aligning with the principles of community-based research. Sandbranch presents a compelling case study in water access and community dynamics because it embodies several critical analytical dimensions: it exists within the

Dallas-Fort Worth metroplex yet stands as a positive case of water poverty and a negative case of regionalization, excluded from the water services provided by Dallas Water Utilities. Sandbranch is both a real empirical unit with its own unique history and circumstances and a window into understanding how democratic failures at different governmental levels create and perpetuate water poverty in marginalized communities.

It is important to examine Sandbranch's demographic composition and historical context to better understand it as both an empirical and theoretical entity. A recent research report by Reyes et al. (2024) reveals that approximately 132 residents live in Sandbranch, Texas. The community's demographic makeup shows African American/Black residents as the largest group at 54%, followed by White at 24% and Hispanic/Latinx at 22%. However, field observations suggest a larger Hispanic/Latinx presence than the survey documented, likely due to participation barriers and enforcement concerns. The survey found a gender imbalance with 67% male and 33% female respondents. Age-wise, middle-aged adults (40-59) comprise 48% of the population, older adults (60+) account for 41%, and only 9% are under 40.

These demographic variables are crucial for understanding how intersecting identities of race, ethnicity, and age compound vulnerability to water poverty and democratic exclusion. While Reyes et al. (2024) did not systematically collect income data, my own field observations revealed widespread economic hardship among residents lacking drinking water access. In my multi-method data collection approach, including surveys, I documented the community's severe economic constraints: approximately 75% of residents are unbanked, 64% could not afford a $400 emergency expense, and roughly 90% live at or below the federal poverty line as defined in 2024. This economic precarity, combined with the community's racial composition and age demographics,

illustrates how water poverty operates as both a cause and consequence of broader patterns of marginalization and democratic exclusion.

Understanding these demographics is only part of the picture; Sandbranch's historical roots provide further insight into its current challenges. Recognizing Sandbranch as a freedman's community reveals the deeper historical forces behind its ongoing challenges. Settlers built many freedmen's communities in Texas on the fringes of white-established towns and cities, choosing sand hills, river bottoms, and county lines where land was cheaper and less desirable (Sitton, Conrad, and Orton 2005). Sandbranch currently stands on the southeastern urban fringe of Dallas, Texas. The community abuts the 3,000-acre Southside Wastewater Treatment Plant, which treats half the Dallas metropolitan regional wastewater. Sand and gravel mining, a salvage yard, and a protected palmetto alligator slough preserve border the community. This unique location places Sandbranch on the urban fringe of a central metropolitan area and at the intersection of nature, commercial industry, and "not in my backyard" (NIMBY) infrastructure. This geographic positioning reflects a historical pattern where freedmen's communities were systematically relegated to marginal spaces that later became sites for environmental hazards and industrial infrastructure that more powerful communities could reject.

Approximately forty years ago, Dallas County health officials conducted a random testing of Sandbranch wells and found that many were contaminated with E. coli (Levin 1986). Around the same time, public officials expanded the nearby wastewater plant (Harris 1985; Jacobson 1986b). Today, a few residents still drink well water, but most depend on bottled water for day-to-day activities (Pemberton 2022). The community has established a water development board. With approximately 80 households home to elderly residents, political actors struggle to make economically feasible cases for infrastructure improvements (Pemberton 2022).

The community's physical and social characteristics further illuminate these analytical dimensions. Sandbranch occupies a unique space that defies easy categorization as either urban or rural, though many often categorize it as the latter due to significant disinvestment. The lack of basic infrastructure like fire hydrants further exemplifies this dichotomy, despite its proximity to a massive wastewater treatment facility symbolizing modern urban life. In this context, I define "community" as a dynamic system of relationships and interactions among individuals and subsystems, following Dahl's (1989, 73) view that the characteristics of a community are not reducible to the sum of its individual parts. The community, while racially and ethnically segregated, demonstrates unity in its collective efforts to address water access problems. Through these contrasts, Sandbranch also showcases the complexities of water accessibility, community resilience, and uneven development within seemingly cohesive metropolitan regions.

My personal connection to Sandbranch adds a unique dimension to this research. Growing up in what residents call the backyard of Sandbranch, just up the street, I was fortunate to have running water, though it was also contaminated. I lived on unincorporated land subject to the same legal constraints as Sandbranch and my home was surrounded by sand and mining operations. I could see the wastewater plant looming over the community from my house. I have a strong memory of riding an elementary school bus with the "Sandbranch kids"—friends who faced a reality in silence that when they went home, the water was not to be trusted or perhaps not present at all. This familiarity facilitates centering the community's voice in the research, as my return is simply seen as "Laura's back" among legacy members. The research process can best be described as "abductive" (Ragin 2004), putting deductive and inductive reasoning in conversation. While my lived experience in the area for more than half my life informs the theoretical, conceptual framework, centering present-day voices is crucial to completing the research process. Sandbranch is part of a larger story – one of

numerous Black and Latino communities facing drinking water access issues across the United States.

As briefly mentioned, Sandbranch is not on its own as it claims space among other Black or Latino communities on the urban fringe that do not have drinking water access in the United States (Aiken 1987; Balazs et al. 2011a; Bullard 1994; Gordon 2019; Johnson et al. 2004; Lichter et al. 2007; MacDonald Gibson et al. 2014; Olmstead 2004; Workman and Shah 2023). These case studies span multiple regions across the United States, with documented cases in the South and Southwest (Aiken 1987; Bullard 1994; Lichter et al. 2007; Olmstead 2004), western (Balazs et al. 2011a), Midwest (Gordon 2019), and southeastern (Johnson et al. 2004; MacDonald Gibson et al. 2014; Workman and Shah 2023). Throughout the literature, researchers use various names for this phenomenon, such as municipal underbounding, infrastructure redlining, under-serviced areas, or geographies of gentrification (see Aiken 1987; Balazs et al. 2011; Nieberg 2019). Authors come from a wide array of fields, such as public health, planning, geography, rural sociology, political science, and law. The commonality among these case studies is race, ethnicity, income, fringes, and lack of local government accountability to move past the present conditions. The latter is most important because it describes one of the symptoms of "quasi-guardianship." Governing institutions and decision-makers do not recognize these communities as political equals in the political sphere and ultimately do not formally acknowledge their autonomy. Sandbranch, as a case study, can strengthen democratic governance by recognizing the previous models of "quasi-guardianship" that are pervasive across the literature. However, the ultimate goal is to democratically work through public policy solutions, such as regionalization, that enable universal access to drinking water.

1.4 Methodology Overview:

This dissertation employs a mixed-methods approach rooted in community-based research (CBR) principles to investigate Sandbranch's water access struggles. Four research questions guide this inquiry:

1. How did Sandbranch's specific historical trajectory lead to its current water access problems?
2. What role did institutional path dependency play in perpetuating inequities?
3. What does the Sandbranch case reveal about "bounded citizenship" in infrastructure planning?
4. What are the broader implications for environmental justice and governance reform?

To address these questions, the methodology combines archival research, surveys, and ethnographic techniques to provide a nuanced understanding of the historical, social, and institutional factors contributing to the community's ongoing challenges. In-person data collection occurred from March 2024 through January 2025.

The core of the research is a community-based approach, initiated with a detailed survey administered in March 2024. The survey, developed with input from a local nonprofit organization, explored water access challenges, trust in governmental institutions, and political participation within Sandbranch. Throughout the research process, I maintained communication with community members through regular text message updates, sharing findings and progress, while also engaging with national advocacy organizations to elevate awareness of the community's challenges.

The CBR approach extends beyond data collection, emphasizing collaborative knowledge production. Community members were asked to interpret historical findings during field visits in December 2024 and January 2025, valuing local knowledge and perspectives. Residents offered to

assist in door-to-door survey distribution, demonstrating the community's active participation in the research process.

Archival research constitutes another crucial component. Beginning with an initial desktop review of historical documents in October 2023, the research progressed to an in-depth exploration at the Dallas Municipal Archives in March 2024. The methodology also incorporates an ethnographic sensibility (Simmons and Smith 2017), leveraging personal experience and connections within the community to build trust and gain deeper insights. This approach was particularly valuable during the post-election visit from December 2024 to January 2025, where discussions focused on the urgency of water access issues and explored historical context with residents.

The research strategy demonstrates adaptability, as evidenced by adjustments made following the loss of a nonprofit partner, while maintaining a steadfast commitment to the community. Ethical considerations, including navigating personal community connections and handling sensitive data, were carefully addressed throughout the research process. By centering community voices and experiences alongside institutional and historical analysis, this methodology enables a comprehensive understanding of Sandbranch's water access struggles while emphasizing reciprocity and relevance to the community. Chapter 3 provides a detailed account of these methods and their implementation.

1.5 Dissertation Structure:

Together, these chapters demonstrate that water poverty is fundamentally a democratic failure requiring governance reforms that center on democratic principles. A note on the dissertation's chapter-level structure is also warranted. Each chapter opens with an epigraph, and these are not decorative. They are part of the argument. The Plato exchange that opens this chapter names the boundary problem at the heart of the dissertation. The Adler quote at the start of Chapter 2 frames the federalism diagnosis that runs through the policy analysis in Chapter 7. The historical interview

excerpts that open Chapters 4 and 5 require particular comment. The residents quoted in those epigraphs were elderly when journalists interviewed them in the 1980s and 1990s, and most have since passed. Their voices could not be recaptured in the contemporary fieldwork conducted for this dissertation. The historical chapters, therefore, rely on archival sources and earlier journalistic accounts to surface residents' own framings of what was happening to them, and the epigraphs are a deliberate choice to let those framings open the chapters where the community's voice would otherwise be filtered through institutional records alone. Chapter 6 returns to contemporary residents, in their own words, drawing on interviews and surveys conducted between March 2024 and January 2025. The epigraph for Chapter 7 carries a question first asked by Mr. Scott in 1991 and still unanswered today, marking the continuity between historical and contemporary exclusion that the policy chapter must address. Chapter 8 closes with Dahl on the demos as the anchor against drift toward quasi-guardianship, returning the dissertation to the democratic-theoretical frame established in the opening pages.

Together, these chapters demonstrate that water poverty is fundamentally a democratic failure requiring governance reforms that center on democratic principles.

Chapter 2: Literature Review – Democratic Failure and Regionalization

"An overly centralized environmental regulatory system is itself an affront to nature."

- Jonathan Adler (2005)

Chapter 1 introduced the problem of water poverty through the lens of Sandbranch, Texas, a community that has lived without reliable drinking water infrastructure for decades. That introduction established that water poverty is not merely a technical or infrastructure problem but a fundamental democratic failure—one that demands theoretical grounding to fully understand its causes and potential solutions. In a seminal article on the mismatch in environmental federalism, Adler (2005) advocated for federal intervention during specific spillover effects and argued that environmental problems were hyperlocal problems, which should remain as such, and uniform federal standards would have negative economic consequences. In the quote referenced above, he argues that federal standards should be decentralized because each local and regional ecosystem has unique circumstances, and he critiques drinking water standards. His Pollyanne small government viewpoint on environmental regulation details how the "outgoing Clinton Administration proposed lowering the federal standard for arsenic in drinking water," due to its connection to bladder cancers, which was heralded by environmental groups, but local experts in Luna, New Mexico, stated the change would add millions to the cost, in addition they already had one of the lowest rates in the country for that type of cancer (p 172). As years passed, the regulation remained unchanged. Eventually, a National Institute of Health study reported that there was strong evidence of underreporting of bladder cancer due to individuals being underinsured, particularly on the New Mexico – Mexico border, naming Luna as a particular case example (Taylor et al. 2020).

Scholars have long known that the scope of environmental problems often extends beyond political jurisdictions (Dyckman and Paulsen 2012; Koontz et al. 2015; Wardropper et al. 2023). The nature of U.S. federalism often leaves local actors scrambling to coordinate, leading to what has been called polycentric governance (Koontz et al. 2015), cooperative federalism (Adler 2005), or collaborative governance (Ansell and Gash 2008; Genskow 2009), in which certain interest groups or key stakeholders may exert particular influence. Yet, Luna, New Mexico, is particularly telling in how decentralized systems leave certain communities vulnerable to systematic exclusion from coordination efforts. U.S water governance is a patchy network of coordination, starting from the federal level to the local level. Communities like Sandbranch exist within a federalist context in which democracy operates, or in which, I argue, it fails.

This chapter provides a theoretical foundation, examining how democratic theory illuminates the systematic exclusion that creates water poverty, and proposing regionalization as a potential mechanism for addressing these deep-rooted inequities.

The chapter proceeds in three movements. First, I synthesize extant research to establish water poverty as a democratic failure by tracing how political boundaries and governance structures systematically exclude communities from essential services (Sections 2.1-2.2). Second, I examine the theoretical foundations necessary for understanding and addressing this failure, including core democratic principles, the boundary problem, and the critical role of trust in water governance (Sections 2.3-2.7). Third, I explore literature addressing regionalization as a potential solution, examining its historical foundations and environmental logic (Section 2.8-2.9). Throughout, I draw on democratic theory, particularly Robert Dahl's work on political equality and procedural democracy, while incorporating critical perspectives that challenge elitist conceptions of governance.

2.1 The Democratic Failure of Water Poverty

Current literature consistently finds that water poverty disproportionately affects individuals based on race, ethnicity, and income (Aiken 1987; Allaire et al. 2024; Balazs et al. 2011b; Gordon 2019; Lichter et al. 2007). In the United States, drinking water service typically aligns with municipal annexation patterns, which reflect the country's racialized history. As a city grows or establishes its physical boundaries, the polity itself is redefined—boundaries become elastic. Municipalities may extend services to nearby residents, or residents create special districts to obtain these services.

Burns (1994) explains how these special districts function as mechanisms of selection and exclusion. In *The Formation of American Local Governments: Private Values in Public Institutions*, she traces how citizens have historically used special districts to control who becomes part of their political community—whether through formal inspections of potential residents in the 1600s or through zoning powers in the 1900s. These mechanisms ultimately shaped both community composition and how services such as drinking water are governed. In certain eras, this selection of "citizens of the government" was an explicitly racialized act (p.24). Consequently, boundaries play a crucial role in determining who receives water services, especially given when and how officials established them.

This historical pattern of boundary-making and service exclusion raises fundamental questions about democratic legitimacy and the application of democracy to essential public services. I adopt Robert Dahl's (1979, 1985, 1989, 2006) characterization of democracy as a "political order" grounded in five foundational criteria: effective participation, voting equality at the decisive stage, enlightened understanding, control of the agenda, and the inclusion of all adult members of the association.

Water poverty can be viewed through two lenses: as a symptom of democratic weakness in process or as a fundamental failure of democratic principles. This dissertation adopts the latter perspective, framing water poverty as a critical failure of democracy to ensure access to essential resources.

Understanding this failure requires examining what political theorist Charles Beitz calls the "terms of participation" in democratic life (Beitz 1989, 4–5). Beitz argues that political equality is fundamentally about fairness—specifically, whether the conditions under which citizens participate in governance reflect their equal public status. As Beitz articulates, political equality serves as "the chief regulative principle of democratic political competition by defining fair terms of participation." When communities lack access to safe drinking water, this undermines the fair terms of participation Beitz describes—not only by formal exclusion, but also by the absence of a material condition that this dissertation treats as essential to democratic equality. As communities inherit these physical boundaries, so too do they inherit the political structures and institutions that determine membership into the polity.

Water poverty represents a democratic failure insofar as it undermines political equality by compromising the conditions under which citizens can participate as equals in civic life. As defined in Chapter 1, water poverty concerns access to drinking water that is safe, affordable, and reliable, as well as the perceptions and trust communities hold toward their water sources. In this chapter, the focus is on how institutional design choices, patterns of infrastructure investment, and exclusionary annexation practices compromise these conditions. When such arrangements deny communities access to water, participation is constrained not by formal exclusion but by the absence of the material and institutional conditions that enable meaningful civic engagement. In Beitz's terms, water poverty violates fair terms of participation by denying citizens the conditions necessary to engage as equals in democratic processes.

In this dissertation, I build upon Robert Dahl's concepts of democracy, which are a "procedural" and process-oriented ideals (see Dahl, Laslett, and Fishkin 1979). Dahl navigates what Bachrach Bachrach (1980) and I viewed as democratic elitism by previous democratic theory scholars, such as

Schumpeter. Bachrach (1980, 17–19) states "the inference of Schumpeter is clear: an individual gives his uncompromising allegiance and loyalty to ideals and interests which he cherishes, and qualified allegiance to a political method, such as democracy, which he expects will serve these ends." In addition, he also stated that earlier scholars such as Mosca who preceded Schumpeter, believed in two classes of people, those who govern and those do not with a "anti-democratic bite" (Bachrach 1980, 11). Although I will focus heavily on the procedural aspects of democracy and on increasing the likelihood of a democratic decision that leads to political equality, I adopt Iris Marion Young's notion of "inclusive political communication," which seeks to critically analyze these processes through the lens of dominant and marginal groups (Young 2002, 52–53). I reject elitist dichotomies that have been previously presented and partially inherited by Dahl, and orient the reader to calls for the Just City or "a city in which public investment and regulation would produce equitable outcomes rather than support those already well off" (Fainstein 2011, 3). In this ideal, we have political equality through meaningful civic engagement. Yet, we need a deeper interrogation into inherited political structures through boundaries that were once seen as "given by prior tradition and historical events" (Dahl 1956, 53).

Put simply, modern democratic theory requires a careful understanding of historical governing institutions and the tracing of intellectual thought in relation to the lived experiences of people facing water poverty.

Drawing from these concepts, democracy, as understood in this research, represents a normative political ideal grounded in three interconnected elements: (1) a clearly defined demos—a political community whose members possess legitimate entitlement to participate in governance; (2) genuine political equality among members of this community; and (3) robust mechanisms of trust both among community members and between citizens and their representatives. Democratic governance

necessitates institutions that facilitate inclusive contestation and substantive input from all members of the demos while simultaneously addressing the boundary problem: determining who rightfully constitutes the political community entitled to engage in collective decision-making.

Such institutional arrangements must ensure that those most directly affected by governance decisions can access formal channels of political participation and representation. However, democracy demands more than procedural access—it requires that participation yield authentic responsiveness and accountability from elected representatives and governing institutions. Understanding how contemporary water governance falls short of these ideals requires examining the historical evolution of water systems and the political choices that shaped them.

2.2 Historical context and current challenges in Water Governance

To understand how water governance in the United States has failed to meet these democratic commitments and how water poverty has become an inherited problem through governance structures, it is necessary to trace the historical evolution of water systems and the political choices that shaped them.

Historically, water governance in the United States has evolved through various phases, each marked by distinct challenges and policy responses. In the early 20th century, federal policymakers, state governments, and municipal authorities focused on expanding access to clean water as urban populations grew rapidly, driven by economic development imperatives and the substantial infrastructure costs that dominated city budgets (Melosi 2000; Tarr 1996). This period saw significant federal investments in large-scale infrastructure projects, such as reservoirs and treatment plants, often coordinated through initiatives like the Tennessee Valley Authority (McKinley 1950). However, these efforts created a hybrid governance structure: while federal funding and engineering expertise centralized planning and financing, water service delivery remained hyper-localized under

municipal control. Few jurisdictions pursued regional coordination beyond these major federal projects (see Derthick and Bombardier 1974), establishing the fragmented governance landscape that persists today, where thousands of individual water utilities operate with minimal coordination despite shared watersheds and interconnected challenges. The mid-20th century brought about a shift towards environmental protection, highlighted by the passage of the Clean Water Act in 1972 and Safe Drinking Water Act in 1974. These laws aimed to restore and maintain the integrity of the nation's waters, emphasizing the need for regulatory oversight. Community involvement was later incorporated into the amended regulations. Despite these advancements, contemporary water governance faces new challenges, including climate change, failing infrastructure, and disparities in access based on race and ethnicity. These issues necessitate a re-evaluation of governance frameworks to ensure they align with democratic principles.

Today's fragmented landscape and contemporary crises emerged from this historical evolution of water governance structures. The challenges facing modern water systems are not primarily technological but fundamentally political, rooted in the governance failures explored above. One of the most pressing challenges is demonstrated by high-profile failures like the Flint water crisis and California's ongoing water allocation disputes. These events underscore fundamental governance problems: failing infrastructure, inadequate regulatory oversight, and decision-making processes that exclude affected communities.

The Flint water crisis serves as a particularly instructive case for understanding the relationship between governance quality and water quality. In the immediate aftermath of the crisis, some water industry professionals and technical experts attempted to frame Flint as an engineering or management failure—a problem of corrosion control, pipe materials, or administrative oversight that could be solved through better technical protocols (Pauli 2019). However, this framing obscures

the fundamentally political nature of the crisis. As Pauli (2019) demonstrates, Flint was not a failure of technical knowledge but a failure of democratic governance: the crisis occurred not because knowledge was unavailable but because governance structures prevented it from being heard and acted upon. State-appointed emergency managers systematically bypassed elected officials and dismissed community concerns about water quality, prioritizing cost savings over public health—a stark manifestation of quasi-guardianship where technical and managerial authority effectively displaced democratic decision-making.

Nickels (2019) argues that the crisis reflected the "corrosion of democracy" itself, where Michigan's emergency manager law stripped residents of their political voice and ability to hold decision-makers accountable. This represents an extreme form of the quasi-guardianship dynamic: while those in control resisted being identified as guardians, maintaining the appearance that democratic processes remained intact, residents experienced the material reality of having lost control over decisions affecting their most basic resource. Hughes (2021) further shows how the crisis revealed deep inequities in who gets voice in water governance decisions, with low-income residents and communities of color bearing the consequences of their systematic exclusion from decision-making processes. Environmental engineers, public health officials, and residents themselves raised alarms about water quality. The technical knowledge existed, but the governance structure prevented this knowledge from translating into protective action.

This distinction between technical and governance failures is critical for understanding water poverty as democratic failure. The quality of water was directly tied to the quality of governance and to whether communities could exercise meaningful participation in decisions affecting their lives. When communities are excluded from meaningful participation in water governance, the result is not merely procedural inequality but material harm in the form of contaminated water, failing

infrastructure, and eroded trust in public institutions. This erosion of trust compounds the democratic failure: communities denied voice in governance decisions simultaneously lose confidence in the safety and legitimacy of their water supply, reinforcing the cycle of water poverty. These patterns of exclusion operate across a continuum—from the dramatic suspension of democracy in Flint to the routine administrative oversights that leave communities invisible in official planning documents.

California's water conflicts reveal similar democratic deficits, where powerful agricultural and urban interests often dominate allocation decisions while rural and disadvantaged communities lack meaningful representation in water governance. These governance failures highlight the need for more inclusive and democratically accountable water management frameworks. While technological advancements, such as smart water meters and advanced treatment technologies, offer new opportunities for improving water management (Madias, Szymkowiak, and Borusiak 2023), their implementation must address the same democratic concerns that underlie these governance failures. Without careful consideration of accountability, cost implications, and potential disparities in access, new technologies risk exacerbating existing inequities rather than solving the fundamental problem of undemocratic water governance (Koech, Cardell-Oliver, and Syme 2021).

These inquiries become especially critical when analyzing the governance of public utilities, where democratic principles intersect with complex infrastructural and administrative challenges. Historically, drinking water systems embodied local democratic control, a mechanism through which communities directly managed a fundamental resource. However, contemporary water governance has evolved into a landscape marked by technical complexities, financial constraints, and persistent challenges in maintaining democratic representation.

The growing disconnect between citizens and water management is epitomized by the very need for specialized databases that help residents identify who manages their local water systems (SimpleLab and EPIC 2022). Several recurring themes emerge for scholars examining the United State's drinking water policy: systemic service fragmentation, local autonomy versus systemic water coordination, and persistent concerns about health, safety, and equitable access.

A revealing historical snapshot emerges from a December 1979 survey of water utility managers conducted by the American Water Works Association (Report 1979). The research illuminated two significant barriers to regional water cooperation: entrenched community attitudes prioritizing absolute independence and deep-seated historical antagonisms between neighboring utilities. These findings underscore a persistent challenge within democratic theory known as the boundary problem[1]—the complex task of defining community membership when political boundaries often reflect historical contingencies rather than contemporary needs.

The perceived immutability of political boundaries compounds this democratic challenge. As Dahl observed, the bounds of inclusion and exclusion for political units are "among the most rigid political phenomena," such that "everyone must take the boundaries of his political world as given by prior tradition and historical events" (Dahl 1956, 53). Yet this apparent fixity is often illusory, and that is where Dahl and I part ways (again). In practice, fields like public administration and urban planning reveal boundaries to be remarkably elastic (e.g., land use zoning, school district expansions, or the shifting boundaries of local alcohol-sale bans and allowances called 'wet' and 'dry' jurisdictions in the American South), subject to reconfiguration based on immediate imperatives rather than democratic principles. Water districts merge and divide, metropolitan planning organizations redraw jurisdictional lines, and service delivery boundaries shift. In such cases, affected

[1] See (Whelan 1983) and 2.5 The Boundary Problem in Democratic Theory section for further discussion

populations often have little say unless the changes directly influence rates or taxes. The tension between perceived rigidity and actual malleability shows that our conception of the demos, the political community, is continually evolving. The challenge lies in ensuring that such evolution serves genuinely democratic rather than merely administrative ends, creating possibilities for more inclusive and responsive forms of civic participation that extend beyond fiscal concerns. These challenges in defining and maintaining democratic participation raise fundamental questions about which principles should guide water governance—questions that democratic theory can help address.

2.3 Core Democratic Principles and Their Limits in Water Governance

Democratic theory provides a rich framework for understanding the principles of governance, particularly in the context of public utilities like water systems. As established in Section 2.1, I adopt Robert Dahl's characterization of democracy as a "political order" grounded in five foundational criteria: effective participation, voting equality at the decisive stage, enlightened understanding, control of the agenda, and the inclusion of all adult members of the association (Dahl 1985, 1989, 2006). These principles are rooted in earlier social contract theorists like John Locke and Jean-Jacques Rousseau, who argued that legitimate governance must be based on the consent of the governed. In the context of water governance, applying Dahl's criteria means that all stakeholders—including historically marginalized communities—must have genuine capacity to participate in decisions about how water resources are managed, not merely formal access to participation.

Deliberative democracy, a concept popularized by Jürgen Habermas, further extends this idea by advocating for inclusive and reasoned debate among citizens. This approach ensures that diverse perspectives are considered, leading to more informed and equitable policy decisions. However, these democratic ideals must contend with the reality of human nature and self-interest. From a Hobbesian perspective, individuals naturally prioritize their own welfare, which can undermine

collective decision-making even within democratic frameworks. This tension becomes particularly acute in water governance, where competing interests such as economic, environmental, and social must be balanced.

However, the most fundamental challenge in applying democratic principles to water governance concerns the very definition of the political community itself. As Whelan argues in his critique of John Stuart Mill, "This effort to construe nationalism as somehow implied by democratic theory, however, is circular: one must have decided in advance that 'the governed' should be the nation, in order to conclude that they would (democratically) choose to be an independent nation-states (Whelan 1983, 29). This critique illuminates a critical problem in water governance: determining the appropriate boundaries of democratic participation in a democratic way especially when water systems often transcend traditional political boundaries.

Translating these democratic ideals into practical governance structures requires careful consideration of how citizens can design institutions to embody these principles while remaining effective in addressing complex water management challenges and acknowledging the realities of self-interest and boundary problems. However, these democratic principles have historically been applied in ways that systematically privilege certain populations over others—a bias that becomes clear when we interrogate whose interests democratic theory actually serves.

This bias manifests in both political theory and physical infrastructure. Income inequities are then compounded by legal and procedural constraints that effectively exclude low-income residents from meaningful participation in water governance. Meaningful participation is a vital element to democracy as political theorist Robert Dahl acutely describes “In order to exercise the fundamental rights to which citizens in a democratic order are entitled— to vote, speak, publish, protest, assemble, organize, among others—citizens must also possess the minimal resources that are

necessary in order to take advantage of the opportunities and to exercise their rights" (Dahl 2003, 252). Without argument, access to drinking water is a minimal resource that is necessary to fully participate in democratic decision-making.

Although I agree with this viewpoint of democracy, I part ways with Dahl in considering how the theorist viewed time spent engaging government as "The law of time and numbers: The more citizens a democratic unit contains, the less that citizens can participate directly in government decisions and the more that they must delegate authority to others" (Dahl 2008, 58). Similarly, in *Voice and Equality: Civic Voluntarism in American Politics*, Verba. et al.,(1995) make an empirical argument about civic engagement which focuses on "time, money, and civic skills" (p 16). The authors explanatory model for participation centers on three viewpoints of the demos which summarizes why they do not meaningful engage with government: "they don't want to, nobody asked, they can't" (p 15-16). However, for communities experiencing water poverty, physical boundaries and service exclusion create structural barriers that prevent meaningful participation regardless of individual motivation or capacity. The physical boundaries of water systems have not been adequately incorporated into scholarly thought, despite the deep-seated nature of income inequities and questions surrounding unity and boundaries since Plato's Republic.

I argue that seminal democratic theorists such as E.E. Schattschneider, Joseph Schumpeter, and Robert Dahl, overlook the inherent biases towards low-income populations. Although Dahl advocated for basic resources to be met, the argument is circular. Communities experiencing water poverty are being systematically excluded from democratic rights. Normative democratic theory tilts towards democracy for the average voter rather than the low-income population that is often systematically excluded from the democratic political order. Even a brief interrogation of Madisonian majoritarianism through these theorists' perspectives indicates that low-income

populations are at the extremes of a bell curve, where, in most cases, a "democratic society" cares about the average outlook on a particular problem and, at best, the median. Low-income populations do not have the time to participate in formal channels of civic engagement as it can become a trade off with their livelihood in the context of a gig economy. If the end outcome is to be political equality, as prescribed by the set of theorists previously discussed, then such low-income populations are systematically excluded from the democratic process. The time dedicated to civic engagement has prerequisites that low-income populations must navigate. I define civic engagement as meaningful participation with government. There are both formal and informal channels of civic engagement (R. P. Adler and Goggin 2005); however, in the context of drinking water governance, navigating multiple government agencies to gain drinking water access is time-intensive. For communities facing water poverty, this process can span years or even decades. To the median voter, engaging with one water utility democratically might prove fraught with bureaucratic obstructions, let alone a low-income individual working multiple jobs.

The latter is significant given recent research on scheduling precarity that shows low-wage workers receiving as little as 24 hours' notice of their work schedules (Dugan et al. 2022; Lambert, Henly, and Kim 2019), making sustained civic engagement nearly impossible in what are fundamentally hyperlocal political processes in drinking water governance.

This review of democratic theory captures overlooked assumptions about civic engagement and political equality. Tracing the conduits of water poverty is therefore a necessary step towards policy solutions. The first step is to understand the democratic unit of governance within which the demos is bounded (i.e., to address the boundary problem). Then, by understanding how trust binds what will later be described as the Strong Principle of Equality, the demos are finally seen as political

equals. Throughout these three steps, a political order is described in which history bears a significant burden on low-income individuals, exacerbating water poverty.

Building on this understanding of water poverty as a constructed outcome, the concept of the boundary problem helps explain how geographic and political boundaries create and maintain these inequitable conditions.

2.4 Institutional Design for Democratic Water Systems

Having established the core democratic principles that should guide water governance, the question becomes: how do we translate these principles into concrete institutional arrangements? This section examines the relationship between institutional design and democratic practice, with particular attention to the challenges facing contemporary water utilities.

Institutional design plays a crucial role in shaping the effectiveness and legitimacy of water governance systems. The efficacy of these systems hinges on their ability to embody key democratic principles, including transparency, accountability, and responsiveness to community need[2]. One model that has (re)gained traction is polycentric governance, which involves multiple, overlapping centers of decision-making authority (Ostrom, Tiebout, and Warren 1961). This approach allows for greater flexibility and adaptability, as different institutions can address specific aspects of water management. For example, local water boards can focus on community-specific issues, while regional authorities can coordinate efforts across larger watersheds. Another important aspect of institutional design is incorporating mechanisms for public participation, such as public hearings, advisory committees, and participatory budgeting.

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[2] See (Dahl 2006) for the need to map out an "ideal" democracy, which emphasizes effective participation, voting equality, enlightened understanding, control of the agenda, and inclusion of adults as key criteria for evaluating democratic processes.

Local governments have long been celebrated as "laboratories of democracy," suggesting they might be the primary solution to infrastructure challenges (Walker 1969). However, this narrative becomes increasingly tenuous when water utilities face relentless financial, technical, and managerial pressures. Municipal water systems confront a stark menu of unpalatable options: increasing pricing, divesting public assets through privatization, or continuing to operate while contravening regulatory standards (Kline 2021; McKiernan and Warner 2024). Consolidation has emerged as a potential panacea, promising to combine economies of scale with a communitarian ethos of mutual assistance (Dobbin, McBride, and Pierce 2023). In practice, policies that encourage consolidation would mean the managerial integration of a smaller water utility into a mid to large water utility in order to better absorb economic shocks. However, this approach raises profound questions about the nature of democratic governance and institutional design. Specifically, when utilities consolidate across municipal boundaries, decision-making power shifts from local to regional scales.

Consolidation is typically framed as a financial solution to infrastructure pressures. Moving beyond this economic framing, utility regionalization fundamentally invokes the boundary problem in democratic theory. As decision-making shifts to a broader scale, the delineation of the affected political community becomes critical for democratic legitimacy. This parallels democracy's historical evolution from the city-state to the nation-state. The fundamental questions concern the constitution of the demos and the delimitation of its boundaries. These questions resurface whenever the scale of governance shifts, assuming democratic practice existed at the original scale. The shift from hyper-local to regional water governance thus reactivates these foundational democratic challenges.

In democratic theory, following proper procedures is necessary but not sufficient for democratic legitimacy. A truly democratic decision-making process maximizes the collective potential for sound

judgment, recognizing that even well-intentioned actors can make suboptimal choices. Habermas (1996) demonstrates how carefully constructed procedural mechanisms can ensure political equality among participants through deliberative communication. However, the likelihood of making sound decisions requires more than procedural correctness—it requires institutional designs that actively confront inherited inequalities rather than reproducing them.

The preliminary challenge in this governance framework involves defining community membership, a critical demarcation that reveals the inherent exclusivity of drinking water systems. These systems are physically bounded, with pricing structures and service connections creating de facto political boundaries. Research demonstrates that the high costs of extending service, low revenue potential, and weak political influence of poor communities often exclude them from drinking water networks (Olmstead 2004). This structural inequality underscores the complexity of establishing a truly representative democratic process.

Moreover, successful regional water governance demands a foundational level of inter-community trust. Participants must recognize each other as political equals and develop mechanisms for meaningful deliberation and shared decision-making. The potential for conflict is inherent in such arrangements, reflecting the deeper theoretical challenges surrounding the definition of political community. When communities with vastly different historical experiences of governance—some enjoying reliable service for generations, others systematically excluded—are brought together under regional frameworks, trust cannot be assumed but must be actively cultivated through institutional design. This trust-building imperative becomes even more critical given the inherited inequalities discussed above: communities that have been excluded from water service have every reason to distrust governance structures that now propose to include them, particularly if those same structures previously enabled their exclusion.

The subsequent discussion delves deeper into the "boundary problem," a core theoretical challenge in political philosophy that directly interrogates the fundamental constitution of the demos. By examining how political and hydrological boundaries intersect and diverge, we can understand why trust-building and institutional design must account for both ecological realities and inherited exclusions—a challenge that conventional democratic theory has largely failed to address.

2.5 The Boundary Problem in Democratic Theory

The discussion of institutional design necessarily leads to one of democratic theory's most vexing challenges: the boundary problem. Who should be included in the political community? Where do we draw the lines of membership? These questions become particularly acute in water governance, where ecological and political boundaries rarely align.

The conceptual challenge of defining political community, often called the problem of the demos, was first systematically interrogated by Whelan (1983), who critically examined the fundamental mechanisms of boundary formation in democratic systems. At its core, this theoretical inquiry reveals a profound paradox: political boundaries are frequently established through historical contingencies, military conquests, or administrative expedience rather than through consensual, equitable processes. Robert Dahl subsequently expanded on this critique, observing that protracted struggles over boundary definitions fundamentally undermine societal engagement in collective decision-making (Dahl 1989). In water governance, this problem manifests concretely: natural hydrological boundaries rarely align with political jurisdictions. The Colorado River Basin, for instance, spans multiple states and crosses international borders, complicating efforts to manage the river's resources equitably (Grigg 2023).

Scholars have proposed various principles for addressing this challenge. Robert Goodin's (2007) principle of affected interests suggests that all individuals affected by a decision should have a say in

its outcome, challenging traditional notions of fixed political boundaries and calling for more inclusive and flexible governance structures. Yet this principle immediately raises thorny questions: How do we determine who is "affected"? At what threshold of impact does the right to participate activate? In watershed governance, nearly everyone downstream could claim to be affected by upstream decisions, potentially creating unwieldy decision-making bodies.

All citizenship is necessarily bounded. The concept itself implies inclusion of some and exclusion of others, whether along political, ethnic, or geographic lines. This dissertation focuses specifically on the geographic dimension: how territorial boundaries determine who receives essential services and who participates in decisions about those services. I use the term "hydrologically bounded citizenship" to describe membership in a political community defined by watershed boundaries rather than existing jurisdictional lines. Throughout this dissertation, "bounded citizenship" is used to describe the lived experiences of the boundary problem and consider how this would change under an ecological boundary.

2.5.1 The Historical Formation of Territorial Boundaries

The boundary problem in water governance cannot be understood without examining how territorial units were historically formed and how this formation continues to shape citizenship and resource access. While scholars in planning and anthropology have examined the nexus between citizenship and infrastructure, there has been insufficient focus on the territorial units themselves—the historical processes that created city boundaries, special districts, and service areas that ultimately determine who receives water and who does not.

As discussed in Section 2.1, Burns (1994) demonstrates how citizens have used special districts and boundary-drawing to control community composition and service access. These fields have explored how daily interactions with infrastructure enable residents to gain recognition from political actors

and foster belonging (Anand 2017; Méndez-Barrientos et al. 2022; Shelton 2017; Sultana 2020; Wamuchiru 2017). The concept of "infrastructural citizenship" has emerged from transportation studies, highlighting how infrastructure access influences one's standing within the demos (Shelton 2017). This research recognizes the feedback mechanisms that receiving or not receiving services creates. Regarding drinking water access, citizenship becomes linked to formal processes such as annexation and service extension (Méndez-Barrientos et al. 2022), creating what is termed "hydrosocial territories" (Boelens et al. 2016).

However, this scholarship often overlooks critical examination of how territorial units came to exist and how their historical formation continues to impact citizenship and resource access. Song (2012) touches on this gap by focusing on the territorial state as the appropriate unit of democracy while still considering other principles. This critique emphasizes the need to critically analyze the democratic unit that delineates the demos, beyond questions of under- or over-inclusion.

2.5.2 Racism and the Material Legacy of Exclusionary Boundaries

In the vein of under inclusion, critical scholars Michener (2019) and Pulido (1996) explicitly identify the role of racism and white supremacy in shaping policies that transcend positivist rationality. Pulido (1996) specifically argues that "racism can scarcely be extricated from our collective social life and structures" (p. 149). This perspective directly connects to territorial units: racism has been embedded in physical infrastructure in diffuse rather than monolithic forms.

Meyerson and Banfield (1955) detail early planning processes where majority-white neighborhood associations took out water and sewer bonds in their name, then used these funds to build infrastructure in a different area with the intention of relocating Black residents to this newly developed location. This example pinpoints how racism has historically influenced infrastructure development, directly impacting citizenship and resource access. These are not merely historical

curiosities—these racialized boundaries and infrastructure patterns persist, shaping contemporary water poverty.

These historical inequities complicate modern attempts at cross-jurisdictional cooperation. Communities carry different historical burdens and levels of trust in governance institutions. As Putnam (2000, 231) observes, "sprawl disrupts community boundedness," noting that more than three decades ago, "well defined and bounded" communities (Verba and Nie 1987, 236) were much more likely to be involved in local affairs—a pattern now increasingly rare.

2.5.3 Contemporary Governance Models Addressing the Boundary Problem

Despite these challenges, several governance models have emerged that attempt to transcend traditional political boundaries in water management. However, these examples reveal both the possibilities and limitations of regional approaches—particularly their reliance on existing governmental structures.

The Murray-Darling Basin in Australia provides an instructive example (Grafton and Wheeler 2018). The basin covers multiple states and is home to diverse communities with competing water needs. In response to severe droughts and declining water quality, the Australian government established the Murray-Darling Basin Authority (MDBA) in 2008 to oversee integrated management of the basin's resources, replacing a fragmented system where individual states pursued their own interests with minimal coordination. The MDBA's approach includes extensive stakeholder engagement, scientific research, and adaptive management practices. While the MDBA represents an improvement over the previous patchwork of uncoordinated state-level management—particularly in establishing basin-wide water accounting and environmental flow requirements—significant tensions remain between upstream and downstream users. These persistent conflicts highlight that creating new regional institutions does not automatically resolve the underlying political and

economic tensions inherent in water allocation, nor does it guarantee that historically marginalized communities gain meaningful voice in decision-making.

Similarly, the European Union's Water Framework Directive aims to achieve good water status across member states through a river basin management approach (Kaika 2003), demonstrating the importance of supra-national governance structures in addressing complex water challenges. In North America, the collaborative management of the Great Lakes between the United States and Canada demonstrates the potential for cross-jurisdictional cooperation (Hall 2006).

Critically, all these examples involve established governments with recognized legitimacy collaborating across existing jurisdictional boundaries. They demonstrate how sovereign entities can create coordinating mechanisms when political will exists. However, they offer limited guidance for the more fundamental problem facing communities like Sandbranch: gaining initial inclusion in water governance structures. The Murray-Darling Basin Authority coordinates between Australian states that were already governing water; the EU Water Framework Directive facilitates cooperation among member nations with established water management systems; Great Lakes governance involves two nations with robust institutional capacity. None of these models address how communities *excluded* from existing governance structures—lacking both formal political authority and the resources to build independent systems—can achieve inclusion and voice. The boundary problem in U.S. water governance is thus more acute: it involves not just coordinating across existing boundaries but determining who gets included within those boundaries in the first place, particularly when historical exclusions were intentional rather than incidental.

2.5.4 Applying the Boundary Problem to U.S. Water Governance

These theoretical concerns acquire acute relevance when examining the United States' water governance landscape, characterized by a convoluted network of hyperlocal jurisdictions and

fragmented administrative systems. Democratic theory approaches the boundary problem through two pivotal analytical principles: inclusion and coercion (in the vein of over inclusion).

The principle of inclusion, as articulated by scholars like Goodin (2007) and Young (2002), emphasizes the critical importance of centering affected interests beyond traditional democratic units. For example, in watershed governance, the logic is straightforward: a cleaner watershed produces higher quality drinking water, meaning those most affected are within this watershed.

The principle of coercion, explored by theorists such as Abizadeh (2008) and López-Guerra (2005), interrogates how policy mechanisms may inadvertently force people into or out of meaningful political participation (Song 2012). However, simply expanding political boundaries isn't enough. True political equality requires ongoing feedback mechanisms that continuously shape people's ability to participate in government. Moreover, if expansion specifically targets low-income communities for inclusion, existing residents might develop resentment, inadvertently creating second-class citizenship for newly included residents. This dynamic suggests that the boundary problem cannot be solved through administrative restructuring alone—it requires addressing both the material conditions of inclusion (infrastructure, service access) and the social-political conditions (trust, recognition, genuine voice in decision-making).

2.5.5 The Evolution of Democratic Citizenship and Boundaries

Dahl (1989) argues that the transition from small-scale, direct democracy to large-scale, representative government was not simply an ad hoc adaptation but a necessary response to the challenges of scale and diversity. As he explains, when democracy shifted to the national level, direct participation by all citizens was no longer feasible, and representative institutions became essential. Dahl points out that as the number of citizens increases, opportunities for direct participation necessarily diminish, and some forms of engagement become more limited in large, diverse societies

than in smaller, more homogeneous ones. Despite these limitations, representative democracy allows for the inclusion of a much broader and more diverse population, with rights and liberties extended to groups that would have been excluded in earlier eras.

It is important to recognize that citizenship and its boundaries are not static. Over time, the meaning and scope of citizenship have changed, often as a result of social movements and evolving democratic ideals. Groups once excluded—women, Black Americans, other marginalized populations—have fought for and gained inclusion. This suggests that while exclusion is inherent to bounded citizenship, it also creates conditions for democracy to adapt and redefine itself. Yet infrastructure systems with lifespans of 50 years or more often struggle to keep pace with these evolving conceptions of inclusion. Water systems built under exclusionary assumptions about who deserves service continue to shape access decades later, long after social norms have shifted. Although social definitions have changed, the human need for drinking water has not.

2.5.6 Trust as the Foundation for Transcending Boundaries

These analytical principles—inclusion and coercion—transcend narrow legalistic conceptions of citizenship, compelling us to reimagine political membership as a dynamic, contextual phenomenon.

The most profound challenge lies in cultivating genuine inter-community trust, a foundational prerequisite for meaningful collaborative governance. Trust is not a passive condition but an active, continuously negotiated social process. In the context of water governance, this requires developing institutional mechanisms that facilitate transparent communication, mutual recognition, and shared decision-making protocols (E. Ostrom 1990). Empirical research in public administration has consistently demonstrated that trust-building processes are as critical to successful collaborative governance as technical or legal frameworks (Ansell and Gash 2008).

Water systems, with their complex hydrological interconnections, challenge traditional notions of political boundaries. A watershed does not respect municipal lines, political jurisdictions, or property deeds. This ecological reality demands a more sophisticated conceptualization of political community that acknowledges the intrinsic interconnectedness of water resources and human settlements.

The boundary problem in water governance reveals itself as a multilayered theoretical and practical challenge. It requires us to simultaneously consider geographic, ecological, political, and social dimensions of community formation. By destabilizing rigid conceptions of political membership, we open theoretical and practical pathways toward more adaptive, responsive forms of democratic water governance, but only if we simultaneously address the historical legacies of exclusion that current boundaries embody. However, resolving the boundary problem through institutional redesign requires more than technical solutions or administrative restructuring—it demands a foundation of trust that can bridge historical divides and enable cross-boundary collaboration.

2.6 Building Trust Through Democratic Processes

Having examined the theoretical challenges of defining political community, I now turn to a critical element that makes democratic water governance possible: trust. The boundary problem cannot be solved through institutional design alone. It requires a foundation of trust both among community members and between citizens and their governing institutions.

Trust represents a fundamental, yet complex, mechanism that transcends traditional democratic theory, emerging as a critical infrastructure for effective governance of essential public services. Teodoro et al. argue that trust in water systems operates along two key dimensions: moral and performative, each profoundly shaping institutional legitimacy and community engagement (Teodoro, Zuhlke, and Switzer 2022). Regionalizing drinking water utilities emerges not merely as an

administrative solution but as a potential mechanism for addressing deeply entrenched historical inequities in water access and governance.

Trust in water governance has been shaped by historical events and policies that have either strengthened or undermined public confidence. For example, the construction of the Hoover Dam in the 1930s was a monumental engineering achievement that symbolized the federal government's commitment to water management (Lawless, Garcia, and White 2024). However, it also displaced indigenous communities and altered ecosystems, leading to long-term social and environmental consequences. Similarly, the implementation of the Safe Drinking Water Act in 1974 marked a significant step towards ensuring the safety of public water supplies. Incidents like the Flint water crisis have exposed the vulnerabilities in regulatory frameworks and eroded public trust. These historical examples underscore the need for governance approaches that are technically sound, socially just, and democratic.

Building trust in water governance requires a multifaceted approach that addresses both the technical and relational aspects of water management. One effective strategy is the establishment of community-based monitoring programs, where local residents are trained to collect and analyze water quality data (Jollymore et al. 2017). This not only empowers communities but also fosters a sense of ownership and accountability. Another approach is the use of participatory decision-making processes, such as citizen juries or deliberative forums, where diverse stakeholders can engage in meaningful dialogue and contribute to policy development (Street et al. 2014). Transparency is also crucial; many water authorities have implemented open data portals that allow residents to track water quality metrics and infrastructure investments (Blodgett et al. 2016; Marston et al. 2022). These initiatives demonstrate that trust is built through consistent, transparent, and inclusive practices.

2.7 Regionalization and Hydrologically-Bounded Citizenship

The theoretical foundations established thus far—democratic principles, institutional design, the boundary problem, and trust—point toward a potential solution: regionalization based on hydrological rather than political boundaries. This section traces the intellectual history of this approach and examines how it might address the democratic failures identified throughout this chapter.

The intellectual genealogy of regional water governance traces back to pioneering scholarship that challenged the arbitrary nature of political boundaries. Beginning with John Wesley Powell, who proposed the western United States should be organized by watersheds rather than political boundaries, highlighting natural water flow patterns, scholars and policymakers have long recognized the mismatch between political jurisdictions and hydrological systems (Powell 1890). This theoretical foundation found its first major practical application in the 1930s with the creation of the Tennessee Valley Authority (TVA), which represented a groundbreaking experiment in regional water management that transcended traditional state boundaries to address flood control, hydroelectric power, and economic development across an entire watershed (Derthick and Bombardier 1974; McKinley 1950). Building on both Powell's theoretical framework and the TVA's practical precedent, seminal researchers like Maass et al. advocated for a radical reconceptualization of water management, proposing governing bodies delineated by hydrological rather than political boundaries (Maass et al. 1962). This approach represented a revolutionary challenge to existing administrative frameworks, which often arbitrarily bisect watersheds, creating systemic inefficiencies in resource management and governance.

A pivotal moment in this intellectual trajectory occurred in 1955 when Harvard University established an interdisciplinary program dedicated to training federal and state employees in contemporary water resource challenges. This initiative was groundbreaking in its holistic approach,

simultaneously emphasizing redistributive practices for marginalized populations while championing democratic governance principles (Maass et al. 1962). The program embodied a sophisticated understanding that effective water governance must simultaneously address technical, social, and political dimensions.

The vision of regional management, championed by prominent figures like Gordon Maskew Fair, encountered significant political resistance. Local control, deeply ingrained in American political culture, emerged as a formidable barrier to comprehensive water governance reforms (Bumstead 1979; Donaldson 1984). However, this resistance to regional governance reflects more than simple preference for smaller-scale democracy. As explored earlier, the "fear of losing local control" serves as a reminder of historical social cleavages and reveals the wideness of the gap between elite and democratic participation. This fear operates at multiple levels, creating anxiety among elite groups when presented with policy recommendations that would require sharing destiny with others. Burns (Burns 1994, 36) notes that local control can serve two distinct purposes: "racial exclusion" or efforts to "bring government closer to the people." In the context of water governance, resistance to regionalization may mask exclusionary impulses disguised as democratic ideals. This tension reveals a fundamental conflict between administrative efficiency and deeply rooted notions of local autonomy, a challenge that continues to complicate water governance strategies.

Contemporary scholarship has oscillated between recognizing the potential of collaborative approaches and retreating into fragmented administrative models. While researchers like Hansen et al. (2020) and Lombardo et al. (1996) have acknowledged the theoretical value of collaboration, subsequent studies have frequently defaulted to approaches that risk perpetuating historical injustices. This intellectual retreat represents more than an academic shortcoming—it reflects a systemic failure to address the complex socio-ecological challenges inherent in water governance.

The most profound consequence of this intellectual and administrative fragmentation is the persistent marginalization of underserved communities like Sandbranch. Scholars and policymakers have created significant gaps in academic literature and public policy by failing to develop rigorous, comprehensive frameworks for understanding drinking water access. These gaps are not merely theoretical—they manifest concretely in disparate experiences of drinking water access, quality, and resilience across different communities.

2.8 Environmental Foundations for Regional Governance

Emerging research increasingly suggests that truly democratic water governance must move beyond traditional administrative boundaries. Hydrological systems do not respect political demarcations; watersheds flow across municipal, county, and state lines, creating complex interdependencies that require equally sophisticated governance mechanisms. This ecological reality demands a fundamental reimagining of how we conceptualize political community and collective responsibility.

In this context, trust becomes more than an abstract concept—it is the critical infrastructure that enables political equality. Building trust requires transparent communication, genuine stakeholder engagement, and institutional mechanisms that prioritize equity and collective well-being. It necessitates moving beyond narrow, territorially bound conceptions of community to recognize our fundamental ecological interconnectedness.

The path forward demands an interdisciplinary approach that integrates insights from political theory, hydrology, sociology, and public administration. We must develop governance frameworks that are simultaneously responsive to local needs and capable of addressing large-scale ecological challenges. This requires dismantling historical barriers, challenging entrenched administrative logics, and cultivating new forms of democratic participation attuned to the complex realities of water resources.

2.9 Toward an Empirical Investigation

This chapter has established the theoretical groundwork for understanding water poverty as a democratic failure and regionalization as a potential solution. I have traced how inherited political boundaries and governance structures systematically exclude communities from essential services. I have examined the theoretical principles necessary for democratic water governance—Dahl's procedural criteria, the boundary problem, and the critical role of trust—while demonstrating how these principles must be understood in historical context rather than as acontextual procedures.

The intellectual history of watershed-based regionalization, from Powell through the TVA to contemporary scholars, reveals both promise and persistent challenges. Regional approaches offer the potential to align governance with ecological realities and address inherited inequities. Yet resistance to regionalization—rooted in historical social cleavages, fears of losing local control, and anxieties about sharing political fate with historically excluded communities—demonstrates that administrative restructuring alone cannot create democratic water governance.

As Chapter 6 will demonstrate through a thought experiment, the design of regionalization matters as much as regionalization itself. Efficiency-centered approaches risk replicating the quasi-guardianship dynamics that created water poverty, while democracy-centered approaches offer the possibility of building trust through institutional mechanisms that ensure genuine accountability and political equality. The fundamental question—would residents trust the water enough to drink it? —tests whether governance reforms can overcome decades of institutional betrayal.

These theoretical foundations—democratic principles, the boundary problem, trust as infrastructure, and the promise and pitfalls of regionalization—point toward four research questions that guide this dissertation's empirical investigation: (1) How did Sandbranch's specific historical trajectory lead to its current water access issues? (2) What role did institutional path dependency play in perpetuating

inequities? (3) What does the Sandbranch case reveal about "bounded citizenship" in infrastructure planning? (4) What are the broader implications for environmental justice and governance reform?

The next chapter details the methodological approach that allows me to examine these dynamics in Sandbranch and test whether the theoretical propositions developed here can illuminate pathways toward more democratic and equitable water governance. The methodology must account for both the procedural aspects of democracy that Dahl emphasizes and the inherited structures of exclusion that shape contemporary possibilities for inclusion.

Chapter 3: Methodology

"Political Science must be studied historically, and history must be studied politically in order to have a correct comprehension of either. Separate them, and one becomes a cripple, if not a corpse, the other a will o'-the-wisp."

- John Burgess (1896)

The literature review in Chapter 2 established the theoretical foundations of bounded citizenship, the boundary problem, and trust as infrastructure—concepts that frame our understanding of water poverty as democratic failure. These theoretical frameworks highlight how historical decisions and political boundaries create conditions that can perpetuate inequality across generations. This dissertation project draws on political theory and urban planning literature to establish Sandbranch as a case of democratic failure in drinking water governance. As referenced in the quote, as documented by the American Historical Association (Adams 1896), political scientist John Burgess championed the scientific study of history to enhance both fields, a stance that resonates with current social science practices. For Sandbranch, historical aspects need to be understood and examined in a methodological way as they relate to the broader framing of drinking water governance.

Building on this theoretical grounding, Chapter 3 outlines a methodological approach that combines rigorous historical analysis with community-engaged research practices. Sandbranch, situated at the intersection of racial politics, environmental justice, and governance failures, offers an insightful case study well-suited to a mixed-methods research framework. By employing process tracing alongside participatory methods (survey, interviews, observation, joint interpretation), this research seeks not only to document historical injustices but also to elevate community voices in envisioning potential governance reforms that could address water poverty.

This methodological approach directly operationalizes the theoretical concepts developed in Chapter 2. Testing how institutional decisions create and maintain bounded citizenship requires tracing institutional trajectories across time through archival methods. Understanding bounded citizenship as a lived experience demands engagement with community voices through surveys and interviews. Together, these methods enable examination of how historical institutional decisions (explored in Chapters 4-5) intersect with contemporary experiences of marginalization (explored in Chapter 6).

This research is grounded in a pragmatist epistemological approach that recognizes the importance of context in understanding social phenomena. Unlike positivist approaches that treat context as "noise" to be filtered out (Hall 2003), this study embraces what Simmons and Smith (2017) describe as "ethnographic sensibility," positioning itself between strict positivism and interpretivism. This methodological stance aligns with my ontological premise that universal drinking water access is a fundamental right that should not be constrained by geography or socioeconomic status. As Hall (2003) argues, "an ontology consists of premises about the deep causal structures of the world from which analysis begins and without which theories about the social world would not make sense" (p. 374). This research begins with the premise that water is essential for cultivating a healthy life and should be managed democratically as a mechanism for equal opportunity.

The study employs a mixed-methods approach to examine both the historical institutional factors that have shaped Sandbranch's water poverty and the lived experiences of residents navigating these conditions. This methodological pluralism allows for what Hall describes as a "three-cornered comparison among a theory, its principal rivals (in the case competing counterfacturals), and sets of observations" (p. 392), enabling a more nuanced understanding of the complex factors contributing to water poverty.

3.1 Research Questions and Methodological Approach

This study employs a case study design focused on Sandbranch, Texas, utilizing a mixed-methods approach that includes archival research, door-to-door surveys, and semi-structured interviews. This comprehensive methodology addresses the following research questions listed in Table 3.1:

Table 3.1 Research Questions and Methods

Overarching Questions: How have historical institutions shaped racialized inequities in drinking water access, and what governance reforms could promote equity and strengthen democratic principles?			
Question	Data collection	Analysis	Comments
RQ1 How did Sandbranch's specific historical trajectory lead to its current water access issues?	Archival	Process Tracing	RQ1 will be analyzed through a set of events that occurred in the community's history. This question will be contained within Chapter 4 of the dissertation.
RQ2 What role did institutional path dependency play in perpetuating inequities?	Archival, Interview	Process Tracing	Testing H1: Environmental degradation occurred following move-in period Testing H2: Institutional path dependency perpetuates water access inequalities and bounded citizenship through self-reinforcing trajectories. This question will be the main focus of Chapter 5.
RQ3 What does the Sandbranch case reveal about "bounded citizenship" in infrastructure planning?	Survey, Archival, Interview,	Triangulation and participatory analysis	This question will triangulate various techniques to explore the concept of bounded citizenship. Throughout the chapters, this concept will be referred to and Chapter 7 will have concluding statements.
RQ4 What are the broader implications for environmental justice and governance reform?	Survey, Archival, Interview	Summary statistics and participatory analysis	This question will be the focus of Chapter 6.

The study's community-based research (CBR) approach is informed by Minkler's (2005) work on fostering empowerment through community involvement throughout the research process. This project aligns with such principles by integrating community voices via door-to-door surveys and interviews, ensuring that the perspectives of Sandbranch residents are central to understanding the historical and policy dynamics of water poverty. Similarly, Stoecker's (2013)"Goose Approach" emphasizes collaborative, project-based research that mirrors mutual aid. This project employs these collaborative methods to build sustainable partnerships and produce outcomes beneficial to the community.

What was notably different for residents compared to others who had shown up at their door was the cash incentives. One resident felt it was God's work because they had only $3 in their bank account and needed to pay an electricity bill, and had no idea how they would pay for it. They had been in prayer before I arrived. This was a common reaction after surveys or interviews where residents told me they were going to buy food, gas, a car part, or pay a bill. Although I had stated cash compensation as part of the consent process, most residents assumed a gift card would be provided. Although cash is not always feasible for researchers or other groups, it matched a need in the environment.

3.2 Researcher Positionality and Community Relationships

My research in Sandbranch was uniquely positioned by my deep personal connections to the community. Having grown up in what locals call "Sandbranch's backyard" and worked at a local salvage yard, I brought both researcher and community member perspectives to this work. However, there is a noticeable social dislocation due to my absence from the community, particularly among newer residents (<7 years), whom I had to earn the trust of to conduct an interview or survey. Legacy members would often "vouch" for me when it came to a newer resident.

It came as a surprise to me that Latino legacy members knew my parents because they were founding members of the first Latino church in the area. This was important when describing the history of Sandbranch, as the Latino church is located near the Sandbranch cemetery, making it a local marker for Latino residents.

In addition, "they" is a key word that described people of authority, power, or influence in which I was part of "they" depending on the topic. The theme of "they" will be discussed in Chapter 6. This dual positioning has significantly shaped my understanding of democratic processes in practice and provided unique insights into the community's history and dynamics.

Initially, I partnered with UntilJustice, one of five nonprofits working in the area (alongside Water Finance Exchange, Communities Unlimited, DigDeep, and Southern Rising). UntilJustice was drawn to my focus on long-term water solutions, contrasting with other organizations' emphasis on immediate needs like bottled water delivery. Our collaboration began around hydropanel[3] installations, though maintenance challenges later revealed the complexity of sustainable solutions.

While my formal community partnership ended when UntilJustice stepped back during the fieldwork phase, my established community ties enabled the research to continue in a different, perhaps more authentic form. This transition highlighted a key strength: residents' trust in me as both a researcher and a community member. As an elderly resident in his 70s noted, having someone from the neighborhood conduct research brought a more profound understanding that outsiders often lack.

My approach emphasizes transparency and reciprocity. I share findings that directly benefit the community, such as clarifying the distinction between wastewater and water treatment plants or

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[3] Hydropanels are devices that capture moisture from the air and turn it into potable water using solar energy.

helping to locate Sandbranch cemetery[4] (2.6 miles away from present-day Sandbranch). I also maintained communication with residents through text messages and phone calls to inform them of my writing process and share my thoughts on the situation.

During the interview, when I asked if they had any questions for me, eight out of 11 household interviewees immediately asked me about my *real* thoughts on the situation. That question opened the door to sharing the early historical findings in this project and rich dialogue. Those who did not ask had already mentioned that they had family in the cemetery, which had the same effect. All interviewees had previous experience with either other research teams or nonprofits that had reached out to them to discuss their day-to-day living, but residents were not informed what was done with that information. When I shared my early historical findings, residents felt that the questions I posed were thoughtful, and they had gained a deeper understanding of the community. An example is that a resident shared that I had probably given them more valuable information than they had given me, so we continued our conversation.

Even those who did not participate in the interview were curious about the information, and I carried an iPad Air, ready to present ongoing work. The biggest challenge is that my presence changed outlooks. I often did voice memos as a reflection exercise, noting interactions, and eventually, in the analysis, I realized I had become a symbol of progress to some of the residents. I was often referred to as a success story given that I am from the area (and went to local schools) and a sign that things were moving in the right direction. Half of my informal discussions ended with the question of when I would be able to return, now that I was living in Wisconsin, which allowed me to

[4] Chapter 5 will detail more on the importance of the cemetery

think deeply about how to sustain this project post-graduation. This idea will be returned to in Chapter 7.

What was most significant to many of the residents was the ability to contextualize Sandbranch's situation within broader patterns of water poverty through my research. Knowing that they were not the only ones was a counter-narrative to how many felt as having only a "small voice," which will be discussed in Chapter 6.

3.3 Data Collection Methods

This research primarily relies on archival sources to investigate the historical factors contributing to Sandbranch's water poverty. These sources include historical topographic maps, past interviews, news articles, review of ordinances, and field reports, which provide crucial evidence for the analysis. To unravel the complex factors contributing to Sandbranch's water poverty, this study employs case-centric process tracing, a methodology that meticulously examines historical evidence to evaluate competing hypotheses (Bennett 2010). This approach allows for a rigorous assessment of the various factors that shaped Sandbranch's trajectory, including land-use policies, zoning decisions, and the dynamics of annexation. Process tracing is necessary to avoid spuriousness within the analysis. For example, debates often revolve around the "post-siting minority move-in" argument, suggesting residents migrate to disadvantaged areas (Pastor, Sadd, and Hipp 2001). Scholars might suggest that market forces, such as housing affordability and economic constraints, have driven residents to settle in areas like Sandbranch, which face environmental challenges.

Path dependency offers an alternative explanation: rather than residents choosing disadvantaged locations, institutional decisions may have created self-reinforcing mechanisms and critical junctures that locked communities into trajectories of environmental burden. Process tracing provides the methodological rigor to test whether Sandbranch's trajectory exhibits these characteristics—

specifically, whether institutional decisions created 'lock-in' effects that made alternative outcomes increasingly costly or difficult over time.

My first hypothesis (RQ2, H1 on Table 3.1) states that environmental degradation occurred after the move-in period. Articles have stated that Sandbranch is a former freedman's community, although there seems to be conflicting evidence (Pemberton 2022). I tested this claim's veracity using historical topographic maps, past interviews, and field reports.

There are four tests for causation in process tracing: straw in the wind, hoop, smoking gun, and doubly decisive (Bennettt 2010, 210). The straw in the wind provides helpful information, but it is "neither a necessary nor a sufficient criterion for establishing a hypothesis" (Bennettt 2010, 211). Hoop tests do not provide direct supportive evidence but can eliminate alternative hypotheses. A smoking gun test would be like holding a smoking gun after a murder, but as Bennett states, there is a strong implication. Although rare, a double decisive test would be a camera that captures the murderer in the act and can confirm the hypothesis. Table 2 is a recreation of Bennett's tests presented.

Table 3.2 Process Tracing: Four Tests for Causation[5]

		Sufficient To Establish Causation	
		No	Yes
		Straw in the Wind	**Smoking Gun**
	No	Passing affirms relevance of hypothesis but does not confirm it	Passing confirms hypothesis
		Failing suggests hypothesis may not be relevant, but does not eliminate it	Failing does not eliminate it
Necessary to Establish Causation		**Hoop**	**Doubly Decisive**
	Yes	Passing affirms relevance of hypothesis but does not confirm it	Passing confirms hypothesis and eliminates others
		Failing eliminates it	Failing eliminates it

My second hypothesis (RQ2, H2 on Table 3.1) states that the troubled markers of water poverty and bounded citizenship are the result of self-reinforcing institutional trajectories, economic geography factors, and embedded biases within the water utilities system that have persisted and intensified over time due to institutional path dependency. I examined archival evidence from the Dallas Water Utilities records and City Council meeting minutes to evaluate this explanation of historical institutionalism.

Given the high volume of data related to this hypothesis and the fact that only one researcher (me) was involved, two strategies were employed to organize and review the collected data. The first phase involved managing the data chronologically in a Word document. I was able to scan all

[5] This table is recreated from (Bennett 2010, 210) Table 10.1 where they create a two – dimensional framing of the alternative tests originally posed by Van Evera (1997, 31-32)

documents from the Dallas Municipal Archives made available to me. I had previously conducted a desktop search for items available online, and those results were incorporated into the chronological Word document used to organize the data. Careful notetaking was done, including aligning the photographs taken from an aerial view of the wastewater plant in the appropriate direction. Books detailing Dallas history, as recommended by the archivist, were also filed to gain a broader understanding of the city's history. Historical maps from the U.S. Library of Congress were also listed. Media articles with the words Sandbranch or Sand Branch were stored in a separate folder in Zotero with notes and themes highlighted. An estimated 200 documents were reviewed, including the Zotero collection, and then transferred to Dedoose (a tool for mixed methods research) as the second stage.

Not all documents reviewed were retained for analysis in Dedoose. Approximately 120 documents served primarily as broader contextual background—for example, Dallas Water Utilities reports from the 1930s that informed understanding of regional water development but did not directly bear on Sandbranch's specific trajectory. These were referenced as needed but not coded, allowing the analysis to focus on documents that directly tested the hypotheses about Sandbranch's critical junctures and institutional path dependency.

Much of the collection from the first phase was then categorized as reference material vs content. However, in this stage, Ginzburg (1991) discusses how a historian reviews archival collections like a judge, but often misses the broader point (events vs. phenomena). Moving into the second stage, I decided to keep both collections, periodically referencing notes to align with the broader history captured in the first collection. Within Dedoose, about 80 sources remained outside of the interviews and surveys. Archival documents were assigned descriptors, which included institutional characteristics, organization, community references, and other metadata (such as time, author, etc.).

Adding these descriptors was an essential step in the analysis because it allowed me to understand the history of Sandbranch from the historical accounts of neighboring communities, as different political repercussions are displayed depending on the document.

Chapters 4 and 5 use this process tracing methodology to test whether institutional path dependency—characterized by self-reinforcing mechanisms and critical junctures—explains Sandbranch's drinking water poverty and bounded citizenship status. The analysis evaluates competing hypotheses against archival evidence to determine whether institutional decisions created self-reinforcing trajectories that perpetuated water poverty across generations.

3.4 Survey Design and Implementation

A survey was used to gather data required for addressing RQ3 and RQ4 (see Table 3.1). Conducted in March 2024 through in-person, door-to-door contacts, the survey included 72 questions and took approximately 30 minutes to complete. It was advertised during the monthly town hall meeting, and with the assistance of other community members, 32 household surveys were completed out of approximately 80 households within the community. Approximately 18 surveys were read out loud to the participants due to eye or reading conditions. Participants were compensated $30 cash for their participation. A copy of the survey is included in Appendix A

Questions were developed to explore relevant themes including trust in government, water consumption habits, physical/mental health, political engagement, and financial well-being. After consent, one of the first questions asks the participant to define trust in their own words. Detailed questions followed regarding the trustworthiness of specific organizations (i.e., federal government, nonprofit), then the trustworthiness of those same organizations in managing drinking water, interest in regional water authorities, hydropanel usage, what is considered trustworthy drinking water (i.e., by taste, clarity, smell, etc.), general water consumption, hypothetical ability to pay a

water bill, ability to provide financial assistance documentation, housing status, financial indicators, physical and mental health questions, then demographics.

The survey begins by asking participants to define trust in their own words, creating a baseline for how each participant operationally understands trust. Subsequent questions draw on the WEF (Water-Energy-Food) nexus survey developed at Texas A&M University (Institute for Science, Technology and Public Policy 2015). Similarly, Teodoro, Zuhlke & Switzer (2022) have utilized these sets of questions in a recent book exploring the relationship consumption of bottled water and trust in government. However, I tailored the organizations to match the local context in which respondents would be easily able to understand as it pertained to drinking water. The WEF survey was designed to capture trust in water resources more broadly, whereas my instrument focused on drinking water specifically. For example, many residents would not readily understand what a regional drinking water authority is, so I removed it from the list of organizations and added it to a question with more context (see Question 5 in Appendix A).

These trust-related questions (Questions 1–4) directly probe the bounded citizenship framework outlined in Chapter 2.2 and address RQ3's focus on how water poverty shapes residents' trust in governing institutions. This framework emphasizes how marginalized communities experience partial or conditional membership in the polity, lacking genuine voice and representation in governance decisions that affect their lives. By asking residents to define trust in their own words before assessing their trust in specific institutions, the survey captures whether residents perceive themselves as having genuine voice and representation—or whether they experience the exclusion that characterizes bounded citizenship.

The next section of the survey (Questions 6-13) assesses personal water consumption. Regardless of hydropanel ownership, the survey asks participants about their willingness to purchase a hydropanel

and barriers to purchase (i.e., cost or hesitation based on maintenance). The survey asks participants were asked to rank the importance of varying drinking water elements (i.e., taste, clarity, smell, etc.) and preferred drinking bottled water brands. It also asks them to review and assess the affordability of a hypothetical drinking and sewer bill as perceived by their consumption habits. Then, I asked if they would need financial assistance when paying that monthly bill and if they had proof of income (i.e., paycheck stubs, proof of SNAP, etc.). This is an important question, as it helps with implementation of affordability policies where many water utilities require proof of income to receive financial assistance. This is a novel approach when contemplating regionalization from a institutional design perspective. Sandbranch serves an example of community in deep poverty facing daily financial precarity. When affordability programs are conceptualized it is assumed that people have documents that show their low-income status. Poverty scholars will often call this an administrative burden which deter program uptakes (Fox, Feng, and Reynolds 2023).Understanding these barriers early will yield more efficacy from proposed policy solutions like regionalization for low-income consumers. Following that section, the survey asks questions that focus on financial, mental, and physical well-being and political engagement.

3.4.1 Questions about Financial Well-Being

The survey also incorporated the Financial Well-Being short form questionnaire created by the Consumer Financial Protection Bureau (CFPB 2015). The research and analysis to develop a definition of financial well-being was developed by the University of Wisconsin Madison Center for Financial Security, Urban Institute, Corporation for Enterprise Development, ICF International, and Vector Pyschometrics. The elements which describe financial well-being are listed in Table 3.3.

Table 3.3 The Four Elements of Financial Well-Being[6]

	Present	Future
Security	Control over your day-to-day, month-to-month finances	Capacity to absorb a financial shock
Freedom of Choice	Financial freedom to make choices to enjoy life	On track to meet your financial goals

3.4.2 Questions about Mental and Physical Health

Over several decades of development and refinement, researchers in healthcare field have developed a battery of survey questions designed to "provide a common yardstick to compare those patients with chronic health problems to those sampled from the general population" (Ware, Konsinski, and Gandek 1993, 25). Commonly referenced as SF-36 (Short Form), the assessment is comprised of a 36 item survey (Ware, Konsinski, and Gandek 1993, 25) that focuses broadly on measuring the medical outcome that adequately prolongs life, relieves distress, prevents disability, and restores function (Lembcke 1967). Within the survey administered to the community of Sandbranch, I delivered a portion of the SF-36 that focused on a general health rating as a summary score. The general health score comprises current health, resistance to illness and health outlook. Appendix A demarks questions that are part of the SF-36 questionnaire, which are listed as Q39-Q41. The next section (Q42) utilized the Kessler Score 10, which evaluates mental health specifically (Kessler et al. 2003). It has a similar historical standing, such as the SF-36 in the healthcare community. Public

[6] Source: copied from (CFPB 2015, 7)

health scholars such as (Alang, Harris, and Carter 2023) have used these scoring mechanism to connect public health with broader topics of institutional racism. It comprises a 10-item questionnaire intended to yield a global measure of distress based on anxiety and depression. Gaber (2019) has used similar questions to understand mental distress and it relates to water insecurity in Detroit. The premise is that there is a direct linkage between measures of water insecurity and psychological distress.

3.4.3 Questions about Political Engagement

The final substantie set of questions centered on community engagement, political participation, and governance preferences. Question 45 delves into residents' perceptions of their agency within the community, exploring concepts such as voice, decision-making power, and participation. This question is particularly important as it helps quantify the degree of perceived empowerment or disenfranchisement among community members. The Likert scale format allows for a nuanced understanding of the spectrum of experiences within Sandbranch, potentially revealing subgroups that feel more or less empowered. These data can serve as a baseline for measuring the impact of future interventions aimed at increasing community involvement in environmental decision-making processes.

The political engagement questions (46-49) provide context for understanding how Sandbranch residents interact with broader political structures. The voting history question (Q46) offers insight into the community's historical political engagement, while the party affiliation question (Q47) helps map the ideological landscape. Notably, the inclusion of "Not sure" and "Other" options acknowledges the potential for political disengagement or alternative political identities, which is crucial in a community that may feel marginalized by mainstream political processes. Question 48, focusing on news sources, is particularly valuable in the current media landscape. It can reveal

potential information gaps that might influence residents' understanding of environmental issues and governance structures.

Questions 49-52 form a cohesive block exploring the nuances of community meeting engagement. They not only assess willingness to participate but also delve into the factors that might encourage or hinder participation. The range of options in Q50, from practical considerations such as free food and transportation to the nature of the speakers, allows for a comprehensive understanding of the barriers to engagement. These granular data can directly inform the design of future community meetings, potentially increasing turnout and representativeness.

Furthermore, Q51 and Q52 explore different modes of participation, recognizing that not all community members may be comfortable with traditional public speaking formats. By offering options like small group discussions or post-meeting follow-ups, the survey acknowledges diverse communication preferences and potential cultural factors that might influence participation styles. This nuanced approach can guide the development of more inclusive decision-making processes that accommodate a wider range of participation styles.

The hypothetical budget scenario in Q52 simulates a real governance situation and asks respondents to consider their preferred mode of engagement. This question can reveal important insights about how community members view their role in governance processes and their comfort level with different forms of representation and decision-making.

Collectively, these questions provide a rich dataset that goes beyond simple measures of civic engagement. They offer a nuanced picture of the community's relationship with governance structures, their information ecosystems, and their preferences for engagement. This comprehensive approach allows for the identification of specific leverage points for improving environmental justice outcomes and reforming governance structures to be more responsive to community needs.

3.5 Semi-Structured Interviews with Visual Elicitation

This study used a purposive sampling strategy to conduct 15 in-depth, 60-minute semi-structured interviews supporting all four of the primary research questions driving this work. Participants were strategically selected to represent a diverse cross-section of the demos and those who hold a perception of power. :

- Community members (n=11): Stratified to ensure representation across age, gender, and duration of residency.
- Bureaucratic agents (n=2): Focusing on officials from Dallas County
- Advocacy Organizations (n=2): Focusing on federal policy recommendations

This sampling approach allowed for capturing a wide array of experiences related to water poverty. The timing and sequencing of the interviews were also purposeful. Initial interviews with community members incorporated preliminary findings developed through a photo-elicitation technique inspired by John Collier's (1957) concept of "photo-elicitation." This technique employed visual materials to generate more nuanced dialogue and to contextualize participants' narratives within broader historical-institutional context.

All visual materials shared with participants were approved through IRB protocols and contained no identifiable individuals. The materials consisted primarily of aerial photographs showing community growth over time, historical maps from the Library of Congress showing federal government documentation of the area, and before/after imagery illustrating environmental changes. Many residents expressed surprise that such detailed federal maps existed and were publicly accessible, often noting they had never examined maps of their own neighborhood from this historical perspective.

Specifically, a curated selection of archival documents including historical photographs, maps, and official records pertaining to Sandbranch's water access challenges and community development was introduced during interviews after I asked interviewees if they had questions for me. This was more of a natural way to discuss preliminary findings and the community's history as it relates to the knowledge of the participant. The incorporation of these visual stimuli was intended to evoke complex memories, emotions, and reflections that might be less accessible through conventional verbal inquiry alone. By engaging participants with tangible historical artefacts, photo-elicitation facilitated deeper cognitive and affective responses, thereby enriching the data.

This method was particularly effective in bridging intergenerational knowledge gaps. Older residents, prompted by archival imagery, articulated detailed lived experiences of environmental transformations while younger participants were able to situate contemporary water poverty within a broader historical and structural context. The elicitation of such layered insights enhanced the depth and complexity of the qualitative data and revealed subtle dimensions of perception and institutional dynamics that conventional interviews may fail to capture.

Subsequent interviews with bureaucratic agents and advocacy representatives were conducted after the community phase. This sequencing was critical as it allowed preliminary, community-derived findings to inform discussions aimed at identifying structural impediments to drinking water accessibility. Taken together, these multiple phases of data collection integrated individual lived experiences with institutional perspectives and provided a comprehensive understanding of water poverty and environmental justice in Sandbranch.As mentioned previously, some residents have a personal connection to the Sandbranch cemetery (which becomes a point of analysis) or asked about the research and thoughts behind the problem. The curated selection of archival documents that is

repeated in presentations about Sandbranch was shown to the residents themselves. A copy of the PowerPoint slides used is in Appendix D.

3.6 Methodological Adaptation: Community-Led Group Sessions

The planned semi-structured interviews initially evolved organically into small group discussions in response to community dynamics and preferences. As I commenced interviews, participants explicitly requested that family members or close neighbors join them when discussing the questions and viewing the visual materials. This development reflected the Sandbranch community's tight-knit nature and collective problem-solving approach.

Instead of rigidly adhering to the initial methodology, I embraced this community-driven adaptation, recognizing that it actually enhanced data collection by:

- Creating a more natural environment where participants built upon each other's thoughts
- Capturing intergenerational perspectives within households
- Acknowledging and respecting existing community bonds and support systems

These small group sessions ultimately fulfilled the same research objectives while honoring the community's preferred mode of engagement. Participants discussed the same topics I originally planned for the listening sessions, including water access challenges, governance concerns, and visions for Sandbranch's future. This adaptation yielded richer, contextually nuanced data that better represented the collective voice of the community. In the analysis portion, descriptors were added to interviews that detailed a pseudonym, age, and whether multiple people were present (Y/N), race, ethnicity, and other metadata. Approximately four interviews had other people present with intergenerational viewpoints.

3.7 Embracing Ethnographic Sensibility: A Reflexive Approach to Fieldwork

Employing an ethnographic sensibility was crucial in developing a deeper understanding of Sandbranch's unique context. This approach involved immersive observation and sensory engagement with the community's physical environment. I spent considerable time exploring the area on foot and by car, paying close attention to details that might escape casual observation. One resident's comment about the lack of street lighting prompted a nighttime drive, revealing how homeowners had adapted by positioning outdoor lights to illuminate the roads. This experience vividly illustrated the community's resourcefulness in addressing infrastructure gaps. The darkness also accentuated the stark contrast with the visible Dallas skyline, a poignant reminder of the proximity yet disparity between Sandbranch and urban amenities. Olfactory observations, such as the pungent odor emanating from the wastewater plant to the north, provided additional sensory context to the neighboring community's challenges. I documented my experiences through audio recordings and photographs throughout this process, focusing primarily on natural elements and objects rather than individuals unless explicitly requested. This ethnographic approach enriched the data collection process, providing valuable context that complemented the insights gained from surveys and interviews.

3.8 Analytical Approach

3.8.1 Quantitative Analysis of Survey Data

The survey data were analyzed using descriptive statistics, including measures of central tendency and dispersion for key variables such as trust levels, community engagement scores, and health indicators. The Financial Well-Being scores were calculated according to the Consumer Financial Protection Bureau's methodology, while the SF-36 and Kessler-10 scores were analyzed following established protocols in the public health literature.

I calculated the Financial Well-Being scores using the Consumer Financial Protection Bureau's (CFPB) methodology, which assigns point values to each survey response based on the respondent's age group. The CFPB provides age-specific scoring tables, so I first matched each response to the appropriate point value for the participant's age. After assigning points, I summed them to produce a raw score and then converted that total into a standardized score ranging from 0 to 100, following the CFPB's conversion charts.

For the Kessler-10, I followed standard public health scoring protocols. I assigned numeric values to each of the ten items based on how frequently the respondent reported experiencing symptoms of distress, with scores ranging from 1 (none of the time) to 5 (all of the time). I then summed these responses to create a total score between 10 and 50, where higher scores indicate more severe psychological distress. This scoring method is consistent across age groups and does not involve any demographic adjustment.

I also scored the SF-36 according to established guidelines in the public health literature, recoding and aggregating responses to generate subscale and summary scores that are comparable to validated benchmarks.

3.8.2 Qualitative Analysis of Interviews and Media

Thematic analysis was employed for the qualitative data gathered from semi-structured interviews and media articles about Sandbranch. This involved coding transcripts and notes to identify recurring themes and subthemes related to water access, community vision, and governance perceptions. The coding process utilized both predetermined codes derived from the theoretical framework and emergent codes that arose from the data itself. Appendix C contains a table which describes how parent and subcodes were utilized.

Interview transcripts were analyzed using a combination of deductive and inductive approaches. Initial coding categories were derived from the bounded citizenship and institutional path dependency frameworks, while additional codes emerged from participants' narratives. This approach allowed for both testing of theoretical constructs and discovery of unanticipated themes.

I conducted qualitative coding using Dedoose, a software well-suited for mixed methods research. I began with a set of preliminary codes informed by the conceptual framework and prior literature, including *Troubled Markers*, *Perception of Inclusion and Exclusion*, *Racialized Historical Context*, *Water Poverty as a Democratic Failure*, and *Proposed DWGF*. As I engaged more deeply with the transcripts, additional themes emerged inductively, particularly around *Public Health Impacts*, *Political Landscape*, *Boundary Problem versus Citizenship*, and *Structural Limitations*. These codes developed organically as patterns became evident in the narratives.

Due to budget constraints, I was the sole coder for this project and was unable to conduct inter-coder reliability testing formally. However, throughout the process, I periodically reviewed code definitions and examined associated excerpts to ensure internal consistency. I also consulted with colleagues for peer debriefing. These discussions helped confirm that my interpretation of the themes was grounded in the data and not overly influenced by prior assumptions.

Importantly, I was able to share preliminary findings with residents during the survey phase, which created opportunities for informal feedback. These conversations not only affirmed many of the emerging themes but also surfaced new ones. For example, *Community Agency* became more prominent after hearing residents describe their history of advocacy. Similarly, the code *Beauty* emerged in response to residents repeatedly describing the physical and emotional value of the community, often highlighting its beauty despite environmental degradation like illegal dumping and

cluttered lots. This iterative and reflexive approach helped ensure that the coding process remained both systematic and responsive to the lived experiences of participants.

3.8.3 Participatory Analysis with Community Members

To ensure the analysis reflected the lived experiences and complexity of Sandbranch, I initially designed a participatory analysis process that centered on small group discussions with key community members. These included leaders from both local churches and long-standing residents with deep historical ties to the area. The original plan included convening a cross-validation session where representatives from these groups would collectively interpret the findings and surface tensions, with feedback to be shared through a community bulletin posted in a neutral location.

However, the actual process evolved in important and instructive ways. When I reached out to share preliminary findings and invite feedback, many residents expressed appreciation and a sense of trust that I would return, despite the uncertainty surrounding the project's funding timeline. Rather than structured focus groups, these relationships unfolded more organically. We exchanged phone numbers, and residents would call or text when they heard local updates, while I shared progress on the writing and related advocacy efforts.

Over time, I developed particularly meaningful relationships with two newer residents. One runs a local nighttime establishment, and the other is known as a bridge builder because of his role as a neighborhood mechanic who maintains social ties across different parts of the community. These individuals became informal interpretive partners, offering insights into how the findings resonated and what types of engagement the community would find most useful.

Importantly, the idea of convening formal interpretive sessions proved misaligned with the realities many residents face. Several expressed fatigue from repeated community meetings that resulted in little change, and emphasized a preference for direct communication such as written materials

delivered to their mailbox or one-on-one conversations. Residents living near the churches tended to be more informed, while those on the community's periphery often relied on in-person visits or printed updates due to inconsistent access to information.

The economic precarity of many participants also shaped the participatory process. Some residents work informal or day-to-day jobs with little flexibility, and several interviews and survey responses were gathered while participants continued working. In some cases, individuals were working in exchange for room and board, with no extra time or resources. As I discussed in Chapter 2, time itself can be a luxury that is inaccessible to many working-class or precariously housed households. These constraints meant that participation had to be redefined. Rather than structured events, data interpretation happened through relational, iterative conversations shaped by trust, mutual exchange, and a deep awareness of residents' daily realities.

This evolved approach to participatory analysis reflects the realities of conducting community-based research with economically precarious populations—a dynamic anticipated in Chapter 2's discussion of how structural inequality shapes not just water access but also capacity for civic engagement. The need to adapt formal participatory methods to fit residents' lived constraints reinforces how bounded citizenship operates not just through formal exclusion but through practical barriers that limit meaningful participation even when opportunities are formally available.

3.9 Ethical Considerations and Limitations

This research involved vulnerable populations and sensitive topics requiring careful ethical protocols. The following sections detail the safeguards implemented and acknowledge the study's inherent limitations.

3.7.1 Ethics Protocols and IRB Approval

Ethical considerations were paramount in this study, given the sensitive nature of Sandbranch's situation and the potential for negative repercussions from powerful affected parties. To mitigate risks, I implemented strict confidentiality protocols, including the use of pseudonyms and careful handling of all identifiable data. The informed consent process clearly communicated both the potential benefits and risks of participation.

The research design incorporated a "do no harm" principle, ensuring that data collection and dissemination methods did not exacerbate existing tensions or create new vulnerabilities for residents. When reporting findings, I carefully considered how to present information to avoid inflaming conflicts or exposing individuals to potential retaliation.

3.7.2 Study Limitations and Delimitations

The scope of this project was primarily focused on the literature reviewed in Chapter 2 and broader environmental justice issues as they pertain to water access and governance. Specifically, this study did not address water rights law, future impacts on water rates or capital improvement projects, specific water pollutants (such as arsenic, PFAS, or microplastics), Dallas Water Utilities in the context of public administration literature, the natural science of river basins or watersheds, ecological concerns beyond those directly related to water access, or specific contributors to climate change and detailed climate change impacts.

The primary limitations of this project included its temporal and geographic specificity, as the surveys and interviews were conducted during a particular time period for one community in the Dallas area. Survivorship bias was a significant limitation, as the study focused on an existing community, potentially overlooking the experiences of communities that have dissipated or been displaced due to water access issues. The reliance on self-reported data through surveys and

interviews also introduced the possibility of recall bias and personal interpretations influencing the findings.

To address and mitigate these limitations, I incorporated several strategies into the research design and analysis that allowed for greater depth and contextualization. For example, while the study did not focus on hydrology or floodplain modeling, the issue of Sandbranch's designation as a FEMA flood zone (AE) emerged during fieldwork as a source of community concern. Historically, a buyout program was tied to this designation in the early 2000s, yet both historical and contemporary interviews revealed that residents could not recall any significant flooding. As part of an ethnographic approach, several landowners gave me informal tours of their property, including one who showed me a levee believed to be privately constructed. Based on archival research and visual inspection, I began to suspect that this structure might be a remnant of Dallas County's pre-1938 flood control efforts. To better understand the apparent discrepancy between the flood designation and local experience, I initiated communication with a Dallas County official. Although it appears unlikely that the levee was factored into FEMA's models, this exchange helped clarify the mismatch between resident knowledge and formal risk assessments. While flood risk was outside my area of expertise, I addressed this limitation by triangulating firsthand accounts, historical context, and administrative dialogue, which allowed for a more informed and balanced interpretation.

Similarly, the project surfaced concerns about the community cemetery that were beyond the initial research scope but highly relevant to broader themes of governance and neglect. During field visits, I observed fresh heavy machinery tracks near headstones, suggesting recent activity associated with nearby sand and gravel mining operations. Although I am not trained in historic preservation, the visual evidence and community concern prompted me to repeatedly contact Dallas County officials responsible for cemetery oversight. While I did not receive a formal response, a fence had been

installed upon my return visit to the site, indicating a potential shift in how the cemetery is being protected. Preservation was not the formal focus of the study, I documented these observations and incorporated them into the analysis to highlight the tensions between infrastructure development and cultural heritage, especially in historically marginalized communities.

These cases illustrate that although certain topics emerged outside the original research plan and areas of expertise, I addressed them through reflexive, grounded engagement. By supplementing interviews with observational data, community input, and administrative inquiry, I was able to mitigate some of the limitations inherent in single-sited, time-bound qualitative research. This approach ensured that the analysis remained rigorous while staying responsive to the lived realities of Sandbranch residents.

This mixed-methods approach provides the empirical foundation for the historical and contemporary analysis that follows. Chapter 4 applies process tracing to Sandbranch's archival record, testing whether environmental degradation followed or preceded resident settlement and examining the critical junctures that shaped the community's trajectory. Chapter 5 then employs this historical evidence to evaluate whether institutional path dependency explains the persistence of water poverty in Sandbranch, Together, these analyses situate Sandbranch's experience within broader patterns of racialized infrastructure inequality while honoring the specific historical and institutional context that created this community's unique form of marginalization.

Chapter 4: The making of water poverty in Sandbranch: a sashing

'I'll put it like this: We've been here this long and they never have done anything for us,' she says. "I'll put it like this: We've been here this long and they never have done anything for us. Why should I expect that it's going to change now?"

— Sallie Smith, Sandbranch resident, as quoted in Levin (1986)

Sallie Smith asked that question in 1986, but it could have been asked in any decade before or since. Her skepticism was not despair but pattern recognition. Water poverty in Sandbranch did not emerge from a single decision but through a series of critical junctures, moments when institutional choices created self-reinforcing patterns that proved increasingly resistant to change. This chapter examines two of the three critical junctures that locked Sandbranch into a trajectory of systematic exclusion from water infrastructure: the plant's rapid expansion during the environmental crisis of the 1980s and the FEMA floodplain buyout program in the 2000s. The third and first critical juncture, the construction of the Southside Wastewater Treatment Plant in the 1960s, will be discussed in Chapter 5. The analysis that follows serves as the sashing of the quilt: the neutral strips that frame the critical pieces, or junctures, and hold them in place. The institutional and regulatory patterns laid out in this chapter are that sashing, the fabric that holds Sandbranch's story in its current shape. The patterns that emerge give weight to Sallie Smith's skepticism, showing why the windows for change that did open were repeatedly closed. The second and third junctures tie directly to regulatory patterns closely aligned with quasi-guardianship, the technical expertise that helps place these pieces into a pattern residents cannot fully see.

The stitching that holds this quilt together is theorized in the literature on path dependency, which explains how institutional patterns, once laid down, reinforce themselves over time. As Pierson and Skocpol (2002, 699) argue, "outcomes at a critical juncture trigger feedback mechanisms that reinforce the recurrence of a particular pattern into the future." Each of these junctures established

institutional patterns that subsequent decisions reinforced, creating the path-dependent trajectory that defines Sandbranch's water poverty today.

Sandbranch sits within Dallas County, where residents actively vote for one county commissioner, John Wiley Price, who has secured reelection for forty years. Although many residents have stated they did not vote for the commissioner, the nature of county politics is that the county commissioner represents a large area, and Sandbranch is 80 households among a county of 2.4 million. As Chapter 5 will briefly discuss, Sandbranch becomes a point of contention during the commissioner's reelection season. This political continuity might suggest stable representation, yet it exists alongside persistent water poverty—a paradox that reveals the complexity of democratic failure in marginalized communities. The problem cannot be reduced to a single elected official's tenure; rather, it requires multiple political elites across jurisdictions, given the decentralization of drinking water governance, to champion a solution, particularly given Sandbranch's unique legal status and the institutional fragmentation of water governance in Texas.

Sandbranch occupies unincorporated land within the extraterritorial jurisdiction (ETJ)[7]—specific regulatory construct across the United States that extends a municipality's planning and zoning authority beyond its corporate limits, typically 1-5 miles depending on city size. This land-use status means that while residents are not City of Dallas citizens and cannot vote in city elections, they must obtain permission from Dallas if they seek to incorporate as their own municipality. Residents thus exist in a jurisdictional limbo: outside the city's service provision but within its regulatory control. If the City of Dallas were to annex Sandbranch or extend infrastructure through a wastewater system connection, officials could employ standard annexation procedures. However, as this chapter will

[7] See Local Government Code Chapter 42. Extraterritorial Jurisdiction of Municipalities

demonstrate, institutional inertia and the self-reinforcing patterns established at previous critical junctures have made such solutions increasingly unlikely.

The City of Dallas and Dallas Water Utilities (DWU) maintain clear organizational distinctions, as DWU operates as a revenue-generating department, which affords it considerable autonomy from other city departments—a status confirmed through informal conversations with city officials and evidenced in DWU's independent decision-making during the 1980s plant expansion. Throughout this chapter, evidence showcases that level of autonomy, particularly when considering the implications for Sandbranch. Additionally, both the City of Dallas and Dallas Water Utilities operate as institutions within a racialized context, which becomes evident in their planning documents, policy language, and decision-making processes spanning from the 1920s through the present day.

Throughout this analysis, several themes emerge that will be explored further in Chapter 6's thematic analysis of media coverage, interview data, and archival materials. These include: the systematic erasure of community knowledge in official decision-making, the role of racialized planning language in legitimating environmental injustice, the tension between administrative expertise and democratic participation, and the ways technical decisions about infrastructure reinforce boundaries of citizenship. This chapter presents the empirical test of the path-dependent argument this dissertation advances: that Sandbranch's water poverty results not from a series of isolated failures but from institutional patterns established at critical junctures, creating self-reinforcing mechanisms resistant to change.

This chapter proceeds in three main sections. First, sections 4.1-4.2 examine the planning histories of the City of Dallas, Dallas Water Utilities, and Dallas County as they relate to Sandbranch, with particular attention to how racialized language in early planning documents established patterns of exclusion that persist today. Second, sections 4.3-4.4 analyze the critical juncture of the 1980s, when

the rapid expansion of the Southside Wastewater Treatment Plant coincided with EPA violations, resident illness from contaminated wells, and failed proposals for solutions ranging from annexation to airport development. These "moments" demonstrate the institutions in action and reveal how initial patterns became self-reinforcing. Third, section 4.5 examines the final critical juncture: the Dallas County buyout program of the early 2000s, which fundamentally altered the community's demographic composition and political capacity while halting water infrastructure projects that had secured state funding.

4.1 Local Planning History and Environmental Justice

The City of Dallas demonstrates a fairly typical urban growth pattern in the early 1900s, developing around the Trinity River as a significant water source while simultaneously struggling to mitigate flooding through levee construction (Harland Bartholomew and Associates 1945). The relationship between water infrastructure, environmental degradation, and marginalized communities appears early in official records, establishing patterns that would shape Sandbranch's future decades later.

A 1925 Trinity River Sanitary Survey documented that wastewater treatment plants along the river operated in poor condition, with meat processing plants dumping raw materials into the Trinity River without considering downstream impacts (Texas State Dept of Health 1925). Investigators noted that people living approximately 190 miles south of the river became ill when forced to drink from the contaminated water source (Texas State Dept of Health 1925, 145). At a water quality monitoring station just south of present-day Sandbranch, investigators discovered septic odors and an absence of fish life (Texas State Dept of Health 1925, 129). This early evidence reveals a pattern: environmental hazards were consistently shifted downstream, affecting populations with the least political power to resist—precisely the dynamic that Fair (1966, 11) warned about when he noted that early drainage works "merely shifts hazards and nuisances longitudinally from the immediate premises of dwellings and industrial establishments to regional drainage networks."

The question of where environmental hazards are placed becomes, as Chapter 4 established, "a distinct marker of citizenship, creating the boundaries for future conversations" among institutions and communities. These boundaries, once established in the physical landscape through infrastructure placement, prove remarkably resistant to change.

4.2 Racialized Language and Policy Formation

The historical narrative surrounding the Trinity River and its associated public health hazards reveals deep connections to the marginalization of Black communities and communities of color. Before the 1990s, official discourse conspicuously omitted discussion of these populations' struggles, instead employing euphemisms and coded language that obscured environmental injustice impacts while simultaneously justifying exclusionary policies.

Three primary documents exemplify this linguistic pattern of what Trouillot (1995) terms the production of historical "silences"—the systematic erasure of certain populations from official narratives. During a speech at a women's convention, the secretary of the Kessler Plan Association posed the rhetorical question: "What does the City of Dallas need in the future?" (Surratt 1930). The response called for healing "municipal cancers" through park development—a term that specifically targeted Black, Mexican, and poor white neighborhoods (Surratt 1930, 8–10). This language reinforced the pervasive "slum" narrative, portraying these communities as diseased entities requiring eradication rather than as citizens deserving of infrastructure investment. The secretary promoted zoning as a tool for "reclaiming shack districts" and protecting the city from epidemics, crime, and perceived threats posed by these populations (Surratt 1930, 9–10).

These sentiments manifested in subsequent planning documents with material consequences. The 1930 tentative zoning map designated all parcels near the Trinity River as "industry" (Dallas (Tex) City Plan Commission and Dallas Chamber of Commerce Metropolitan Development Association

1930, 7), effectively zoning marginalized communities for environmental burdens rather than residential protection. By 1937, the federal government's Home Owners' Loan Corporation map—part of the systematic "redlining" that shaped American cities—identified parcels deemed hazardous as primarily Black populations located adjacent to the Trinity River (Nelson et al. 2020). This convergence of local zoning decisions and federal lending policies created what Chapter 2 defined as bounded citizenship: formal membership in a political community coupled with practical exclusion from its benefits and protections.

The 1945 comprehensive plan for water and sanitation employed the term "Topsy" to describe Dallas's haphazard sanitary system growth (Dallas Water Utilities 1945, 12). This reference to Harriet Beecher Stowe's enslaved character from *Uncle Tom's Cabin*—a child described as growing "up wild" without guidance—reveals how racialized imagery permeated even ostensibly technical planning documents. The term trivializes the complex challenges faced by Dallas's sanitation infrastructure while simultaneously evoking racist tropes about Black communities' supposed inability to develop properly without white oversight. The plan consistently labeled areas with these populations as "slums" without explicit acknowledgment of racial demographics, yet the coded language made the targets clear to contemporary readers.

The 1963 Texas legislative policy creating extraterritorial jurisdictions around municipalities recycled this "safeguarding" language, positioning city planning authority as necessary to protect urban development from the threats posed by unincorporated areas—areas that, in practice, often housed Black and brown communities[8]. Table 4.1 chronicles these major planning events and their intersection with water infrastructure decisions affecting Sandbranch. This language was not merely

[8] Texas has a notable history regarding Latino communities on urban fringes compared to other midwestern or northeastern developments known as colonias. See (Olmstead 2004) on colonias.

rhetorical; it had material effects in justifying exclusionary policies and infrastructure placement decisions that, as Chapter 4 demonstrated, systematically erased communities like Sandbranch from official planning documents even as they existed on the ground.

Table 4.1 Major Planning and Water Events

Year	Event	Type
1911	Kessler Plan 1911 - First Comprehensive Plan 1910-1930 (handle floodway)	Report
1917	Sewage into Trinity River began to be treated	Project
1925	Trinity River Sanitary Survey	Report
1943	Revised Comprehensive Plan 1945-1970 (includes water and sewer budget)	Report
1950-1957	Trinity River Drought	Event
1963	Extraterritorial jurisdiction policy enacted	Policy
1967	Southside Wastewater Treatment Plant Built	Project
1977	Southeastern expansion of boundary of City of Dallas - Kleberg Annexation	Policy
1985	Texas Water Commission places Central Treatment Plant on worst polluters list	News
1985	Downstream counties plan to sue Dallas for fish kills in river	News
1985	Dallas Water Utilities Chief resigns	News
1985	Residents get sick from well water	News
1986	Dallas begins expansion of Southside Wastewater Treatment Plant without permit	News
1986	Fined by Texas Water Commission for raw dumping into Trinity River	News
1988	Upgrades for Southside Wastewater Treatment Plant Completed	Project
1991	Potential Annexation of Sandbranch explored	News
2003	FEMA Declares Floodplain	Policy
2005	Dallas County Optional Sandbranch Relocation Assistance Program	Policy

The timeline reveals a crucial pattern: the community's establishment (documented in Chapter 5) precedes the major water infrastructure decisions that would shape its exclusion, yet official planning documents employed racialized language that legitimated treating certain populations as expendable. This is not coincidental. As will be detailed in Chapter 5, Sandbranch appeared on topographic maps but was systematically omitted from official planning documents, including the 1966 purchase map

for the wastewater plant property. This institutional erasure set the stage for the critical junctures examined in subsequent sections.

4.3 Critical Juncture #2: The 1980s Crisis and Wastewater Plant Expansion

As Chapter 5 will detail, the 1960s construction of the Southside Wastewater Treatment Plant served as the first critical juncture, establishing Sandbranch's relationship to environmental hazards through systematic historical erasure. The 1980s represent the second critical juncture, when institutional decisions and environmental crises reinforced and expanded these patterns in ways that would prove increasingly difficult to reverse. During the 1980s, Sandbranch operated as a bustling community with a corner store and primarily single-family housing, contrasting sharply with the RVs and vacant lots that would appear in later decades (Harris 1985; Levin 1986).

The community's decline accelerated dramatically when Dallas County public health officials discovered E. coli contamination in Sandbranch wells, with some residents reporting illness from the water supply (Harris 1985). While interviews with current residents revealed no collective memory of widespread illness during this timeframe—likely due to subsequent population turnover following the early 2000s buyout program—the contamination testing marked a turning point in the community's relationship with water access and introduced external authorities into what had been a matter of local self-sufficiency through private wells.

Simultaneously, tensions between Sandbranch and Dallas Water Utilities intensified due to nauseating odors that residents faced daily from the nearby treatment facility (Jacobson 1986b). Metropolitan growth increased demand on Dallas Water Utilities' system, necessitating expansion of the Southside plant to handle increasing wastewater volumes (Jacobson 1986b; Kelley 1986; Tomaso 1985b, 1985a). The plant faced repeated EPA violations and federal scrutiny, while downstream

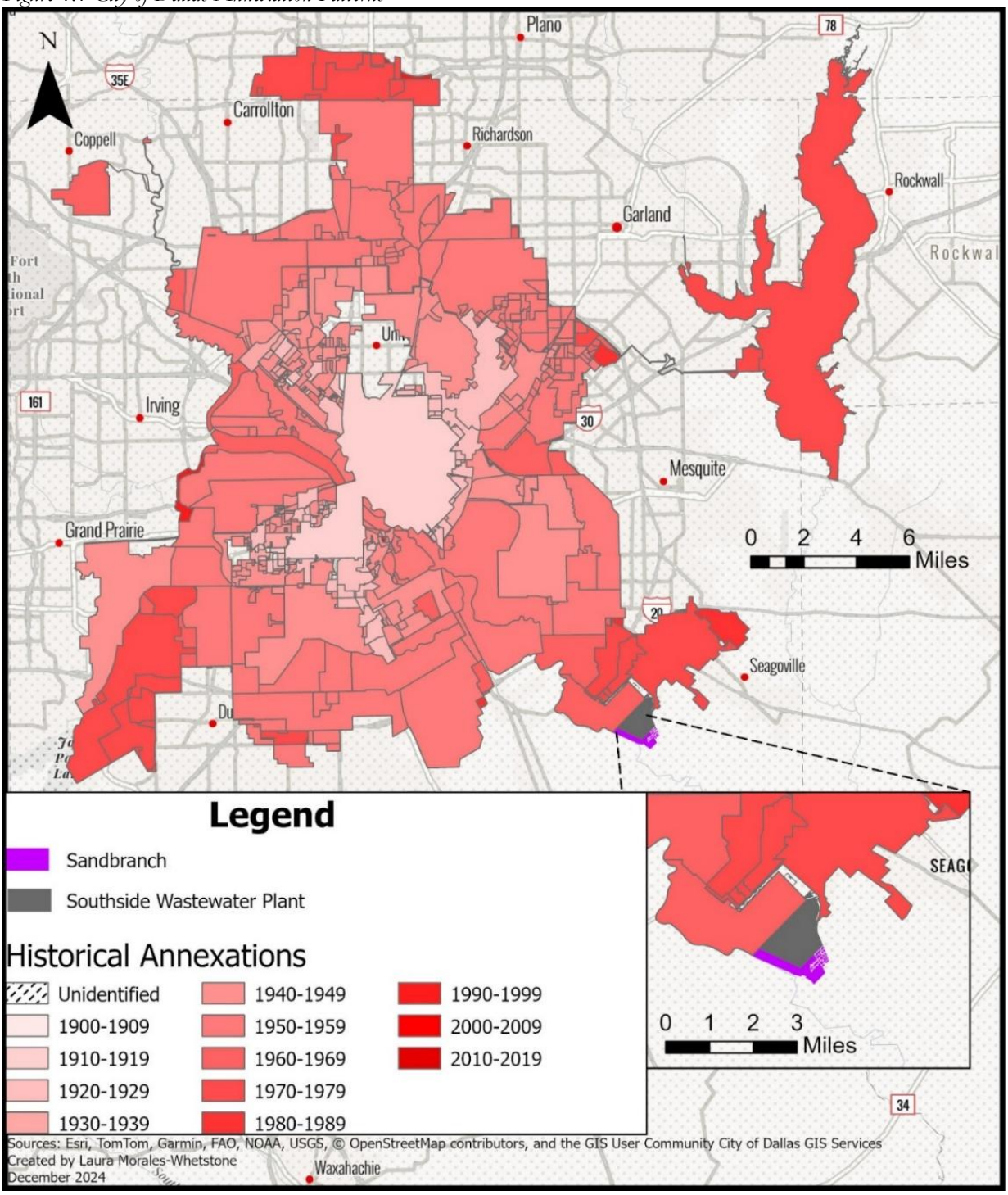
counties threatened lawsuits against Dallas for fish kills in the Trinity River—the same river whose contamination had been documented sixty years earlier in the 1925 sanitary survey.

The situation deteriorated when Dallas Water Utilities designated the Southside Wastewater Treatment Plant for major expansion to address these capacity and compliance issues. Internal conflicts arose when the city's planning department denied construction permits, yet Dallas Water Utilities—exercising the autonomy afforded by its revenue-generating status—proceeded with construction anyway (Jacobson 1986a). This autonomous action exemplifies how institutional structures can operate outside democratic oversight, even within municipal government. Property owners near the expansion site filed lawsuits regarding land acquisition procedures, and the Dallas Water Utilities manager eventually resigned amid the controversies. Despite these conflicts, or perhaps because of the urgent need to resolve EPA violations, the expanded Southside plant became an award-winning facility by the 1990s, with the Dallas Arboretum even designating it as a paradise for bird watchers due to the water features incorporated into its design (DWU Annual Report 1996).

During this same period of environmental crisis and infrastructure expansion, city officials explored an alternative solution to Sandbranch's growing visibility as a problem: developing a City of Dallas-owned third airport in the area (Maxon 1985). This proposal, though it never materialized, reveals crucial dynamics about how institutions viewed Sandbranch and the range of "solutions" considered acceptable. Dave Ryburn, assistant to the director of planning for Dallas, characterized the Sandbranch area in 1986 as "the only area of expansion left for Dallas," revealing how officials viewed the community primarily as available land for municipal projects rather than as residents requiring basic services (Levin 1986). Figure 4.1 highlights how Sandbranch was the only area of expansion left for Dallas even by present – day standards. The area in the middle not covered is an affluent independent town known as Highland Park. The City of Dallas followed typical radial city

growth patterns, expanding outwards, eventually meeting rural towns, which later became known as the suburbs of Dallas. Given Sandbranch's status in the no-man's land – ETJ status, they would need the permission of Dallas to incorporate.

Figure 4.1 City of Dallas Annexation Patterns



Outside of navigating the bureaucracy to incorporate as a town, and securing financial assistance for infrastructure and economic development, there were two of the limited options for Sandbranch to gain access to drinking water. Although the airport proposal embodied the quasi-guardianship approach toward Sandbranch that pervaded official decision-making. Mayor Starke Taylor exemplified this paternalistic attitude when addressing policy flexibility for the community: "Certainly, I feel that Big Brother can help some of the people, and sometimes we may have to break a certain rule. I don't think you can make a rule that can take care of every instance. Sometimes there has to be an exception" (Maxon 1985). This framing positioned Sandbranch residents as dependents requiring charitable exceptions rather than citizens entitled to equal treatment under existing policies. The "Big Brother" language is particularly revealing, invoking both paternalistic care and Orwellian oversight—an apt characterization of quasi-guardianship's dual nature.

The airport proposal ultimately failed to materialize, abandoned sometime between 1986 and 1991 when new discussions of potential annexation emerged. The reasons for its failure remain undocumented in available sources, representing another historical silence in Sandbranch's narrative. However, several factors likely contributed: the practical challenges of airport development (environmental assessments, FAA approval, substantial capital costs), potential community or regional opposition, and changing economic calculations as Dallas's growth patterns shifted. The significance lies not in why the airport failed but in what its proposal reveals: when confronted with Sandbranch's water poverty and growing political visibility, institutional actors considered economic development projects that might lead to eventual annexation rather than directly addressing residents' water needs. The solution was conceived in terms of municipal expansion and land use rather than residents' rights to essential services.

Throughout media coverage of these events, a striking detail emerges: residents were largely unaware that the City of Dallas was planning a third airport in their area (Minutaglio 1991b). One resident told a reporter she "heard about it from a friend one day when she was out hauling her trash" (Minutaglio 1991b). This absence of community consultation exemplifies the "distance between the elite and demos" that Chapter 2 identified as central to quasi-guardianship. Decisions that would fundamentally transform the community's future were debated in city council chambers and planning offices while residents remained uninformed.

The 1980s thus reinforced patterns established in the 1960s through multiple self-reinforcing mechanisms. The wastewater plant expansion increased the facility's physical footprint and operational impacts on Sandbranch, while the decision to proceed without proper permits demonstrated DWU's institutional autonomy. The contaminated well crisis introduced external authorities (county health officials) into what had been local water provision, beginning the transition from self-sufficiency to dependence on institutional solutions. The failed airport proposal established a pattern of seeking indirect solutions (economic development, eventual annexation) rather than direct provision of infrastructure. Each of these developments created feedback effects that made alternative paths increasingly difficult: the larger plant became harder to relocate or mitigate, institutional precedents of autonomous action became normalized, and the framing of Sandbranch as a problem requiring exceptional solutions rather than a community deserving standard services became entrenched.

4.4 Institutional Knowledge and Community Exclusion

Dallas Water Utilities' annual reports from the 1980s reveal details affecting Sandbranch that were never communicated to residents, illustrating how institutional knowledge and community knowledge existed in entirely separate spheres. First, the utility held community meetings regarding plant design, incorporating landscape architecture intended to provide ‘recreational opportunities’

for the surrounding area (DWU Annual Report 1986; DWU Annual Report 1987; DWU Annual Report 1989). The facility featured a lagoon-like entrance and bordered Sandbranch along the Bois D'Arc levee, which had protected the area from flooding since early records.

However, interview data reveal a striking disconnect: residents remained unaware of fishing hours and access protocols for these 'recreational opportunities'. The lagoon sits behind razor wire fencing that some residents share as their backyard boundary, while Sandbranch maintains only one park—without a water fountain, a bitterly ironic detail given the community's water poverty. Of the fifteen residents interviewed during 2024 field visits, none possessed knowledge of shared agreements between Dallas Water Utilities and the community, and none understood the specific design rationale for the facility's recreational features. Several longtime residents mentioned the plant's landscaped areas but expressed confusion about whether Sandbranch residents were permitted to use them. When asked about any outreach from DWU regarding access to these features, residents uniformly reported receiving no communication. This systematic lack of awareness, despite DWU's documentation of community meetings and recreational planning, suggests that either residents were not meaningfully included in these processes or that institutional knowledge was never successfully transmitted to the community—if indeed such transmission was ever intended. In either case, the result is the same: institutional knowledge that could benefit residents exists in official records but not in community practice.

Second, the Southside plant began experimental wastewater treatment during the 1970s, injecting sludge approximately one foot deep in the ground (DWU Annual Report 1982). This practice, known as land application of biosolids, aimed to grow crops for Dallas Zoo animal feed while saving substantial operational costs—reported as $72,000 annually in the 1982 report. The annual reports documented this practice proudly through the 1980s, touting both its environmental innovation and

cost savings. However, these reports ceased documenting the practice by the early 1990s, coinciding with new research revealing groundwater contamination risks from wastewater sludge land application practices. Even with protective ground layers, research showed that these barriers could break down over time and contaminate groundwater in downstream communities—a practice that came to require special permits in states like Wisconsin due to these risks.

The timeline suggests that this experimental sludge-injection practice coincided with county officials' discovery of contaminated wells and reports of resident illness in the mid-1980s. While no causal evidence directly links Dallas Water Utilities' sludge practices to well contamination—establishing such causation would require hydrogeological analysis beyond this dissertation's scope—the temporal correlation raises crucial questions about disclosure and community notification. Residents received no notification about upstream experimental wastewater practices that could potentially affect their groundwater, despite DWU's documented awareness of these activities' environmental implications. This silence represents another manifestation of quasi-guardianship: technical expertise operating in one institutional sphere while affected communities operate in another, with no democratic bridge between them.

4.5 Critical Juncture #3: The 2000s Dallas County Buyouts and Community Fragmentation

The final critical juncture involves the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program buyouts implemented in Sandbranch in the early 2000s (Michaels 2004). Although the program was federally authorized and funded, it was designed and administered at the local level by Dallas County, making this as much a Dallas County buyout program as a federal one. To understand the significance of this critical juncture, it is essential to first explain what FEMA buyout programs are and how they operated in this context.

4.5.1 What FEMA Buyouts Are and Their Purpose

FEMA's Hazard Mitigation Grant Program, established under the Stafford Act, provides funding to state and local governments to implement long-term hazard mitigation measures following presidential disaster declarations. One of the program's primary tools is the acquisition of flood-prone properties through voluntary buyouts. The program's stated purpose is to reduce future disaster losses by removing structures from high-risk flood zones, thereby protecting both lives and the substantial federal costs associated with repeated flood damage and disaster assistance.

In a typical FEMA buyout program, eligible property owners in designated flood zones can voluntarily sell their properties to the local government (in this case, Dallas County) at fair market value, with FEMA providing 75% of the funding and the state or local government providing a 25% match. Once purchased, properties must be maintained as permanent open space, precluding future development and theoretically reducing flood risk for remaining structures. Property owners receive payment based on pre-disaster fair market value, use these funds to relocate outside the flood zone, and the local government assumes ownership of the vacant lots.

4.5.2 Implementation in Sandbranch: The Gap Between Program Design and Community Reality

Dallas County faced federal pressure to update its floodplain designations in the early 2000s, leading to the 2003 FEMA Flood Insurance Rate Map (FIRM) that classified much of Sandbranch as flood zone AE, a special flood hazard area with a 1% annual chance of flooding (the "100-year floodplain"). As Chapter 5 will detail, this designation ignored the community's generational knowledge of the levee system established in 1916, which had successfully protected the area for decades. Residents knew about the levee; they could see it, walk on it, and had never faced flooding because of it. However, FEMA's maps did not show the levee because it lacked official accreditation, a technical requirement residents were unaware of. This disconnect between lived

experience and institutional classification represents another manifestation of the gap between community knowledge and official decision-making documented throughout this dissertation.

A critical clarification is warranted here: what unfolded in Sandbranch was not, technically, a FEMA buyout in the standard sense. Rather, FEMA notified Dallas County in January 2003 that it had to bring Sandbranch into compliance with its own floodplain ordinance or face sanctions, including potential loss of its eligibility to participate in the National Flood Insurance Program (NFIP) (Dallas County Planning & Development 2009). The compliance obligation ran to the county, not to FEMA as a grant administrator. To fund its relocation and demolition program, Dallas County drew on two sources: approximately $400,000 in Texas Water Development Board (TWDB) funds originally allocated for a Sandbranch water supply project, which were reallocated by the Texas Legislature at the County's request after the water project became infeasible, and approximately $220,000 in Community Development Block Grant (CDBG) funds, for a combined program budget of roughly $620,000 (Dallas County Planning & Development 2009). Of that total, Dallas County ultimately spent approximately $394,000; $306,890 in TWDB funds and $87,467 in CDBG funds to provide relocation assistance and demolish or remove structures.

Dallas County began formally notifying non-compliant property owners in April 2005 and operated the voluntary relocation assistance program under this funding. The County's own documentation indicates that individual assistance payments ranged from $1,900 to approximately $44,500, varying based on structure type, owner/renter status, income, and whether children were present (Dallas County Planning & Development 2009). This range stands in stark contrast to what residents and nonprofit advocates report actually receiving. According to other published accounts, property owners were initially offered approximately $5,000 for their properties, far below typical fair market valuations (Judy 2024; Pemberton 2022). After subtracting mandatory demolition costs and various

fees, residents received an average of $350, with some homeowners ultimately receiving less than $500 (Judy 2024; Pemberton 2022). These amounts were insufficient to purchase comparable housing elsewhere, effectively transforming homeowners into renters and dramatically reducing residents' asset wealth.

The demolition cost question is particularly troubling in light of the county's own financial records. The Dallas County program documentation shows that the county arranged and paid for demolition of vacant structures and, in some cases, occupied ones as well (Dallas County Planning & Development 2009). Given that the county ended the program with approximately $226,000 in unspent funds from its $620,000 allocation, the practice of charging residents for demolition, if that is indeed what occurred, is especially difficult to justify. The program's implementation raises critical questions about valuation methodologies and whether county-level procedures were equitably applied. Two inconsistencies warrant particular scrutiny. First, it remains unclear why residents were required to pay demolition costs when the county had available funds and had paid for demolition in other cases. Second, the discrepancy between the county's reported payment range ($1,900 to $44,500) and residents' reported receipts, averaging $350 after deductions, merits further investigation. Beyond these procedural questions, fair market value assessments in low-income communities routinely fail to account for a property's value to owners as generational wealth and stable housing, focusing instead on depressed market comparables shaped by the very environmental injustices and disinvestment that necessitated the buyouts in the first place. For longtime Sandbranch homeowners, many of whom had inherited properties built between the 1940s and 1960s, the buyout amounts stripped them of their primary, and often only, significant asset.

4.5.3 Cascading Consequences: Water Infrastructure and Community Capacity

The buyout program's most devastating consequence may have been indirect: it "halted a water and sewer project intended for Sandbranch that Dallas County obtained state funding for in 1999"

(Michaels 2004). This detail, easily overlooked, represents a crucial turning point. Sandbranch was within years of finally receiving centralized water infrastructure after decades of exclusion. The state funding had been secured, plans were advancing, and the infrastructure project appeared increasingly feasible. The floodplain designation and subsequent buyout program eliminated that possibility by reducing the community's population below the threshold that made infrastructure investment politically or economically justifiable.

Many residents identify this moment as critical in community history, as the population decreased dramatically from its peak of approximately 300 residents to approximately 80 households today. The buyout program fundamentally altered Sandbranch's political capacity: a smaller population meant fewer voters, less political leverage, and reduced ability to advocate collectively for infrastructure. The community crossed an invisible threshold, moving from "small but viable" to "too small to justify investment"—a self-fulfilling prophecy in which lack of infrastructure leads to population decline, which is then used to justify continued lack of infrastructure.

The buyout program created new demographic and spatial dynamics as well. Field observations during 2024 revealed increased numbers of residents living in RVs and effectively squatting on former buyout properties that had become county-owned vacant lots. Demographic changes toward primarily white and Hispanic residents created tensions between new arrivals and legacy Black community members, as mentioned by multiple residents during interviews. These newer residents, often living in more precarious housing situations, face the same water access challenges but lack the generational ties and historical knowledge that long-term residents possess.

Despite these tensions and reduced numbers, residents maintain mutual support networks for water access. During field visits, I observed residents delivering water to elderly neighbors' homes and gathering at Mt. Zion church to coordinate water pickups. One legacy resident expressed feelings of

powerlessness due to community size: "my parents marched, they marched, but we can't march, there isn't enough of us." This poignant statement captures how the buyout program's demographic impact has direct political consequences, reducing the community's capacity for collective action and public visibility. When discussing media depictions of Sandbranch, particularly regarding infrastructure costs, residents emphasized that "this was about health it doesn't matter that there is only a few us left, we are still here"—asserting their citizenship and right to services regardless of population size.

4.6 Community Resilience and Spatial Isolation

Despite institutional abandonment and decades of policy failures, Sandbranch residents demonstrate remarkable resilience through informal networks and community-initiated solutions. Legacy residents maintain fond memories of community gatherings, particularly the local rodeo featuring barrel racing where neighbors connected with one another—events that fostered the collective identity necessary for political organizing. Current residents describe empty plots where single-family homes once stood, contrasting these vacant lots with memories of riding down streets and greeting dozens of neighbors.

The physical landscape reinforces the community's isolation from Dallas's urban infrastructure despite geographic proximity. Only nighttime illumination comes from the nearby wastewater plant, creating pitch-black conditions throughout the community that would be unthinkable in nearby incorporated areas. Many residents report seeing the Dallas skyline at night from their properties, emphasizing the proximity yet profound separation from urban infrastructure—they can see the city's lights but lack the city's services.

Field observations reveal stark land use transitions approaching Sandbranch, where single-family homes abruptly give way to commercial businesses like salvage yards, then to the massive wastewater

treatment facility. The community immediately north of the wastewater center—representing what Sandbranch might have become with different institutional decisions—features large front yards and western-style gates bearing family names, yet residents there still endure the pungent wastewater odors that pervade the area. The approach to Sandbranch passes the final fire hydrant before entering the community, a visible marker of the infrastructure boundary. Beyond this point, the illuminated wastewater plant resembles a small city in operation, its 3,000 acres dwarfing the residential community it neighbors.

Sand and gravel mining operations create stadium-like lighting that eliminates tree cover, while typical operations require water for dust suppression, creating airborne particulates during daylight hours—another environmental burden for residents. Community members have created their own lighting solutions in response to the darkness, installing industrial lights facing outward like lighthouses to guide traffic safely through the area. These resident-initiated infrastructure solutions parallel their collaborative efforts to forge pathways for water access, demonstrating community resilience despite institutional abandonment.

Yet resilience, while admirable, should not be confused with justice or democracy. The fact that Sandbranch residents have developed informal systems to cope with water poverty does not justify the institutional failures that made such adaptation necessary. As Chapter 2 established, citizenship requires more than survival—it requires meaningful participation in decisions about essential resources and equal access to the infrastructure that defines modern life.

4.7 Transition: From Institutional Decisions to Community Formation

This chapter has examined two critical junctures—the 1980s expansion crisis and the 2000s Dallas County buyouts—that reinforced patterns of institutional exclusion in Sandbranch. However, understanding how these junctures operated requires understanding the community they affected:

how Sandbranch came to exist, how its residents established their settlement across three successive locations, and how the first critical juncture—the 1960s wastewater plant construction—emerged from and perpetuated the community's systematic erasure from official planning. Chapter 5 traces this parallel narrative, examining Sandbranch's geographic and demographic evolution to reveal how community displacement and institutional path dependency combined to create the conditions of water poverty documented here.

Chapter 5: Tracing Sandbranch's Relocations: Implications for Community Identity

"This is the third Sandbranch," Armstrong Devro said, shelling his garden peas under a huge oak in front of the house he built 40 years ago, two blocks north of Seagoville's old main street. "My folks came on the train in 1900 to Hutchins from Navasota. Sharecroppers. They settled on Charlie Cobb's 7,000 acres two miles south of this house. Land was $2.50 an acre and one acre gave you two bales of cotton. We so poor we couldn't even buy that."

— Armstrong Devro, resident, as quoted in West (1985)

In four words, *this is the third*, Armstrong Devro compressed what no planning document recorded: that Sandbranch had moved before, and that its residents remembered. This recollection serves as what Bennett (2010) calls a "straw in the wind," a piece of evidence that points toward the hypothesis that environmental degradation happened post-settlement without definitively proving it. Like a straw showing which way the wind blows, Devro's words suggest the direction of Sandbranch's history without conclusively establishing it. Chapter 4 examined how institutional decisions at two critical junctures, the 1980s wastewater plant expansion and the 2000s Dallas County buyouts, reinforced patterns of exclusion that locked Sandbranch into water poverty. However, these institutional forces operated on a community with its own complex history of formation, displacement, and resilience. Understanding how these critical junctures created path-dependent trajectories requires first understanding the community they affected: how Sandbranch came to exist in this location, how residents established and re-established their settlement across three successive locations, and how the first critical juncture—the 1960s construction of the Southside Wastewater Treatment Plant—emerged from and perpetuated the community's systematic erasure from official planning documents.

"And, after all these years, does it make financial sense to provide water to a dwindling community whose residents are there by choice?" (Dallas Morning News Editorial Board 2019). This chapter traces Sandbranch's geographic and demographic evolution through three distinct settlement

locations, examining how each relocation shaped community identity and institutional visibility. The analysis demonstrates that environmental degradation followed rather than preceded resident settlement—directly challenging narratives that blame communities for choosing disadvantaged locations. The 2019 editorial quoted above is one such narrative: framing residents as having chosen their circumstances erases the institutional forces that created them. More critically, it reveals how the 1960s wastewater plant construction, despite occurring after the community's establishment, systematically erased Sandbranch from official records, creating the conditions for subsequent institutional neglect documented in Chapter 4.

Decoding this history requires reading the physical landscape itself. The inequities in water access and governance may not always be immediately evident, but they leave visible traces on the landscape for those who know how to interpret them. The physical environment narrates a story of historical disenfranchisement and ongoing disparities, illustrating how forces of inequality and resistance have shaped a place. In Sandbranch, these patterns of spatial inequality manifest in the absence rather than presence of infrastructure—where the lack of water lines, paved roads, and municipal services creates a distinctive landscape of exclusion.

The physical manifestation of institutional path dependency becomes visible through careful observation of urban landscapes. In unfamiliar neighborhoods, subtle signals communicate the changing character of these spaces. The sudden increase in fast food establishments with their glowing signs lighting up the night, a solitary swing creaking in the wind of an otherwise deserted park, a discount store's fluorescent lights humming as it serves as a makeshift grocery store—these often-overlooked markers quietly announce the demographic realities of the community they serve. This phenomenon becomes painfully obvious in impoverished areas, where towering landfills emit their distinctive odors, incinerator smokestacks release plumes into the air, and industrial giants

rumble day and night, standing as stark monuments to the lived experiences of their residents: predominantly low-income and often people of color. In Sandbranch, similar patterns manifest in what is absent—water lines, unpaved roads near the Bottoms (the area housing the community's lowest-income residents), municipal services—creating a distinctive landscape of exclusion through infrastructural void.

These visible scars on the landscape are symptoms of a deeper problem: the historical and systemic disenfranchisement of marginalized communities. At their core, these scars symbolize a failure of democratic processes in addressing complex modern challenges. I want to clarify that these communities are not failures—they are actively functioning the best they are able to, one day at a time. However, the processes themselves, which would have allowed democratic solutions, have failed. The fundamental question we must wrestle with is: who constitutes the demos in a democracy? These troubling markers delineate the demos, particularly concerning drinking water access, as boundaries are inherently exclusive.

Sandbranch's story mirrors patterns documented in other historically Black communities. Sitton et al. (2005) write on independent Black communities, called Freedom Colonies, in East Texas that existed post-emancipation. The book highlights an eerie resemblance to Sandbranch when describing the current state of one particular freedom colony. Sitton recounts how one resident was battling his county commissioner for roads in the early 2000s—those who had lived through Jim Crow were now fighting local governments for basic infrastructure. Although these were once rural communities, ongoing development has created hybrid spaces where the historical patterns of rural neglect intersect with urban disinvestment, creating compound disadvantages for residents. Both urban and rural areas carry this historic burden, manifesting as bounded citizenship: the lived experience and realities resulting from the boundary problem in democratic theory.

5.1 Tracing Sandbranch's Origins: A Historical-Geographic Analysis

As you drive into Sandbranch, roaring gravel and concrete trucks thunder past, kicking up clouds of dust from the sand and gravel companies flanking the road. A nearly 3,000-acre wastewater treatment plant looms to one side, its barbed wire-topped gates proclaiming "Southside Wastewater Treatment Plant." Sandbranch itself huddles against the plant's borders, a small community marked by a single playground with a weathered sign reading "Sandbranch Community Playground" and a sagging "Dallas County" subtitle. The absence of a water fountain speaks volumes about the community's lack of centralized drinking water. A detail often overlooked by the media and researchers is that Sandbranch lacks fire hydrants and is situated in the lowlands of Texas, where natural brush fires occasionally break out. This means that a fire in Sandbranch has disastrous consequences, often claiming lives like the woman who had a stroke but was unable to move fast enough when a fire broke out (Barber 1995).

National and local news have repeatedly spotlighted Sandbranch's "curious" case of water deprivation and deep poverty, often matching hardship to individual faces (Milman 2017; Minutaglio 1991c; Nagaraj 2021). Media photos often depict residents as just another poor Black community in need. Yet the institutional forces that truly tell Sandbranch's story, the relocations, the erasures, the deliberate planning decisions, have remained outside the frame.

This present-day landscape of exclusion reflects what Chapter 1 defined as quasi-guardianship: arrangements in which technical expertise and regulatory authority effectively limit civic engagement while maintaining the appearance that democratic processes remain intact. As demonstrated through cases like Flint, Jackson, and Arkansas water authorities, quasi-guardianship fundamentally redefines citizenship—shifting it from meaningful participation in decisions about essential resources to

passive dependence on expert judgment and media advocacy. This erosion of political equality is particularly pronounced in communities already marginalized by race and class.

Sandbranch represents a distinct manifestation of quasi-guardianship—one operating not through active expert control replacing democratic input, as in Flint, but through the interplay between administrative expertise (floodplain management, Dallas County buyouts), political paralysis (40 years of the same county commissioner), and systematic exclusion from meaningful civic engagement. Here, decisions are made *about* the community without substantive engagement *with* the community, creating what Chapter 2 described as the "distance between the elite and demos." Understanding how Sandbranch arrived at this state requires tracing the community's history through multiple displacements, each displacement reflecting broader institutional forces that have shaped (and continue to shape) the community's exclusion from full citizenship.

Understanding how Sandbranch arrived at this state requires tracing the community's history through multiple displacements, each reflecting broader institutional forces that have shaped, and continue to shape, its exclusion from full citizenship. The first Sandbranch was built in the late 1800s, the second likely around the 1920s, and the third established in the 1940s following the 1938 Dallas County Flood Control initiatives. The name Sandbranch carried with it each move, but the final location represents what the formerly enslaved could have only dreamed of: single-family homes, independence, nature, and finally peace. Even so, as this chapter demonstrates, each displacement was not merely a geographic relocation but a manifestation of institutional forces that would repeatedly push the community to the margins, economically, politically, and environmentally. This pattern of repeated displacement offers a theoretical lens especially suited to understanding Sandbranch's persistent water poverty and bounded citizenship.

The following sections trace Sandbranch through its three iterations, demonstrating how institutional path dependency, reinforced at critical junctures, has created the conditions for present-day quasi-guardianship and water poverty.

5.2 First Sandbranch: Origins and Evidence of Persistence (Late 1800s-1920s)

5.2.1 Settlement Patterns and Early Evidence

While scholars often point to railroad stations as catalysts for community formation (D. S. Switzer 1954), this research typically focused on white communities. In contrast, many freedman communities took root on the fringes—sand hills, river bottoms, and county lines (Sitton, Conrad, and Orton 2005). Based on historical maps, Sandbranch followed a similar pattern. Figure 5.1 guides the reader through three historical maps, which were georeferenced for precision and accuracy, to understand the community's resettlement pattern. The original historical maps are included in the preceding figures to allow engagement with the primary source.

An early 1900 topographic map reveals renters and homeowners clustered around a city called Simonds, a Texas Trunk railroad site in Dallas County (S. M. Street 1900). Located approximately three miles northeast of present-day Sandbranch, Simonds boasted one white school and one Black school (Nall 1954). The map shows a pattern of renters primarily occupying the fringes of major communities, particularly in Dallas County's southeastern corner.

Figure 5.2 and 5.3 illustrate a high concentration of renters, marked by triangles, southwest of Simonds in the 1900s. The church/schoolhouse icon circled on the left is the original location of Sandbranch, given the high concentration of renters. Further evidence appears in Figure 5.4, a 1959 topographic map showing the Sandbranch cemetery occupying the same space as the Black school/church house from the 1900s. By the 1940s, while neighboring cities had annexed Simonds, the area southwest of it remained independent.

Figure 5.1 Relocations of Sandbranch

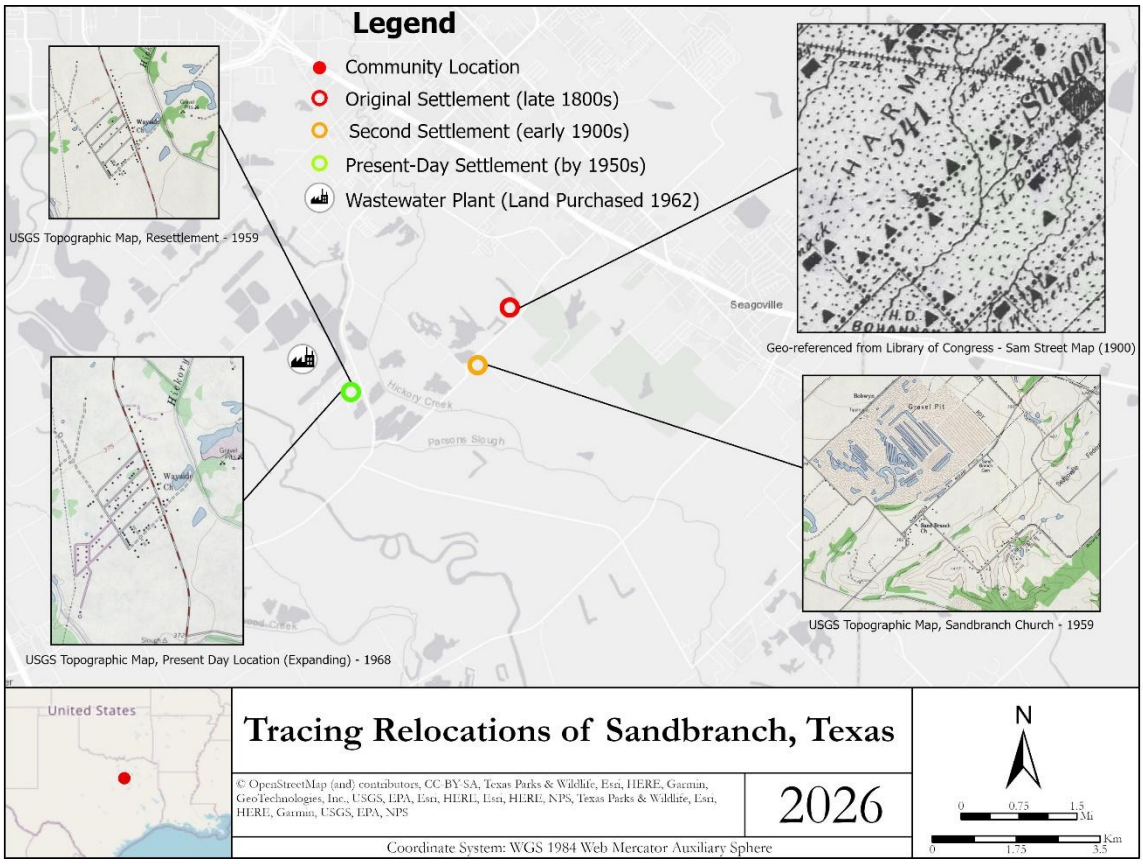


Figure 5.2 Sandbranch original location

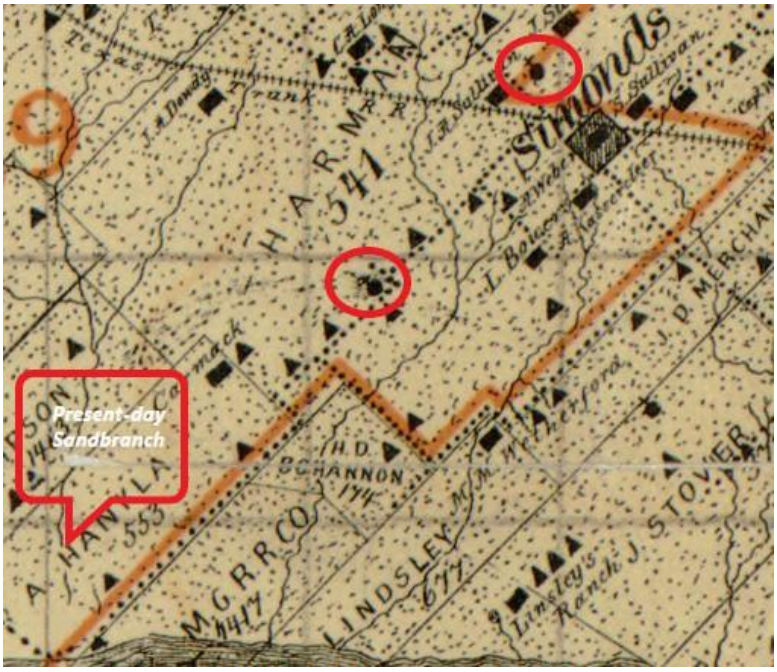
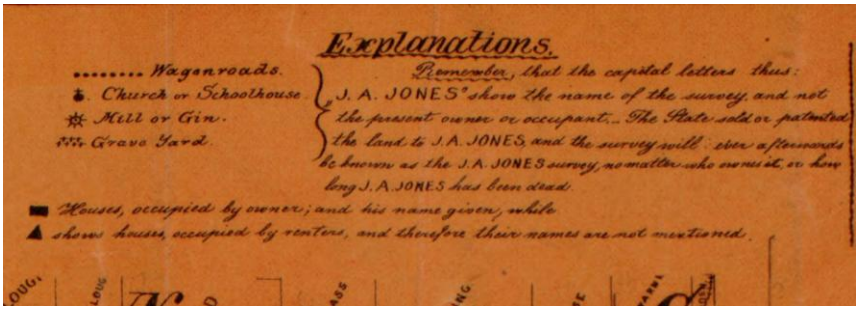
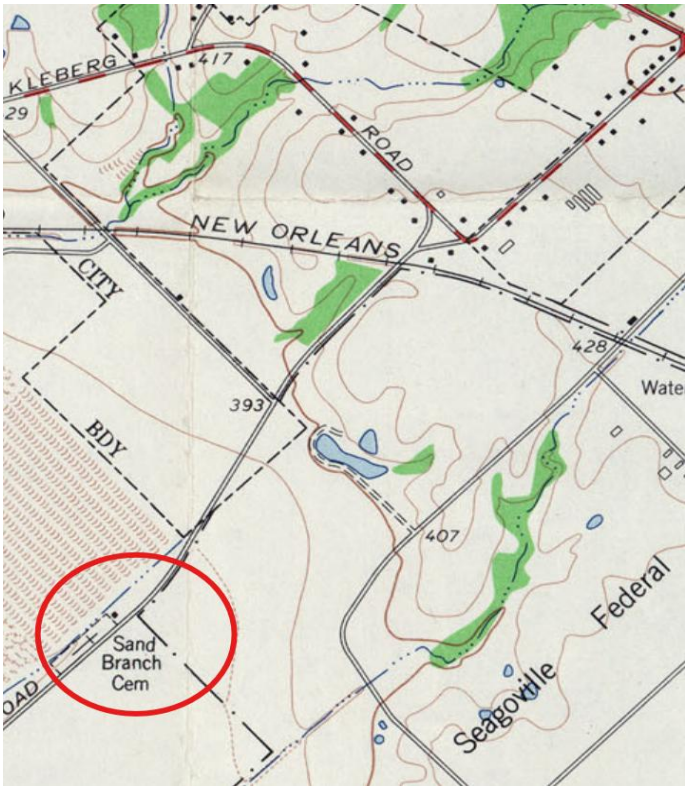


Figure 5.3 Simond, Texas School Locations (circled in red) and Map Explanations



Location of two Church or Schoolhouses circled in red, 1900 Simond, Texas, which is located next to railroad tracks. Present-day Sandbranch is also marked.

Figure 5. 4 Sandbranch Cemetery, located southwest of railroad tracks



Sandbranch Cemetery is located southwest of the original location of the town of Simonds, estimated by the railroad tracks (near New Orleans text) based on the previous map

5.2.2 The Cemetery as Evidence: Historical Persistence and Present-Day Erasure

The Sandbranch cemetery's narrow entrance, barely accommodating a single car, lacks glamorous gates or prominent historical markers. The cemetery stands as a silent testament to the lives of those who built this resilient community from the ground up. A field inspection of this Dallas County-owned burial ground reveals one of the earliest grave markers dating to 1912 (Figure 4), pinpointing the center and birthplace of the Sandbranch community. In addition, two gravemarkers are distinctly military. Given this is a cemetery for a freedman's community and one of their infantries (the other was rather worn away) matched to a well-known unit for Buffalo Soldiers called the 24th Infantry, used in vital parts of the Army's mission during expansion of the western frontier to build and

maintain U.S. infrastructure, these markers provide compelling evidence (Gorham 1993). Though the other marker's infantry is worn, it is a simple conclusion that both markers show Buffalo Soldiers are buried here next to other family members. It has been documented that these soldiers' families faced oppression in East Texas while they defended the western frontier . These markers and cemetery provide compelling evidence for the long-standing presence of Sandbranch in the area, tracing its roots back over a century.

Figure 5.5 Sandbranch Cemetery, earliest headstone intact

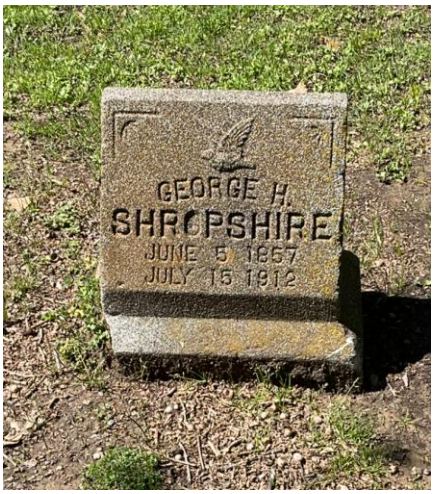


Photo taken March 18, 2024, of early grave marker from 1912

The documentation of the Sandbranch cemetery proved to be a pivotal moment in the research process, eliciting notable excitement from both long-standing and newer community members. Residents have long known that the community had been around a long time, but none knew it would be one of Dallas County's long-standing and historic neighborhoods. In addition, knowing that the cemetery existed or was somehow connected was a moment of truth for the residents. This enthusiasm underscored the cemetery's profound significance to the community's identity and history. The federal-level maps that revealed the cemetery's existence and location tell a powerful story about a Black community's enduring presence, a narrative often overlooked in official records.

Many residents expressed surprise and emotion upon learning about the cemetery, sharing that they had relatives buried there but were uncertain of its exact location or even its continued existence. For some, that uncertainty was not indifference but circumstance. Residents managing chronic health conditions or without reliable transportation already struggle to meet daily needs like grocery shopping and medical appointments; a trip to the family cemetery, though meaningful, remains out of reach for many.

What happened next demonstrates how institutional path dependency operates across time—how the erasure that began in the community's founding continues into the present day. During the initial visit in March 2024, the research uncovered concerning evidence of heavy machinery activity that had narrowly missed damaging a flat headstone in the cemetery. By this moment in the research process, preliminary evidence showed some indication of historic erasure of the community, and the linkages between the community and the cemetery were only partially developed in the research. Therefore, this cemetery acted as both proof of existence of the community in the late 1800s and a cornerstone of evidence for the research process.

In earlier conversations with the nonprofit UntilJustice, residents had attempted to gain a historic marker for the cemetery but were stalled by administrative burdens—forms requiring documentation many residents lacked, fees they couldn't afford, and bureaucratic processes they had no guidance navigating. When I discovered the heavy machinery marks, I had resources residents did not: a university affiliation, knowledge of public records request processes, contact information for Dallas County departments, reliable phone and internet access, and the bureaucratic literacy to navigate official channels. This discovery prompted a series of actions including informal conversations with Dallas County Unincorporated Services personnel and a formal records request regarding previous floodplain fill work. The obtained documents notably failed to acknowledge the

property's status as a cemetery. Despite efforts to engage the Dallas County historical cemetery authorities and provide photographic evidence of boundary violations, no response was received from the Dallas County Historical Commission District 3 Appointment. The presence of sand trucks and workmen during the documentation process created an intimidating atmosphere, yet the research persisted.

A follow-up visit in December 2024 revealed significant changes: a new fence had been erected further inward, and the machinery marks were no longer visible. This response—appearing only after a university researcher's formal inquiry, not after years of residents' concerns—exemplifies quasi-guardianship in practice. The County responded to technical expertise and institutional credentials, not to community knowledge or democratic voice. My ability to prompt institutional action that residents could not achieve themselves, despite their deeper knowledge of the cemetery and stronger stake in its preservation, reveals the structural barriers that define bounded citizenship. The decision to incorporate this cemetery preservation narrative into the broader water-focused research project reflected a commitment to holistic community engagement, but it also exposed the very dynamic this dissertation critiques: technical experts and external advocates mediating between residents and institutions, precisely because direct democratic engagement remains inaccessible to the community itself.

This incident reveals the "distance between the elite and demos" in practice. Technical officials conducting floodplain fill work operated without knowledge (or at least without documentation) of the cemetery's existence, despite it being Dallas County property and despite the community's multi-generational knowledge of the site. When brought to official attention through proper channels—channels requiring resources and credentials most residents lack—the response was silence, until physical action (the fence) appeared without explanation or community consultation. This pattern

exemplifies quasi-guardianship: technical decisions about community space are made without democratic engagement, followed by administrative action that maintains the appearance of addressing concerns while bypassing meaningful participation. Even this researcher's successful intervention, while protecting the cemetery, reinforced rather than challenged the structural dynamic in which institutions respond to credentialed expertise rather than community voice.

This incident reveals the "distance between the elite and demos" in practice. Technical officials conducting floodplain fill work operated without knowledge (or at least without documentation) of the cemetery's existence, despite it being Dallas County property and despite the community's multi-generational knowledge of the site.

These weren't just any markers; these gravemarkers are silent testaments to the lives of people who built this community from the ground up. This cemetery has veterans who aided in the development of the western frontier of the United States and specifically Texas, yet there is not a historic marker that announces Sandbranch Cemetery's legacy. The documentation of the Sandbranch cemetery, along with the subsequent community reactions and research efforts, provide rich context for understanding the community's historical roots and current challenges. This exploration of Sandbranch's past excited community members and revealed the complex interplay between environmental issues, historical preservation, and community identity—and demonstrated how institutional erasure operates as a continuous process rather than a historical artifact.

Figure 5.6 Buffalo Soldier Gravemarker

Photo taken March 18, 2024, of Buffalo Soldier grave marker, distinctly military

5.3 Second Sandbranch: Drought, Displacement, and Development (1920s-1940s)

5.3.1 Flood Control and Economic Pressures

The second Sandbranch emerged in the 1920s-1940s as a result of two intersecting forces: Dallas County flood control initiatives that made certain areas available for development, and the extreme Texas drought of the 1950s that likely pushed residents to seek alternative water sources and housing locations. Understanding this relocation requires testing competing explanations for why communities like Sandbranch occupy environmentally disadvantaged locations.

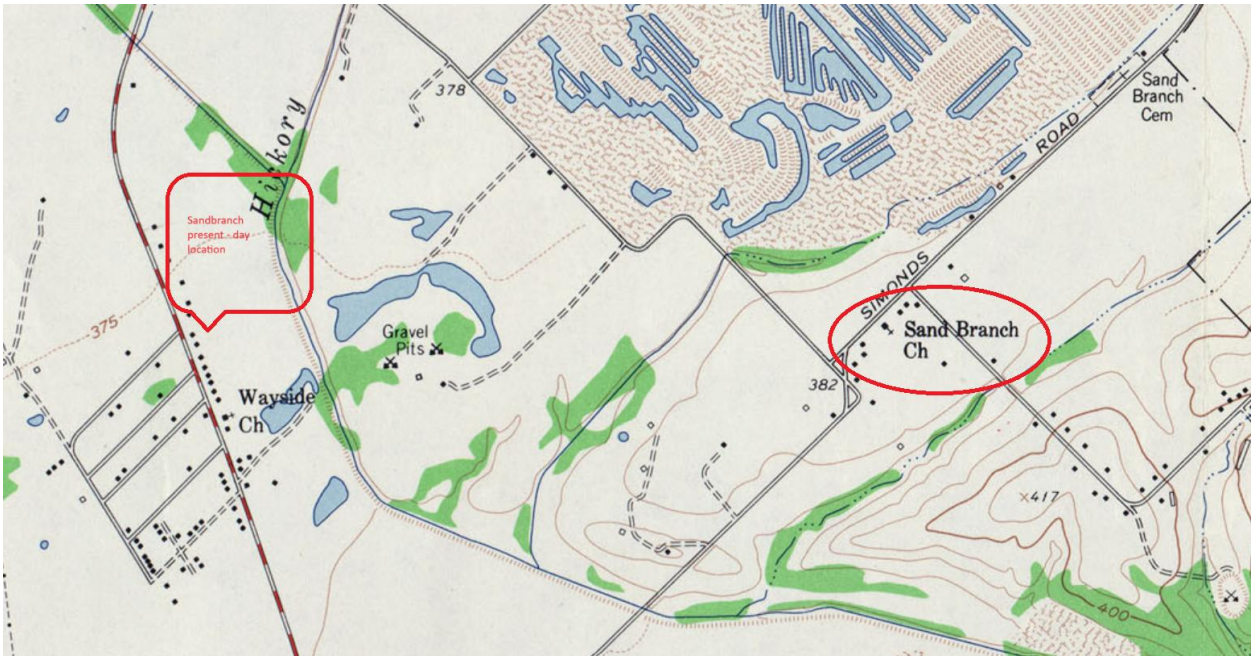
Scholars in environmental justice and public choice economists have debated whether environmental hazards preceded or followed minority settlement—a debate with profound implications for understanding responsibility and remediation. Some argue that market forces and housing affordability drive residents to settle in disadvantaged areas (Pastor, Sadd, and Hipp 2001), implicitly suggesting residents bear some responsibility for their exposure to environmental hazards. This "post-siting minority move-in" hypothesis, common in public choice economics (as reflected in Tiebout's model of residential sorting), frames location choice as voluntary consumer behavior. Path dependency theory offers an alternative explanation: institutional decisions create self-reinforcing mechanisms that lock communities into trajectories of environmental burden regardless of individual choices.

That straw in the wind introduced at this chapter's opening, however, does not conclusively establish that the current location is the third, nor that environmental degradation occurred after move-in. Combining the cemetery gravestone dates with previous topographic maps strengthens the case, but the evidence points in a direction rather than arriving at a destination. What the physical and archival record together suggest is that Sandbranch had an earlier historical location, and that the community's repeated displacement preceded, rather than followed, the institutional forces that degraded it.

During the March 2024 field visit, informal conversations revealed community memory of the old Sandbranch church, located on the right in Figure 5.4, specifically its demolition. During the Winter 2025 field visit, an interview supported the notion of a second Sandbranch location: a resident who inherited a house built in 1959 at the third location (present-day) mentioned that the family also had a previous house at the second location.

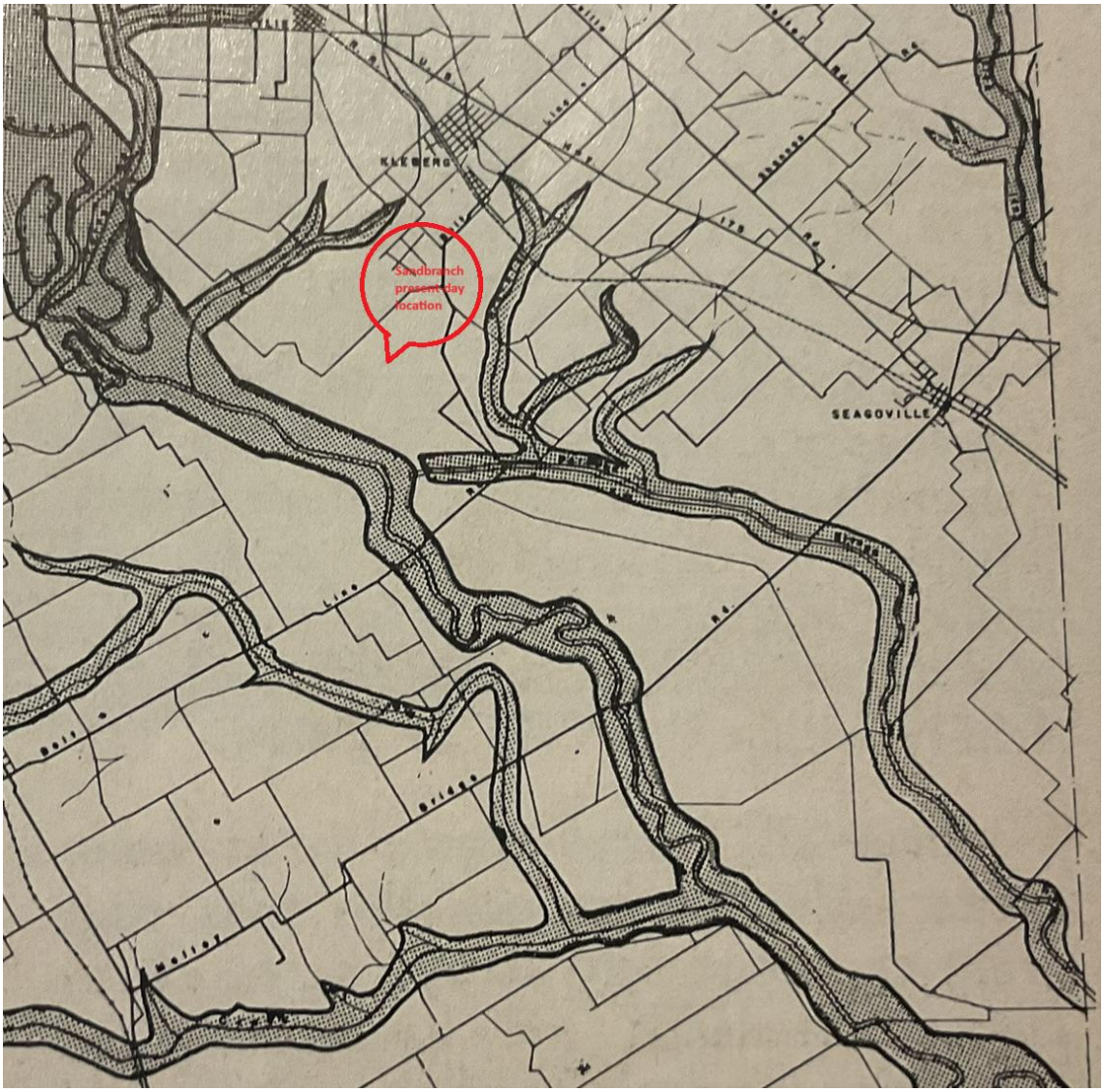
Unknowing eyes would likely not give this move a second thought, but there were two blended pressures and opportunities surrounding Sandbranch's relocation. The first is the increasing sand and gravel operations around Sandbranch, which subsequent topographic maps document as expanding throughout this period. The other is the Dallas County Flood Control Measures, which began as early as 1916 in southeastern Dallas County (D. S. Switzer 1954, 56). As Section 5.3.2 details, these flood control efforts reclaimed certain areas for development while designating others as flood-prone, creating the spatial conditions that channeled Sandbranch's relocation. Section 5.3.3 then examines how residents' knowledge of this levee system was later erased from official flood designations.

Figure 5.7 Two settlements, present-day and second Sandbranch



Present-day Sandbranch is noted on the left, while the tentative second location of Sandbranch on right marked by Sandbranch Church

Figure 5.8: Flood-risk removed for Sandbranch



Flood risk reduced map (D. S. Switzer 1954, 55)

5.3.2 Quasi-Guardianship in Practice: The Levee That Official Records Forgot

The present-day Sandbranch area is located in FEMA flood zone AE, designated as a special flood hazard area with a 1% annual chance of flooding (often called the "100-year floodplain"). Historically, a levee system was created in 1916, which levied ad valorem taxes against property owners, allowing property owners to "reclaim flood areas" (D. S. Switzer 1954, 56). According to a

1954 flood map in Figure 5.8 of Dallas County, this area can now be reclaimed for further development.

On-the-ground visits to the community and tours with property owners confirmed this history. One property owner showed what they believe to be remnants of this levee on private property—literally in someone's backyard that residents have known about for generations. Assessing this levee's current structural integrity and flood protection capacity would require hydrological analysis and civil engineering expertise beyond this dissertation's scope. The levee may well be compromised, outdated, or insufficient by modern engineering standards. However, such technical assessment misses the critical point for understanding quasi-guardianship. The issue is not whether the levee functions adequately by contemporary engineering standards, but rather that its existence—and residents' generational knowledge of it—was never part of the institutional conversation (or democratic agenda) about Sandbranch's flood risk and water infrastructure options. Current discussions with Dallas County officials have not revealed whether FEMA administrators were ever made aware of this levee or the pre-1938 historic flood controls when making flood zone designations.

Understanding the context of the second Sandbranch's displacement and the third Sandbranch's formation requires examining the confluence of forces that made relocation both necessary and opportune. The timing is crucial: the 1950s brought the worst drought in Texas history, forcing Dallas residents across all income levels to search desperately for water sources. The crisis grew so severe that the City of Dallas hired an engineer to attempt cloud seeding, and religious faiths joined together to petition God for rain (Bradford 1997). Many residents in the City of Dallas searched for wells during this period (Bolding and Bolding 1981). For Sandbranch residents within Dallas County, this drought intersected with expanding sand and gravel mining operations. A common side

effect of such operations is lowered groundwater tables, creating compounded water access challenges that likely made their second location increasingly untenable.

However, the third Sandbranch's formation actually began earlier, in the late 1930s, through a practice that was common in Dallas at the time but rarely discussed in historical accounts: house moving. According to news articles, “In the late Thirties a man named Moore began moving houses down from Dallas and Seagoville to the present Sandbranch, a place Armstrong Devro remembers everyone called 'rat row” (see also Minutaglio 1991a; West 1985b). This practice involved physically relocating entire structures on trailers or rollers and was common in early-to-mid 20th century American cities, particularly for working-class communities. Houses slated for demolition due to urban renewal, highway construction, or commercial development could be purchased cheaply and moved to new locations. For Black families facing discriminatory lending practices that prevented home purchases through conventional means, acquiring a moved house represented one of the few paths to homeownership. The houses Moore moved represented an opportunity for homeownership and community expansion that market forces alone would not have provided to Black residents facing discriminatory lending and restrictive covenants.

The Dallas County flood control efforts initiated in 1916 had created the spatial conditions that made this location available. As Figure 5.7 documented, these efforts reclaimed certain flood-prone areas for development through levee construction, designating the reclaimed land as suitable for residential use. The area that would become the third Sandbranch was among these newly "reclaimed" spaces. Thus, the third Sandbranch emerged through the intersection of three forces: (1) flood control infrastructure that opened previously marginal land, (2) the house-moving practice that provided affordable structures, and (3) the 1950s drought that eventually pushed residents from the second location to consolidate in the third. Far from residents "choosing" a flood zone, they were

channeled into a location that government flood control had officially designated as protected, using housing acquisition methods born of economic necessity and racial exclusion. While institutional forces constrained where residents could settle, the community exercised agency in how they defined that settlement. The streets in Sandbranch are named after Black heroes like Bunche Drive, named after Ralph Bunche, the first African American to win the Nobel Peace Prize, and Banks Street, named after the baseball player Ernie Banks (Minutaglio 1991c). This deliberate act of naming announced the community's pride and aspirations, claiming space not just physically but symbolically.

5.3.3 Quasi-Guardianship in Practice: The Levee That Official Records Forgot

The institution of Dallas County is not meant to be anthropomorphized, nor any other institutions referenced in this dissertation. However, this is a direct observation of what it meant to be under quasi-guardianship, which I refer to as the "distance between the elite and demos" in Chapter 2, and what that lived reality looks like for the community. As mentioned, technical definitions of flood zoning and hydrologic modeling are outside the scope of this dissertation. However, there is an existing dichotomy that highlights the distance between the community narrative in terms of power and the institution.

The levee on private property, or specifically someone's backyard, has been known in the community for generations. On the FEMA Flood Insurance Rate Maps (FIRMs), the levee is not listed, often because it's a private levee that requires formal accreditation and documentation. Through this formal channel of documentation, a silence has grown, echoing "silence" in the broader history of Sandbranch as well as other historically marginalized communities. Here, historical "silences" can be produced at the moment of fact creation, fact assembly, fact retrieval, or retrospective significance (Trouillot 1995, 26). Although the private levee might not be accredited, a feature could be added to the FIRM database. If the levee is unaccredited, it could have been part of

the broader conversation between residents and Dallas County officials, where someone might have suggested pursuing a solution to get it accredited and certified rather than a buyout program (the Dallas County buyout program implemented in the early 2000s, detailed in Chapter 4, Section 4.5). At any point during this dissertation process, a silence could be recreated at the moment of retrospective significance. Choosing to write about this moment and the distance between the county official and residents underscores the concept of quasi-guardianship and the potential for local control.

As a researcher, documenting these instances becomes critical to the research process, and in many ways, choosing to engage or not engage with seemingly tangential topics, such as a levee, shapes the future history of Sandbranch as I relay findings to residents. If I had chosen not to engage, then a silence could have been further reinforced.

This levee example perfectly illustrates how quasi-guardianship operates in Sandbranch: technical expertise (floodplain management, FEMA mapping) functions in one sphere while lived knowledge (a levee in someone's backyard, known for generations) exists in another, with no democratic bridge between them. County officials make decisions about flood zones and buyout programs without incorporating—or apparently even accessing—the community's generational knowledge of their own landscape. This is not simply neglect; it is the systematic operation of governance structures that privilege technical expertise over democratic participation, creating decisions about the community without meaningful engagement with the community.

5.4 Third Sandbranch: Industrial Encroachment and Institutional Erasure (1940s-1960s)

5.4.1 Residents Before Industry: The Evidence

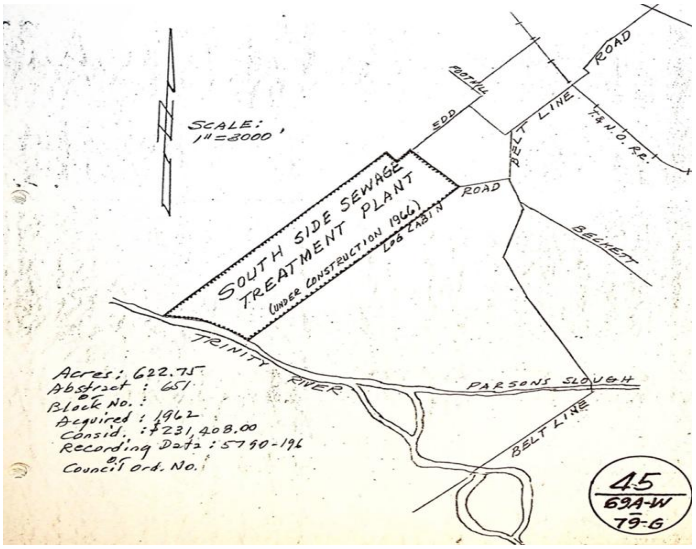
The evidence I have gathered passes the "hoop test," meaning it's necessary but not sufficient to prove my hypothesis. The community's presence before industrial development is a crucial piece of evidence, but more is needed to establish a causal relationship. According to historical maps,

residents were present in the third location as late as 1956. However, property for the Southeast Wastewater Plant was purchased in 1962, and construction began in 1966 (Dallas 1966, 60). This means that residents occupied Sandbranch prior to industrial development.

Primary documentation from the Dallas Municipal Archives, shown in Figure 5.9, details minor neighboring roads but does not show the roads of Sandbranch despite being displayed in other topographic maps. Sandbranch exists at this point above the water feature called “Parsons Slough.” Comparing other asset maps of the same scale and community existence during both time periods shows it would be common to draw in all residential roads. The absence of Sandbranch's roads in official documents, despite their presence in topographic maps, points to a significant erasure of the community's history. This erasure, whether intentional or not, is a critical finding in my investigation. This document shows an institutional viewpoint of the demos. Those who are of the demos are drawn as part of the broader community.

According to other records within this document, the purchase of this property did not require council approval, unlike other reservoir or service centers, despite the large amount of $231,408.00 paid. This small 622 acres would eventually turn into well over 3,000 acres intended for "future wastewater treatment and sludge disposal activities" (Bolding and Bolding 1981, 190).

Figure 5.9 Property owned by Dallas Water Utilities



5.4.2 The Wastewater Plant and Systematic Erasure

This documentation detailing the purchase of land for the wastewater treatment plant, combined with the other evidence presented, serves as our "smoking gun." It strongly suggests that the community predated the industrial development that would later impact its environment. To fully confirm the first hypothesis, we must consider how we define "community." Per Dahl's interpretation, if community is seen as a system rather than aggregates, then Sandbranch's legacy and history are passed on with every physical relocation of the community. Here, the community is excluded from any decision-making that would later severely impact their future.

By this point in engineering, wastewater disposal had two functions: "reliable and inoffensive collection of waste matters" and "safe disposal of suitable treated wastewater into receiving bodies of water or onto land" (Fair 1966, 11). Yet the authors of that textbook said, "otherwise, as happened in early drainage works, the collection system merely shifts hazards and nuisances longitudinally from the immediate premises of dwellings and industrial establishments to regional drainage networks" (p. 11). The hazards were going to be shifted to the people of Sandbranch. The

placement of the hazard is then a distinct marker of citizenship, creating the boundaries for future conversations among the City of Dallas, Sandbranch, and Dallas County. Wastewater treatment plants cannot be easily relocated, meaning they serve as a terminus for physical boundaries between who is included in the polity, but they also carry across time. The relationship begins between Sandbranch and the rest of the political community with reference to this wastewater treatment plant and the hazards they were unknowingly going to live with in the future. Environmental degradation occurred with them in mind as the community was likely unaware of the purchase nearby and was taken by surprise when it finally expanded to the 3,000-acre plant.

5.4.3 The Perfect Storm: Institutional Decisions and Community Erasure

The confluence of drought, population growth, and institutional decisions created a perfect storm that led to the displacement of the second Sandbranch and the subsequent construction of the wastewater treatment plant near the third. The region's worst drought on record, compounded by the city's desperate search for water solutions, increased sand and gravel mining both encroaching and creating issues for groundwater, forced many residents, including those in the second Sandbranch, to likely seek alternative water sources. While historical maps indicate a thriving community in the area until the mid-1950s, official records mysteriously omit its existence. Moreover, the expedited purchase of land for the wastewater treatment plant, bypassing typical council approval processes, raises questions about the city's priorities and transparency. Despite the presence of residents and established infrastructure, the official narrative erased Sandbranch's existence, paving the way for a massive public works project without apparent oversight. The stark contrast between the lived experiences of residents and the official record is a powerful indicator of institutional neglect—and the beginning of the path-dependent patterns that would entrench quasi-guardianship as the dominant mode of governance for Sandbranch.

The wastewater plant's construction in the 1960s marked the first critical juncture in Sandbranch's path toward water poverty. But understanding the community's present-day predicament requires examining how this initial decision set in motion self-reinforcing patterns that would persist for decades. The institutional structures that enabled Sandbranch's erasure in official records did not disappear after the plant was built—they evolved into the governance arrangements that continue to shape the community's relationship with water access today.

5.5 Quasi-Guardianship Entrenched: The Political-Administrative Dichotomy

5.5.1 The Dallas County Buyout and Stalled Water Projects

Many public officials and administrators would like to see Sandbranch get access to drinking water, but the low-income and small population within a flood zone make for a less than ideal, economically "viable" and politically palatable argument. This dissertation serves as an opportunity to disassemble that argument and examine its assumptions and implications.

The Dallas County buyout program mentioned throughout the chapters was a decision in Sandbranch that was supported both politically and administratively. As detailed in section 4.5.2, the program was funded through approximately $400,000 in Texas Water Development Board (TWDB) funds and approximately $220,000 in Community Development Block Grant (CDBG) funds, for a combined budget of roughly $620,000 (Dallas County Planning & Development 2009). The TWDB funds are particularly significant because they had originally been allocated by the Texas Legislature for a Sandbranch water supply project, the very infrastructure intervention residents had long been promised. When the floodplain compliance crisis rendered that water project infeasible, the Legislature reallocated those same funds toward relocation and demolition instead. Money designated to finally bring water to Sandbranch became money to remove Sandbranch residents from their homes. Of the $620,000 available, Dallas County spent approximately $394,000, leaving roughly $226,000 unspent (Dallas County Planning & Development 2009).

Residents were offered $5,000 for properties but left with less than $500 after demolition costs, with the average being $350 (Judy 2024; Pemberton 2022). The county's own documentation reports individual assistance payments ranging from $1,900 to approximately $44,500, a discrepancy with residents' accounts that remains unresolved and warrants further investigation. The Dallas County buyout program "halted a water and sewer project intended for Sandbranch that Dallas County obtained state funding for in 1999" (Michaels 2004). The reallocation of those same state funds from water provision to community removal makes this halting not merely a consequence of the buyout program but its financial mechanism. The County Commissioner John Wiley Price, in position for 40 years, is an elected official; however, floodplain administrators at both the federal and local levels in Dallas County are appointed officials, as in many other jurisdictions. Access to drinking water in Sandbranch is possible; however, the mounting administrative hurdles surrounding it contribute a feedback effect to the political sphere, creating a quasi-guardianship that perpetuates a unique holding pattern for the problem of water poverty.

5.5.2 The Political-Administrative Dichotomy in Practice

These tensions can be conceptually organized into two overlapping domains: expertise (associated with administrative authority) and public participation and democratic control (aligned with political legitimacy). This political-administrative dichotomy creates the conditions for quasi-guardianship to emerge.

In Sandbranch, this dichotomy manifests clearly: On one side, appointed floodplain administrators and technical experts make decisions about flood zones, buyout programs, and infrastructure feasibility based on hydrological models, cost-benefit analyses, and FEMA regulations. On the other side, an elected county commissioner represents residents politically but lacks the technical authority to override administrative determinations. The gap between these two spheres—technical expertise

operating independently of democratic input, and political representation unable to challenge technical decisions—creates a governance void that quasi-guardianship fills.

Given the idiosyncrasies of water governance in Texas—where individuals cannot engage directly with the leading authority on drinking water (the Texas Water Development Board) without the intermediary of a nonprofit or political representative—this void becomes particularly pronounced. Neither purely political action (electing the same commissioner for 40 years) nor purely administrative programs (like the Dallas County buyout) can resolve Sandbranch's water poverty because each operates in isolation from the other, and both operate with minimal meaningful community participation.

Administrative appointees provide a high level of expertise in technical matters and can help provide political momentum to find solutions for communities. However, without meaningful engagement, governance styles lose their legitimacy as a democracy, which was already thin to begin with, considering the broader water governance context. In Sandbranch's political atmosphere, the county commissioner has been continuously reelected for the past 40 years, and competitors have said, "It's the county's responsibility to come up with a solution" for Sandbranch. The community of Sandbranch is a point of failure that is thrown into a political debate every local election. As the interest in Sandbranch ebbs and flows in the media, the residents face the consequences of democratic failure. Quasi-guardianship stands in contrast to democracy and the legitimacy of the state. Processes are being expedited and solutions are being formed, but the fundamental question of for whom remains unresolved—and without meaningful public participation, the answer cannot be democratic.

5.5.3 Democratic Accountability and the Question of "For Whom"

These details are important because they reveal how quasi-guardianship operates not through a single authoritarian decision but through accumulated institutional practices that systematically exclude community participation while maintaining the appearance of democratic process. The question "why build on a flood zone?" is indeed important to ask, but the answer matters profoundly. As the *Dallas Morning News* editorial introduced at this chapter's opening argued, this framing treats the flood designation as a settled fact of nature rather than a contested administrative decision, and treats residents' presence as voluntary choice rather than the outcome of successive institutional displacements documented here (Dallas Morning News Editorial Board 2019). As the historical evidence demonstrates, residents did not freely select this location but were channeled here through drought-driven displacement, flood control initiatives that reclaimed surrounding areas for development, sand and gravel mining expansion, and systematic erasure from official planning documents. The question should not be "why did residents choose to stay?" but rather "why did institutions create conditions that made this the only viable option, then use flood designations and buyout programs to justify continued exclusion from basic infrastructure?" This reframing reveals how victim-blaming narratives obscure institutional responsibility and perpetuate the quasi-guardianship arrangements that maintain water poverty.

5.6 Path Dependency Demonstrated: From Critical Junctures to Locked-In Patterns

The combination of Chapters 5 and 4 presents a comprehensive argument that institutional path dependency shaped Sandbranch's trajectory toward water poverty through identifiable critical junctures that created self-reinforcing mechanisms. This chapter established the first critical juncture: the wastewater treatment plant's construction in the 1960s following historical erasure of the community from official planning documents. Chapter 4 examined two subsequent critical

junctures—the 1980s plant expansion and environmental crisis, and the 2000s FEMA buyouts—that reinforced and deepened the patterns established initially.

Path dependency helps explain why, despite multiple moments when alternative outcomes seemed possible (the airport proposal, the 1999 state water funding, various annexation discussions), Sandbranch remained trapped in water poverty. Each critical juncture created feedback mechanisms that made change increasingly difficult.

First, the wastewater plant's construction established sunk costs and spatial patterns that made relocation prohibitively expensive. The facility's expansion in the 1980s further increased these sunk costs while also creating institutional precedents, DWU's autonomous action and regulatory exceptions for expansion, that normalized exceptional governance rather than standard democratic processes. These increasing returns to the initial infrastructure placement meant that reversing course became exponentially more costly over time.

Second, multiple institutions—Dallas Water Utilities, City of Dallas, Dallas County, FEMA, Texas Commission on Environmental Quality—developed procedures and relationships oriented around Sandbranch's exceptional status. Changing this status would require coordinating across all these institutions simultaneously, creating substantial transaction costs that deter reform. This institutional coordination around existing arrangements creates powerful inertia against change, as each institution's practices become interdependent with others.

Third, both residents and officials adapted their expectations in ways that reduced pressure for change. Residents adapted to water poverty by consuming bottled water and hauling water, thereby reducing immediate political pressure. Their expectations shifted to view "getting water" as a private responsibility rather than a public service right. Officials' expectations similarly adapted to view Sandbranch as a unique problem requiring exceptional solutions rather than a community deserving

standard infrastructure. These adaptive expectations, while allowing residents to survive, paradoxically reduced the political imperative for institutional reform.

Finally, as Chapter 2 established, quasi-guardianship gains legitimacy over time as technical expertise becomes increasingly embedded in governance structures. The floodplain designation, buyout program, and ongoing administrative hurdles around water provision all involve complex technical requirements that seem to justify expert control while marginalizing democratic participation. The idea that technical complexity necessitates expert decision-making provides legitimacy to governance arrangements that exclude affected communities from meaningful participation.

Chapters 5 and 4 together demonstrate how the community has been physically changed and politically impacted across time. The wastewater treatment plant was built in the 1960s, after the community's establishment, meaning environmental injustice followed rather than preceded minority settlement. These seeds of injustice were then nurtured through rapid expansion of the wastewater plant in the second critical juncture and fertilized through a buyout program in the third, allowing patterns of exclusion to grow and harden.

However, understanding institutional processes through path dependency theory alone risks reducing Sandbranch's story to abstract mechanisms, repeating the very erasure documented in these chapters. Democracy requires not just explaining marginalization but centering affected communities in determining responses. Chapter 6, therefore, shifts focus from institutional history to lived experience, examining how the critical junctures documented here manifest in residents' daily routines, health outcomes, financial precarity, and (importantly) their own visions for solutions that break the pattern of quasi-guardianship through genuine democratic participation.

Chapter 6: Contemporary Voices and Lived Experiences of Water Poverty

"We're too weak, too poor and too black for folks to care. Water still bad, hogs still bad, smells still bad, gravel trucks still run you off the road. Sandbranch ain't even on the map. I believe nothing of what I hear and only half what I see, you hear me?"

— Sallie Mae Smith, Sandbranch resident, as quoted in West (1985a)

Sallie Mae Smith said Sandbranch was not on the map in 1985. Forty years later, this chapter asks what it looks like to finally put it there — not cartographically, but democratically. The previous chapters established both the theoretical foundations and historical trajectory of Sandbranch's water poverty. Chapter 2 developed the concept of water poverty as democratic failure, examining how institutional path dependency and bounded citizenship shape water access. Chapters 4 and 5 then demonstrated empirically how critical junctures, the construction of the Southside Wastewater Treatment Plant in the 1960s, its expansion in the 1980s, and the Dallas County buyout program in the 2000s, created self-reinforcing mechanisms that locked Sandbranch into patterns of exclusion. This chapter now turns to contemporary voices and lived experiences, synthesizing survey, archival, and interview data to examine how these historical patterns manifest in residents' daily lives and shape their visions for the future. In doing so, it moves across three temporal registers: how we got here, where we are now, and what residents themselves imagine as possible.

This chapter presents findings from a single community, approximately 80 households in an unincorporated area of Dallas County. This intensive focus enables depth that broader surveys cannot achieve: the ability to trace how historical exclusions documented in previous chapters manifest in contemporary lived experience, and to capture residents' own interpretive frameworks for understanding their situation. However, Sandbranch's conditions are not anomalous. Federal Reserve data show that 40 percent of U.S. households struggle to cover a $400 unexpected expense

(Chen 2019). In Sandbranch, as Section 6.1 will show, the figure approaches near-universality. Similarly, Carley and Konisky (2025, 43)find that communities "within one mile of industrial facilities average 21 percent Black residents, 25 percent Hispanic residents, and 15 percent of residents below the federal poverty line." Sandbranch is situated downstream from a 3,000-acre wastewater treatment plant and surrounded by sand and gravel mining operations. The community is 54 percent Black and 22 percent Hispanic (Reyes et al. 2024); my survey data shows that over 90 percent of residents live below the federal poverty line. These comparisons situate the community within broader national patterns of environmental injustice while revealing the extreme end of a continuum that affects millions of Americans. The value of this case lies not in generalizability but in theoretical illumination: understanding how water poverty is experienced and sustained in one community can inform governance reforms applicable to the many Sandbranches across the nation.

This chapter examines part two of the overarching research question driving this research: what governance reforms could promote equity and strengthen democratic principles? It draws from survey research, archival evidence, and resident interviews to center residents' own perspectives on barriers to reform and their visions for solutions.

The chapter integrates research findings and discussion through four movements: First, I examine the economic precarity and public health impacts that characterize daily life in Sandbranch (Sections 6.1-6.2) through survey results. Second, I analyze and place in context how residents conceptualize trust in water governance, drawing from surveys and interviews (Section 6.3). Third, I use findings from multiple sources to explore patterns of "poverty tourism" and extractive engagement that residents have experienced, connecting these to broader patterns of quasi-guardianship (Section 6.4). Finally, I examine residents' articulated visions for governance reform and their understanding of the historical forces that created their current situation (Sections 6.5-6.7).

Throughout this analysis, two interconnected themes emerge that are fundamental to understanding water poverty as democratic failure: the linguistic construction of "they" versus "we" that reveals power asymmetries in water governance, and the concept of "deservedness" that shapes how residents understand their relationship to essential services. These themes illuminate the lived reality of bounded citizenship—where formal membership in the polity coexists with systematic exclusion from decision-making processes and material benefits. When residents describe barriers as 'how they do things' or 'you know how they are,' they are not simply expressing frustration with bureaucracy but articulating a sophisticated understanding of how racialized power operates to maintain their marginalization from water governance.

The analysis presented here builds directly on bounded citizenship as residents live it: partial, conditional membership in the polity where formal citizenship coexists with practical exclusion from essential services and meaningful participation in governance. This chapter demonstrates how its three dimensions, material deprivation, political marginalization, and erosion of institutional trust, manifest in residents' daily experiences and shape their capacity for civic engagement.

6.1 Economic Precarity and Demographic Context

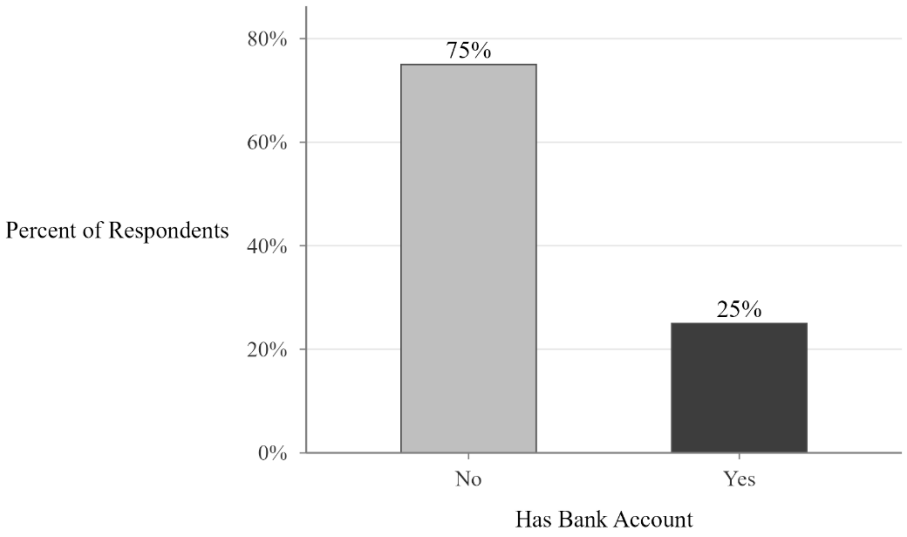
Understanding the lived experience of water poverty in Sandbranch requires first establishing the economic context within which residents navigate daily water access challenges. As Chapter 1 introduced, Sandbranch is a historically Black community that has evolved demographically over recent decades, particularly following the Dallas County buyout program documented in Chapter 5. The household survey data reveal the depth of economic precarity that characterizes contemporary Sandbranch.

The 32 completed household surveys parallel past research efforts in demographic composition, with a majority being male respondents, averaging 55 years of age, and an average household size of

2. However, the economic data reveal a community experiencing profound poverty. Most residents perceive their household income to be at about the same level or significantly lower than the Federal Poverty Line, indicating deep poverty that shapes every aspect of daily life, including water access strategies.

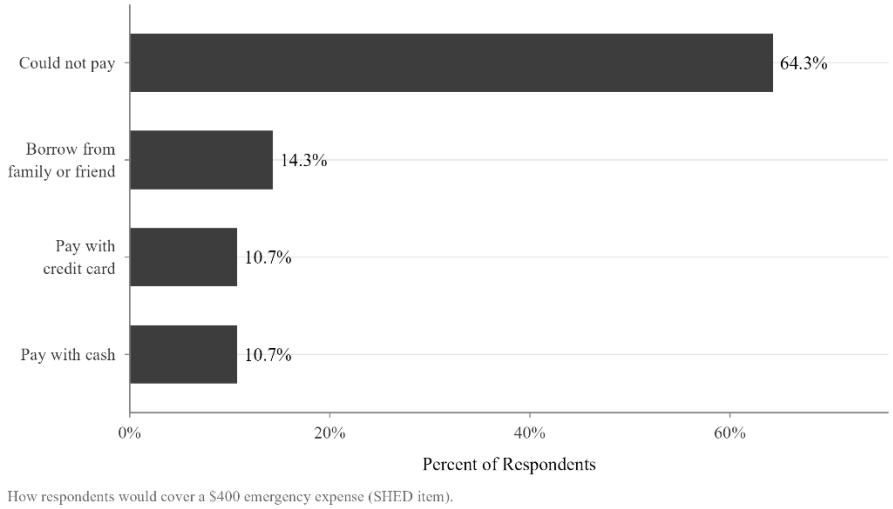
Two economic indicators are particularly revealing when considered alongside the water infrastructure challenges documented in previous chapters. First, the majority of survey respondents reported being unbanked—lacking access to formal banking services. This financial exclusion compounds water poverty by limiting residents' ability to participate in payment plans, establish credit for infrastructure improvements, or access emergency funds. Second, most respondents indicated they could not afford a $400 emergency expense, a threshold that the Federal Reserve uses as a marker of financial fragility.

Figure 6.1 Proportion of Respondents with Current Bank Account



Proportion of respondents with a current bank account.

Figure 6.2 How respondents would cover a $400 emergency expense



This latter finding becomes critical when considered alongside interview data about water infrastructure maintenance. Several interview participants who rely on private wells explained that they share these wells with neighbors through informal arrangements. However, the wells require ongoing maintenance, with electrical pumps that cost approximately $300 to maintain and $350 to replace when damaged by electrical surges. For households that cannot afford a $400 emergency, these routine water infrastructure costs represent potentially catastrophic expenses. The vulnerability is not hypothetical: Texas' electrical grid instability, demonstrated dramatically during the February 2021 winter storm, creates recurring risks of pump damage that most Sandbranch households cannot afford to address.

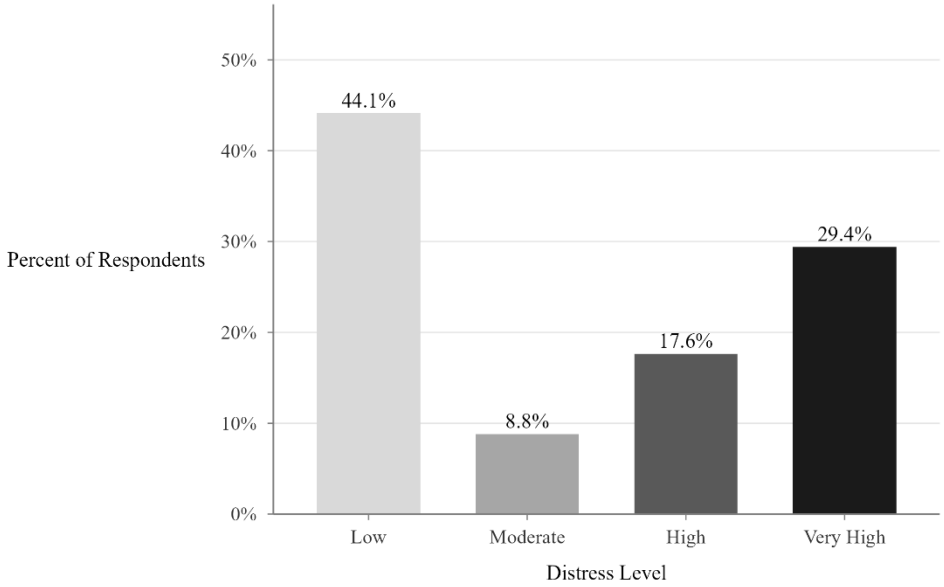
This economic precarity directly illustrates the concept of bounded citizenship developed in Chapter 2. Residents possess formal citizenship but lack the material conditions necessary for meaningful civic engagement. The inability to afford basic water infrastructure maintenance—let alone advocate for broader systemic solutions—demonstrates how economic exclusion intersects with political marginalization to create the compound disadvantages that define water poverty.

6.2 Public Health Impacts: Mental and Physical Health Consequences

The economic precarity documented above does not exist in isolation but intersects with significant mental and physical health impacts. As Chapter 1 established in defining water poverty, the condition encompasses not only physical scarcity or contamination but also persistent deficits in trust toward governance institutions that influence how communities perceive the safety and legitimacy of their drinking water. This section examines the health consequences that emerge from these intersecting conditions.

The survey employed the Kessler-10 psychological distress scale, a validated instrument developed in the healthcare field to measure anxiety and depression. As detailed in Chapter 3's methodology section, this scoring mechanism has been used by public health scholars to connect institutional racism with mental health outcomes. For broader reader comprehension, distress levels were grouped into four categories: low, moderate, high, and very high. While most general populations fit into the low and moderate categories, Sandbranch households showed above 30% of individuals in the high and very high distress categories—a proportion that substantially exceeds typical community samples.

Figure 6.3 Kessler Score Results



Kessler K10 distress levels. Low (≤15), Moderate (16–21), HIigh (22–29), Very HIigh (≥30).
Darker bars = more severe distress.

This elevated psychological distress is particularly significant when considered alongside Gaber's (2019) research connecting water insecurity with mental health outcomes in Detroit. Gaber demonstrated direct linkages between measures of water insecurity and psychological distress, establishing that uncertainty about water access creates ongoing anxiety that compounds other stressors. In Sandbranch, residents face not only uncertainty about water access but also the daily burden of water hauling, concerns about well contamination (as documented in Chapter 5's examination of the 1980s water quality crisis), and the stigma of living without access to services that most Americans take for granted.

Paradoxically, despite this elevated psychological distress, over 80% of respondents rated their self-assessed physical health status as good or fair. This seemingly contradictory finding warrants careful interpretation. Self-assessed health measures can reflect both resilience and adaptation to challenging circumstances. Residents may have normalized certain health conditions or may be comparing

themselves to neighbors facing similar challenges rather than to broader population norms. Additionally, as public health research has demonstrated, individuals experiencing chronic environmental stressors often maintain optimistic self-assessments as a coping mechanism, even when objective health indicators suggest otherwise.

These health findings connect directly to the democratic failure framework established in Chapter 2. Political equality, as Beitz (1989) argues, requires "fair terms of participation" that reflect citizens' equal public status. When communities experience elevated psychological distress and navigate daily health challenges related to water access, their capacity for meaningful civic engagement is compromised. Mental health impacts are not merely individual suffering but represent a democratic deficit—a systematic weakening of residents' ability to participate fully in decisions about governance. The health consequences documented here thus represent both a symptom and a mechanism of bounded citizenship, simultaneously resulting from exclusion and reinforcing residents' marginalization from political processes.

6.3 Trust in Water Governance: Dimensions and Manifestations

Having established the economic and health context within which Sandbranch residents experience water poverty, this section examines how residents conceptualize trust in water governance—a concept that Chapter 2 identified as foundational to democratic water systems. As Teodoro, Zuhlke, and Switzer (2022) argue, trust in water systems operates along two dimensions: moral (whether institutions act in residents' interests) and performative (whether institutions deliver safe, reliable water). The survey and interview data reveal how these dimensions manifest in Sandbranch's specific context and illuminate barriers to the governance reforms proposed in Chapter 7.

The survey asked residents to define trust in their own words before assessing their confidence in specific organizations. This methodological approach, detailed in Chapter 3, allows for capturing

residents' operational understanding of trust rather than imposing researcher definitions. The subsequent questions asked residents to rate their trust in various organizations on a scale from 0 (no trust) to 10 (complete trust), both generally and specifically regarding drinking water management.

The findings reveal nuanced patterns that connect directly to the institutional history documented in Chapters 4 and 5. University scientists and researchers received the highest trust ratings, with responses clustering toward the upper end of the scale (scores of 7 to 10). This finding aligns with interview data where residents expressed appreciation for researchers who "actually show up" and demonstrate tangible engagement rather than making distant promises. Nonprofits and local government officials also received relatively high trust scores, though with more variation, suggesting that direct, visible presence matters more than institutional type.

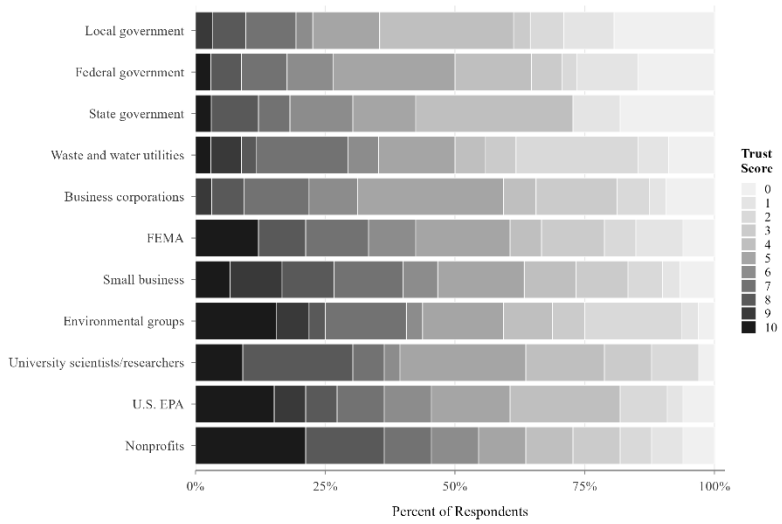
Organizations with regulatory or enforcement roles—including the Texas Commission on Environmental Quality (TCEQ) and the Environmental Protection Agency (EPA)—received moderate trust ratings, with responses clustering around the middle of the scale (scores of 5 to 7). While some respondents rated these organizations highly, the overall pattern suggests mixed confidence. This ambivalence likely reflects residents' awareness of these agencies' theoretical authority to address water quality problems, tempered by their lived experience that regulatory oversight has not prevented Sandbranch's decades-long exclusion from water infrastructure.

Federal and state government agencies, FEMA[9], and business corporations received the lowest trust ratings, with more respondents assigning scores in the 0 to 4 range. For FEMA specifically, these low ratings reflect direct experience with the buyout program documented in Chapter 5, which

[9] Although, in this dissertation I state the Dallas County Buyout Program, many people recognize it as the FEMA Buyout Program

offered residents insufficient compensation and halted infrastructure projects that had secured state funding. As one interview participant noted, the buyout "took away what little we had" without providing meaningful pathways to improved circumstances. Business corporations' low ratings likely reflect residents' awareness of the sand and gravel mining operations that surround Sandbranch, documented in Chapter 4 as contributing to environmental degradation while providing no benefit to the community.

Figure 6.4 Trust Ratings by Organization



Trust ratings (0–10) by organization, ordered by mean score. Darker shades = stronger trust.

Interview data provide crucial context for interpreting these trust ratings. Multiple participants explained that trust requires not just technical competency but visible, accountable presence. As one resident stated: "I'd trust it more if I could see someone test it right here, not just hear about lab results somewhere else." This desire for local, visible testing reflects what Chapter 2 described as the tension between technical expertise and democratic participation. While water utilities routinely conduct laboratory testing to meet regulatory requirements, residents seek reassurance through direct witnessing—a need that reflects decades of exclusion from decision-making processes.

The survey results also revealed bimodal patterns in trust ratings across multiple organization types, with respondents tending to rate organizations either quite high or quite low rather than clustering in the middle range. This polarization suggests that trust operates as a threshold phenomenon in Sandbranch: residents either have confidence in an institution based on demonstrated action and accountability, or they fundamentally distrust it based on past experiences of exclusion and broken promises. This binary pattern poses challenges for governance reform efforts, as it suggests that incremental improvements may not be sufficient to shift residents from distrust to trust—only fundamental transformation demonstrating genuine commitment to community interests may overcome decades of institutional betrayal.

These trust patterns have direct implications for the governance reforms proposed in Chapter 7. Any regional water authority or collaborative governance arrangement must account for residents' well-founded skepticism of distant institutions and their preference for local, accountable presence. The trust deficit documented here is not irrational but reflects accurate assessment of institutional track records. Rebuilding trust will require not just policy changes but sustained demonstration of commitment through visible, accountable action that centers community knowledge and decision-making authority.

To illustrate how governance design determines whether regionalization perpetuates or challenges quasi-guardianship, consider two contrasting scenarios. These hypothetical approaches demonstrate how institutional structure—not just technical competence—determines whether residents would trust the water enough to actually drink it.

Scenario A: Efficiency-Centered Regionalization

A regional water authority absorbs Sandbranch into its service area, extending infrastructure to provide reliable water access. The authority operates with technical excellence, meeting all regulatory

standards and achieving economies of scale that keep rates lower than fragmented systems could offer. The board consists of appointed experts and representatives from the largest municipalities in the region. Public meetings occur quarterly during business hours at the regional office, located 30 miles from Sandbranch. Community input is welcomed through a comment period, but residents must navigate complex bureaucratic processes to formally register concerns. The authority justifies its governance structure by pointing to professional management, regulatory compliance, and cost efficiency. When Sandbranch residents raise concerns about water quality or billing, they are told to submit formal complaints through the established channels. The authority provides detailed annual reports demonstrating technical compliance and financial sustainability.

Scenario B: Democracy-Centered Regionalization

A regional water authority is established with Sandbranch as a founding partner rather than an absorbed community. The governance structure includes guaranteed representation for historically excluded communities, with board seats explicitly reserved for smaller communities and proportional representation that prevents large municipalities from dominating decisions. Local advisory committees in each community—including Sandbranch—have formal authority to review proposed rate changes, infrastructure priorities, and service quality standards, with their recommendations requiring board response and justification if rejected. The authority establishes transparent, accessible communication mechanisms: monthly community meetings held in Sandbranch itself, real-time water quality data available through simple mobile interfaces, and staff members specifically tasked with community liaison who build ongoing relationships rather than responding only to crises. Revenue-sharing arrangements ensure that infrastructure investments generate local employment and address complementary community needs identified by residents themselves. The authority implements citizen monitoring programs, training Sandbranch residents

to collect and analyze water quality data, creating both technical capacity and ownership. When concerns arise, residents have direct access to decision-makers who are accountable through both formal governance structures and ongoing community relationships.

The Critical Difference: Trust and Democratic Legitimacy

Both scenarios provide safe drinking water and meet technical requirements. The critical difference lies in trust, accountability, and political equality. In Scenario A, residents receive water but remain dependent on distant experts, with their concerns filtered through bureaucratic processes that replicate the exclusion they have historically experienced. Technical compliance substitutes for democratic legitimacy. In Scenario B, residents become participants in governance, with institutional mechanisms that ensure their voice matters and their concerns receive genuine response.

The question Chapter 7 will ultimately address is this: In which scenario would Sandbranch residents actually drink the water? Not just receive it through pipes, but trust it enough to consume it, to believe it is safe, to accept the governance structure as legitimate? This question cuts to the heart of why water poverty is a democratic failure: technical solutions without democratic governance cannot overcome the deep distrust created by decades of institutional betrayal.

As the empirical evidence from Sandbranch will demonstrate in Chapters 4-6, residents have experienced repeated patterns of promises without delivery, interventions without follow-through, and expertise without accountability. They have learned through hard experience to distrust systems that claim to serve them while excluding them from decision-making. Regionalization that follows Scenario A—however technically competent—would likely face persistent questions about water safety, resistance to rate increases, and low engagement in governance processes, because it replicates the quasi-guardianship dynamics that created water poverty in the first place.

Regionalization following Scenario B offers the possibility of building trust through institutional design that centers democratic accountability, transparency, and genuine political equality.

This thought experiment reveals that the boundary problem cannot be solved through administrative restructuring alone. Determining who constitutes the demos for water governance—expanding boundaries to include previously excluded communities—requires simultaneously addressing how those communities participate, whether their voice matters, and whether governance structures build or erode trust. The critical test is whether residents would actually trust the water enough to drink it—a question that depends not on technical compliance but on whether governance structures build genuine accountability and political equality. Chapter 7 will operationalize these principles through the Drinking Water Governance Framework, proposing specific mechanisms for achieving democracy-centered regionalization that can pass this test of trust and legitimacy.

6.4 Poverty Tourism and Extractive Engagement: The Distance Between Study and Action

The trust patterns documented above exist within a broader context of how Sandbranch has been engaged by external actors over decades. This section examines what residents describe as "poverty tourism"—the repeated pattern of researchers, journalists, nonprofit workers, and officials visiting to document conditions without producing meaningful change. This dynamic, which Tuck and Yang (2014) term 'damage-centered research,' illuminates the lived reality of quasi-guardianship and demonstrates how even well-intentioned engagement can reinforce patterns of exclusion when divorced from genuine accountability and action.

The theme of extractive engagement emerged consistently across interviews and connects to media coverage dating back to the 1980s. In a 1991 article, one resident captured this dynamic: "You all are the missionaries, and we are the natives. I tell you what, I'm just as curious about you as you are of

me. You all are from a different world than Sandbranch. You just cross the city line" (Minutaglio 1991c). This quote reveals several layers of meaning: the explicit comparison to colonial missionary work, the acknowledgment of fundamental social distance despite geographic proximity, and the inversion of the observer-observed relationship that challenges assumptions about who possesses knowledge worth documenting.

During 2024 interviews, residents described this pattern in explicitly racialized terms. One participant noted: "big people, sometimes they white mens and stuff be riding around." A Spanish-speaking resident observed: "visto güeros caminando por aquí. Vienen bastantes. Pero no ayudan en nada. Solo están caminando" (I have seen white people come through and they come in large amounts, but they don't help. They just walk). These observations highlight how the pattern of observation without assistance operates across cultural and linguistic contexts, creating a shared experience of being viewed but not helped to broader patterns of extractive engagement.

These patterns of extractive engagement reflect what Tuck and Yang (2014) describe as 'damage-centered research'—studies that document suffering without meaningful action. The residents' observations about 'white people walking' who 'don't help' highlight how marginalized communities become sites of academic and journalistic tourism. This dynamic is particularly pronounced in environmental justice contexts, where communities facing environmental hazards often become subjects of repeated documentation without remediation.

The phrase "they just walk" is particularly telling. It captures the fundamental passivity of extractive engagement—moving through the community, observing, perhaps taking notes or photographs, but not staying to work collaboratively toward solutions. This observation aligns with what Tuck and Yang (2014) describe as the "damage-centered" approach: research and journalism that documents suffering to generate sympathy or academic knowledge without creating mechanisms for

communities to shape the narrative or direct resulting action. In environmental justice contexts specifically, such extractive engagement often produces scholarly publications, news articles, or nonprofit reports that circulate in external spaces while producing no tangible benefit for the communities whose experiences generated the content.

This pattern connects directly to the quasi-guardianship concept developed throughout this dissertation. As Chapter 2 established, quasi-guardianship operates through arrangements in which technical expertise and external authority limit civic engagement while maintaining the appearance of democratic processes. Poverty tourism represents a manifestation of this dynamic: communities are consulted, their experiences are documented, and external experts gain knowledge—but decision-making authority remains elsewhere. Residents are treated as sources of information rather than as equal participants in governance, reinforcing the "distance between the elite and demos" that Chapter 5 identified as central to Sandbranch's institutional marginalization.

The consequences of this extractive dynamic manifest in residents' experiences with governance reform efforts. One interview participant captured the pattern: "Yeah, there's been a lot of people come through trying to get water but nothing ever happened, you know. Nothing... they come. And then they just disappeared. And next year is like, same thing, like I say, redundant." The word "redundant" is revealing—it suggests not just repetition but futility, the sense that each new engagement follows a script that residents have seen before and that never produces meaningful change. This creates a cycle where past failures erode trust, making future engagement more difficult, which reinforces residents' marginalization.

The theme of "they"—introduced at this chapter's opening as a linguistic marker of power asymmetries—pervades residents' descriptions of these patterns. "They come," "they walk," "they disappeared"—the pronoun consistently positions external actors as a unified force with agency and

mobility while residents remain stationary, waiting, observing. This linguistic construction reflects material reality: external actors control the timing and nature of engagement, while residents lack power to demand accountability or sustained commitment. The usage of "they" thus becomes a marker of bounded citizenship, signifying residents' awareness that they exist outside the circle of decision-makers—that choices about their community are made by others, in distant spaces, without their meaningful input or consent.

A 1986 media article provides crucial institutional perspective on this pattern. A county planner acknowledged: "We wish we could throw the pipe out there and the water would instantly come out. It just doesn't happen that way. You hate to tell people in that situation" (Levin 1986). This quote reveals the administrative perspective: officials recognize residents' need and express sympathy, but frame infrastructure provision as a technical challenge rather than a democratic imperative. The phrase "you hate to tell people" is particularly instructive—it positions residents as passive recipients of unwelcome news rather than as citizens with legitimate claims to services. The official's discomfort stems from having to deliver bad news, not from the underlying injustice of Sandbranch's exclusion.

Recognizing these patterns creates ethical obligations for any research or engagement effort in Sandbranch, including this dissertation. As detailed in Chapter 3's methodology section, this project attempted to address extractive dynamics through reciprocal practices: providing cash compensation for participation (enabling residents to meet immediate needs), sharing preliminary historical findings during interviews (creating opportunities for residents to contextualize their experiences within broader patterns), and committing to ongoing engagement beyond the dissertation timeline (though funding constraints complicate this commitment). However, these practices do not fully resolve the fundamental power asymmetries inherent in academic research. As one participant noted

after viewing historical findings: "You probably gave me more information than I gave you." This observation captures both appreciation for the exchange and recognition that the researcher-resident relationship remains asymmetrical.

The challenge moving forward, as Chapter 7 will address, involves creating governance structures that fundamentally shift power dynamics rather than simply making extractive engagement more courteous. Residents need not just consultation but decision-making authority. They need not just sympathy but resources and institutional support. They need not just documentation of their situation but mechanisms to hold institutions accountable for action. Without these shifts, even well-intentioned engagement risks perpetuating the patterns of observation without assistance that residents have experienced for decades.

6.5 Visions for the Future: Community Priorities and Governance Preferences

Having examined residents' experiences with economic precarity, health impacts, trust deficits, and extractive engagement, this section turns to their articulated visions for governance reform. As Chapter 2 established, democracy requires more than procedural access to participation—it requires that participation yields authentic responsiveness and accountability from governing institutions. The governance preferences that Sandbranch residents express reveal sophisticated understanding of what effective, democratic water governance would require, providing crucial guidance for the policy recommendations developed in Chapter 7.

Survey data reveal a pragmatic openness to various governance arrangements combined with deep skepticism about external institutions' willingness to act. Many residents stated that as long as they could have drinking water in their homes, it did not matter who governed their utility. However, most believed that if any entity would ultimately help, it would have to be themselves because "no other entity wants to help." This belief is not cynicism but accurate assessment based on decades of

experience. As Chapter 5 documented, multiple potential solutions have been proposed and abandoned over Sandbranch's history—from the airport development plan of the 1980s to the state-funded water infrastructure project halted by the Dallas County buyout program.

Interview participants articulated clear principles for what effective governance would require. These centered on three interconnected elements: transparency in decision-making processes, accountability of officials to community concerns, and immediate responsiveness to needs rather than delayed promises. Multiple participants emphasized the importance of community control and local decision-making authority. This sentiment reflects broader themes in community-driven development, where local knowledge and decision-making authority are recognized as essential for sustainable solutions.

The preference for transparency manifested in multiple ways across interviews. Residents wanted to understand not just what decisions were being made but why, who was making them, and how community input shaped outcomes. This distinction is crucial—it differentiates between information transmission (being told decisions) and genuine participation (shaping decisions). The former maintains the distance between officials and residents that characterizes quasi-guardianship; the latter creates possibilities for democratic engagement.

Accountability requirements extended beyond formal oversight mechanisms to include ongoing, visible presence and relationship-building. Residents expressed frustration with officials who appeared during crises or election cycles but remained absent during ordinary times. This observation connects to the trust patterns documented in Section 6.3, where residents valued organizations that maintained sustained engagement rather than episodic intervention. Accountability, from residents' perspective, requires continuous relationship rather than periodic consultation.

The emphasis on immediate responsiveness reflects residents' experiences with delayed promises and stalled projects. As Chapter 5 documented, Sandbranch's history includes multiple moments when solutions seemed imminent—state funding secured, plans developed—only to have progress halted by administrative complications or shifting priorities. Residents have learned through experience that bureaucratic timelines often stretch indefinitely for communities lacking political power. Immediate responsiveness thus means not instant solutions (residents recognize infrastructure takes time) but consistent action demonstrating genuine commitment.

Residents also articulated preferences regarding potential governance structures that might manage a future water system. Trust ratings from the survey (documented in Section 6.3) showed highest confidence in university scientists and researchers, followed by nonprofits and local government officials. This preference for actors who demonstrate tangible, immediate engagement aligns with residents' emphasis on visible presence and accountability. However, interview data complicated these preferences by revealing awareness that university researchers and nonprofits typically lack the authority and resources to build and maintain water infrastructure at scale—creating a tension between trust in certain actors and recognition of practical requirements for infrastructure management.

This recognition points toward collaborative governance models that combine community control with technical expertise and resource access. However, such arrangements face significant challenges given Sandbranch's unique circumstances: small population size, deep poverty limiting ability to pay utility fees, flood zone designation, and extraterritorial jurisdiction status. These practical barriers create a "catch-22" where the very circumstances that make water access crucial also create administrative complications that officials cite as reasons for inaction.

Beyond governance structures, residents emphasized the importance of preserving community character in any solution. Multiple participants referenced Sandbranch's beauty—natural surroundings, open space, sense of peace despite challenges. This insistence on place-based solutions challenges narratives that frame relocation as the pragmatic answer to Sandbranch's challenges. As Chapter 5 documented, County Commissioner Price has repeatedly advocated for community elimination rather than infrastructure provision. Residents' emphasis on staying reveals how visions for the future are inseparable from questions of belonging and citizenship: Do Sandbranch residents deserve infrastructure where they are, or should they have to move to access services available elsewhere?

These governance preferences provide essential guidance for Chapter 7's policy recommendations. Any solution must account for residents' emphasis on transparency, accountability, and immediate responsiveness while addressing their well-founded skepticism of external institutions. The challenge involves creating structures that provide genuine community control and decision-making authority while accessing the technical expertise and resources necessary for sustainable water infrastructure. Residents have articulated clear principles for what democratic water governance would require; the question is whether institutions are willing to restructure power relationships to meet these requirements.

6.6 Historical Consciousness and Contemporary Understanding

Chapter 3's methodology section explained the decision to share preliminary historical findings with interview participants, incorporating photo-elicitation techniques using archival maps and documents. This methodological choice was grounded in community-based research principles that prioritize reciprocity and center local knowledge rather than treating residents merely as data sources. The responses to these historical materials reveal how residents understand their

community's trajectory and connect past decisions to present circumstances, providing crucial context for the themes examined throughout this chapter.

Many residents had limited awareness of specific historical details documented in Chapters 4 and 5—that their community predated the wastewater treatment plant construction, that official planning documents systematically erased Sandbranch's existence even as the community appeared on federal topographic maps, that county flood control measures created the levee residents know exists but which appears on no current FEMA maps. When shown archival evidence, residents expressed both vindication ("I knew we were here first") and frustration ("So they knew about us and built it anyway?"). These responses reveal sophisticated understanding of how institutional erasure operates: decisions were made not in ignorance of the community but in disregard of its existence and needs.

The historical materials documenting the Sandbranch cemetery (detailed in Chapter 4) generated particularly strong responses. Many residents had family buried there but were uncertain of the cemetery's exact location or legal status. Learning that it was Dallas County property and that the earliest grave markers dated to 1912—making Sandbranch one of the county's longest-standing Black communities—prompted emotional responses and renewed sense of the community's historical legitimacy. One elderly resident stated: "My people built this place. We have every right to be here." This connection between historical presence and contemporary claims to services reflects the broader theme of "deservedness" introduced at this chapter's opening.

The concept of deservedness emerged most explicitly in one interview participant's observation: "this whole area was like slave lands and you know why aren't we deserving of that like you know everybody needs what they need"—referring specifically to drinking water access. The phrasing is instructive: the participant connects historical oppression ("slave lands") to contemporary

deprivation, framing water access not as charity but as something everyone deserves as a matter of basic humanity and citizenship. The phrase "you know" functions as an appeal for solidarity and shared understanding, inviting recognition of both historical injustice and ongoing exclusion.

Media coverage from the 1980s and 1990s, examined alongside interview data, reveals how deservedness has been contested over decades. County Commissioner Price's statements provide particularly striking examples. In one article, he acknowledged: "When they were building the plant, they knew Sandbranch existed. So what. It is just another poor community. Even if Sandbranch was Anglo, they still wouldn't have given a damn. It's just a poor community filled with people just trying to exist. They can't turn a spigot on and get water. Where can they get the strength to fight a giant wastewater treatment plant? What will happen to the people who live there -- what will be done to help them -- remains unclear" (Everbach 1995). This acknowledgment of historical erasure seemed promising, suggesting recognition of injustice. However, the Commissioner then advocated for "radical surgery"—meaning community elimination through relocation rather than infrastructure provision (Minutaglio 1991b).

This contradiction reveals a fundamental tension in how power operates in relation to marginalized communities. The Commissioner's acknowledgment of historic injustice ('they knew Sandbranch existed') followed immediately by advocacy for community elimination ('radical surgery') demonstrates what scholars of environmental racism term 'performative recognition'—the acknowledgment of wrongdoing that paradoxically serves to justify continued harm. The language shift from 'helping' to 'eliminating' reveals how communities like Sandbranch become constructed as problems to be solved rather than as citizens deserving of services.

Residents demonstrated keen awareness of these narrative dynamics. When discussing media coverage and official statements, multiple participants noted the gap between expressed sympathy

and actual support. This observation captures the distinction between performative recognition and genuine commitment to change. Residents can recognize when officials acknowledge their plight while simultaneously positioning it as unsolvable or as justifying community elimination rather than infrastructure investment.

The historical findings also complicated how some newer residents understood their situation. Several participants had moved to Sandbranch relatively recently (within the past 7 years) and discovered the lack of water infrastructure only upon arrival. For these residents, learning about the community's long history and the institutional decisions that created water poverty provided context that shifted their understanding from individual misfortune to systemic injustice. This shift from personal responsibility to recognition of structural causes is significant, as it creates potential for collective organizing around shared grievances rather than isolated coping.

However, demographic changes following the Dallas County buyout program (documented in Chapter 5) have created tensions that complicate collective organizing. Legacy Black residents and newer residents (many Latino or white) sometimes have different relationships to Sandbranch's history and different visions for its future. While all face water poverty, the meaning of that deprivation differs: for legacy residents, it represents continuation of historical exclusion and loss of community as neighbors left during buyouts; for newer residents, it represents a challenge to be navigated but not necessarily connected to broader patterns of racialized inequality. These differences do not preclude collaboration but require explicit attention in any governance reform effort, as Chapter 7 will address.

The historical consciousness documented in this section connects to all themes examined throughout the chapter. Understanding institutional erasure informs residents' trust (or lack thereof) in external actors. Recognizing patterns of performative recognition shapes skepticism about

poverty tourism. Awareness of how deservedness is contested influences visions for governance reform that center community control. Historical findings do not simply provide interesting context but fundamentally shape how residents understand present circumstances and imagine future possibilities. This historical consciousness must inform governance reforms if solutions are to genuinely address the democratic failures that created water poverty rather than simply providing technical fixes that leave power relationships unchanged.

6.7 Synthesis: From Lived Experience to Governance Reform

This chapter has examined Sandbranch residents' contemporary experiences of water poverty across multiple dimensions: economic precarity that makes routine water infrastructure maintenance potentially catastrophic (Section 6.1), mental health impacts that compound other challenges while physical health assessments reveal complex patterns of resilience and adaptation (Section 6.2), trust patterns that reflect accurate assessment of institutional track records rather than irrational skepticism (Section 6.3), extractive engagement dynamics that reinforce quasi-guardianship even when intended to help (Section 6.4), articulated visions for governance emphasizing transparency, accountability, and community control (Section 6.5), and historical consciousness that connects past institutional decisions to present circumstances (Section 6.6).

Several cross-cutting themes unify these dimensions and illuminate the nature of water poverty as democratic failure. First, the linguistic construction of "they" versus "we" pervades residents' descriptions of barriers to reform, marking fundamental power asymmetries that shape water governance. "They" possesses agency, mobility, decision-making authority; "we" remain stationary, waiting, observing. This pronoun usage reflects the lived reality of bounded citizenship—the systematic exclusion of marginalized communities from decision-making processes despite their formal status as citizens. When residents describe barriers as 'how they do things' or 'you know how

they are,' they articulate sophisticated understanding of how racialized power operates while simultaneously marking their position outside the sphere of governance authority.

Second, the concept of "deservedness" shapes how residents understand their relationship to essential services and how external actors frame Sandbranch's situation. The question "why aren't we deserving" reveals that access to drinking water is experienced not as a straightforward entitlement of citizenship but as something residents must prove they merit. This reflects the bounded citizenship framework developed in Chapter 2: formal citizenship status coexists with practical exclusion from the services and protections that citizenship nominally guarantees. Deservedness operates through subtle mechanisms—gestures, tone, the need to demonstrate worthiness through respectability or deservingness narratives rather than simply claiming rights.

Third, racialized history emerges not as an additional layer to be considered alongside other factors but as a cross-cutting theme that shapes every dimension of water poverty. Economic precarity has racialized roots in historical exclusion from wealth-building opportunities. Trust deficits reflect specific experiences of institutional betrayal faced by Black communities. Extractive engagement explicitly targets marginalized communities as sites for observation and knowledge extraction. Historical erasure deliberately omitted Black communities from planning documents even as they existed on the ground. Understanding water poverty requires recognizing how race operates not as one variable among many but as a structuring force that shapes all aspects of the phenomenon.

The analysis presented in this chapter demonstrates concretely what Chapter 2 established theoretically: water poverty is fundamentally a democratic failure rather than merely a technical or administrative challenge. The democratic failure operates through multiple mechanisms documented here. Economic precarity limits residents' capacity for civic engagement, creating material barriers to meaningful participation in governance. Mental health impacts compound this limitation, as elevated

psychological distress reduces individuals' bandwidth for political organizing. Trust deficits create skepticism that makes collaborative governance difficult even when genuine opportunities emerge. Extractive engagement reinforces residents' exclusion from decision-making while maintaining appearance of consultation. Historical erasure denies communities the recognition and legitimacy necessary to claim services as rights rather than requesting them as charity.

Yet this chapter also reveals residents' resilience, sophisticated political understanding, and clear articulation of what democratic water governance would require. Residents maintain mutual support networks for water access despite individual precarity. They accurately diagnose institutional failures and performative recognition. They articulate principles—transparency, accountability, immediate responsiveness, community control—that align with democratic theory's core commitments while remaining grounded in practical needs. They insist on staying in place rather than accepting relocation as a solution, asserting claims to belonging and citizenship that challenge narratives positioning them as problems to be eliminated.

The residents presented in this chapter are not passive victims awaiting rescue but sophisticated political actors who understand their situation and what genuine solutions would require. The question is whether institutions are willing to transform themselves to meet these requirements.

Chapter 7: Lessons from Sandbranch: A New Framework for Drinking Water Governance

"He doesn't believe the city of Dallas wants to annex Sandbranch just so it will be legally committed to spend millions for a water supply, fire hydrants, garbage pickup, a sewer system, buses and street lights… 'Why bother doing all that stuff? What do they want to do with us?' asks Mr. Scott as he holds his contaminated glass up to the light."

— Bill Minutaglio, Dallas Morning News, September 15, 1991

Mr. Scott's question, "What do they want to do with us?" is not a complaint. It is a sophisticated assessment by a politically attuned resident. He asks it of a fragmented governance system that has assigned his community to no one in particular: Sandbranch sits inside Dallas County, outside the City of Dallas, inside the Trinity River watershed, outside any utility's service obligation. Chapters 4 through 6 documented how that scattered authority produced four decades of water poverty through critical junctures, three relocations, and contemporary trust deficits that residents understand precisely because they have lived inside the gaps the system creates.

Those empirical findings define what democratic failure means in this dissertation. Democratic failure in water governance is not the absence of formal participation but the systematic erosion of communities' capacity to shape decisions about essential services, what Chapter 2 termed bounded citizenship. It operates through three mechanisms the preceding chapters made visible: structural barriers that route engagement through channels communities cannot reach, economic and social conditions that limit sustained participation, and trust deficits that, accurately, follow from broken institutional commitments.

This chapter takes up the second half of the dissertation's central question: what governance reforms could promote equity and strengthen democratic principles in water provision? The answer this chapter develops, the Drinking Water Governance Framework (DWGF), is grounded in a peer-

reviewed normative framework that I developed with Manuel P. Teodoro and that appears in expanded form in Morales and Teodoro (2026). Here, the DWGF is applied to the empirical record this dissertation has built: hydrologically bounded citizenship as the basis for the demos, trust as the institutional infrastructure that legitimizes service, and equality in decision-making as the apex condition that distinguishes democratic governance from quasi-guardianship.

Since U.S. water governance is itself a federalist patchwork, a point this dissertation established in Chapter 2, the reforms the DWGF implies cannot live at any single scale. Federal definitions of who counts as an underserved community (colonias rules, Infrastructure Investment and Jobs Act targeting), state authority over utility service territories and subdivision standards, regional authority over watersheds, and local accountability to residents are all parts of the same system, and a community like Sandbranch can be failed at any one of them. The chapter, therefore, organizes recommendations across all four scales and treats their interdependence as a feature of the assessment rather than a tidy menu of options.

The chapter proceeds in three movements. The first examines existing policy frameworks, the Texas colonias programs, EDAP, and the Model Subdivision Ordinance, and shows that their failures are democratic rather than technical (Section 7.1). The second presents the DWGF and its operationalization through watershed-based regional integration (Sections 7.2–7.3). The third addresses the harder politics: community control versus regional capacity, reparative practice as a precondition for trust, and implementation pathways that move across federal, state, regional, and local scales together rather than serially (Sections 7.4–7.6). Section 7.7 concludes by returning to Mr. Scott's question and to what the framework asks of institutions that have, until now, left it unanswered.

7.1 Existing Policy Frameworks and Their Limitations

Understanding why existing policy approaches have failed to address water poverty in communities like Sandbranch is essential for developing effective alternatives. This examination reveals not merely technical inadequacies but fundamental democratic deficits that any new framework must address.

7.1.1 The Texas Colonias Framework and Structural Barriers

Texas has developed several targeted programs to address water and wastewater infrastructure in underserved communities, most notably the "Colonias Self Help Program," which reimburses political subdivisions to bring wastewater and water services to colonias. However, as Pemberton (2022) notes, despite these interventions, problems remain "substantially the same." The program's structure reveals fundamental limitations that parallel Sandbranch's experience: it requires existing political subdivisions to take responsibility for infrastructure development but provides no mechanism to address the underlying governance failures—the patterns of quasi-guardianship and bounded citizenship documented in Chapters 4 and 5—that created these communities' exclusion in the first place.

The Economically Distressed Area Program (EDAP), which combines federal and state funding to upgrade existing systems or create new water and sewer services, demonstrates similar structural limitations. The program's restriction to counties that have adopted the Model Subdivision Ordinance creates a catch-22 for communities like Sandbranch. Out of 254 counties in Texas, only 61 have adopted the Model Subdivision Rule, leaving the majority of potentially eligible communities without access to these resources.

Dallas County's failure to adopt the Model Subdivision Ordinance represents more than administrative oversight; it reflects the same governance approach that allowed Sandbranch's water poverty to persist for decades through institutional path dependency. According to discussions with

county officials and webinar trainings from the Texas Water Development Board conducted for this research, adopting the ordinance would prevent the proliferation of communities like Sandbranch from emerging in the first place by requiring developers to provide infrastructure before establishing residential communities. Currently, developers can establish subdivisions, mobile home communities, or even Municipal Utility Districts (MUDs) without actually building infrastructure, creating what one county official described as "paper entities" that avoid taxes while leaving residents vulnerable to service gaps and emergency costs.

The official explained: "Some developers establish MUDs but don't actually build infrastructure—it's just a way to get around any taxes, which leaves them vulnerable to fires where a run could cost the county $500 to $1000 on a volunteer fire department without any real money to back that." This practice creates long-term liabilities for counties while concentrating costs and risks in the communities least able to bear them—precisely the pattern of bounded citizenship where formal institutional structures exist without providing actual services or protections.

7.1.2 The Democratic Deficit in Administrative Approaches

The limitations of existing policy frameworks extend beyond their technical requirements to encompass fundamental democratic deficits that replicate the quasi-guardianship patterns documented in Chapter 5. Current programs typically operate through top-down administrative processes that provide little space for community input or control. The Colonias Self Help Program, for instance, requires political subdivisions to apply for reimbursement, but provides no mechanism for residents to participate in decision-making about project priorities or implementation approaches. Technical expertise and administrative authority limit civic engagement while maintaining the appearance of addressing community needs.

This democratic deficit becomes particularly problematic when considered alongside the trust dynamics documented in Chapter 6. Residents' highest trust ratings for university scientists and local actors who demonstrate immediate, tangible engagement contrasts sharply with their skepticism of government programs that promise long-term solutions through bureaucratic processes. The existing policy framework essentially replicates the same governance approach that created water poverty in the first place: external actors making decisions about communities without meaningful resident participation, operating through what Chapter 2 described as the "distance between the elite and demos."

Moreover, as Chapter 6 revealed, the concept of "deservedness" shapes how both residents and officials frame access to water services. Residents feel they must prove they merit infrastructure investment rather than claiming it as a right of citizenship. Administrative frameworks that require communities to navigate complex application processes, demonstrate compliance with eligibility criteria, and wait for bureaucratic approval reinforce this dynamic of having to earn rather than expect basic services. This perpetuates the bounded citizenship condition where formal membership in the polity coexists with practical exclusion from its benefits.

7.1.3 Geographic Restrictions and Definitional Barriers

The definition of colonias has been debated extensively in Texas policy circles, with significant implications for which communities can access targeted funding and support. As Gott (2001) documented, this definitional debate reflects broader tensions about how to understand and address rural poverty and infrastructure deficits. State Representative Charlie Howard's observation that "The colonias down near the border had the exact same situation as what we've got in my district in Fort Bend County. Colonias are not just limited to the border, just like poverty is not limited to the border" highlights the artificial geographic restrictions that limit current policy approaches.

The federal definition of colonias, primarily used by HUD, shows some nuance in recognizing that these communities exist beyond the traditional border region. However, the geographic restrictions exclude communities like Sandbranch that face identical infrastructure challenges and governance failures. This exclusion reflects arbitrary administrative boundaries rather than assessment of actual need or democratic principles of equal treatment. The boundary problem—determining who constitutes the demos entitled to participate in collective decision-making—becomes particularly acute when administrative categories determine access to essential resources based on location rather than citizenship status or actual need.

7.2 The Drinking Water Governance Framework: Theoretical Foundations

The Drinking Water Governance Framework (DWGF) developed in this section was first articulated in Morales and Teodoro (2026), where it appears as a normative framework for evaluating drinking water institutions from a democratic perspective. That formulation grounds the framework in Robert Dahl's (1989) Strong Principle of Equality and identifies three constitutive elements: hydrologically-bounded citizenship as a solution to the boundary problem, performative and moral trust as the legitimating dimensions of institutional practice, and the Strong Principle of Equality as the apex condition the institutional structure aims to support. This dissertation adopts that framework and extends it in two ways. First, it applies the DWGF to a single community, Sandbranch, in sufficient depth to test what the framework's principles demand under conditions of extreme exclusion, multi-decade institutional path dependency, and trust deficits that are themselves products of historical betrayal. Second, it operationalizes the framework's principles into specific institutional mechanisms — expanded definitions of colonias, watershed service obligations, hybrid governance models, reparative community benefits — that translate the normative framework into reform proposals spanning the federalist scales on which water governance actually operates.

7.2.1 Core Principles of the DWGF

The DWGF rests on three interconnected principles that address the democratic failures documented throughout this dissertation. First, hydrologically-bounded citizenship serves as the foundational principle. Political boundaries rarely align with hydrological realities, yet these boundaries determine who receives water services. The DWGF proposes delineating regional water governance authority by natural watershed boundaries rather than municipal or county lines. This approach fosters connection to the environment and strengthens the concept of political citizenship, which I term hydrologically-bounded citizenship. Rather than citizenship defined by arbitrary municipal boundaries that reflect historical contingencies, hydrologically-bounded citizenship recognizes that all residents within a watershed share interconnected water resources and hydrological dependencies, in which upstream decisions affect downstream communities, all residents rely on the same water sources, and should therefore share governance authority and service obligations.

Second, trust as institutional infrastructure constitutes a central principle. As Teodoro, Zuhlke, and Switzer (2022) demonstrate, trust in water systems operates along two dimensions: moral (whether institutions act in residents' interests) and performative (whether institutions deliver safe, reliable water). Chapter 6's findings confirmed that trust is earned through sustained, transparent engagement rather than promised through bureaucratic procedures. The DWGF positions trust not as a precondition for reform but as an outcome that must be actively built through institutional design and practice. This requires mechanisms for ongoing community participation, transparent decision-making processes, and accountability structures that allow residents to hold institutions responsible for both moral commitments and performance outcomes.

Third, equality in decision-making forms a necessary principle for democratic governance. Drawing on Dahl's (1989) Strong Principle of Equality, the DWGF proposes that good governance requires

democratic processes where members of the polity see each other as equals and participate as such. However, as Chapter 6 documented, equality cannot be assumed: it must be actively created through institutional structures that address historical inequities. For communities like Sandbranch that have experienced decades of exclusion, equality requires not just formal access to participation but also substantive measures to overcome the legacy of marginalization: community representation in decision-making bodies, resources to support meaningful participation, and mechanisms that center, rather than merely consult, affected communities.

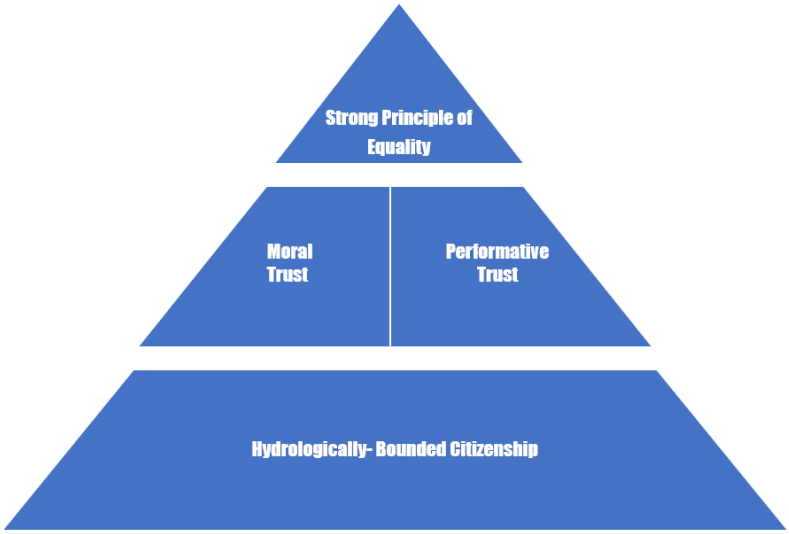
7.2.2 The DWGF Pyramid: Building Toward Democratic Governance

The DWGF can be visualized as a pyramid, where each level provides the foundation for the next, with all three principles necessary to achieve democratic water governance. At the base, hydrologically-bounded citizenship establishes who constitutes the demos: all residents within a watershed share membership in the water governance community regardless of municipal boundaries. This addresses the boundary problem that Chapter 2 identified as fundamental to democratic theory. By basing membership on hydrological rather than political geography, the DWGF creates natural communities of interest where upstream and downstream residents recognize their interconnected hydrological relationships and mutual dependencies.

Building on this foundation of defined membership, trust emerges through institutional practices that demonstrate both moral commitment to community interests and performative competence in service delivery. As Chapter 6 documented, Sandbranch residents need to "see someone test the water" locally—they require a visible, accountable presence rather than distant technical assurances. Trust-building mechanisms include transparent communication about decision-making processes, community monitoring and oversight programs, regular opportunities for resident input with demonstrated responsiveness, and accountability structures that provide recourse when institutions fail to perform.

When hydrologically-bounded citizenship defines the polity and trust provides the relational infrastructure, communities can achieve the Strong Principle of Equality where members see each other as equals and engage in genuinely democratic processes. This apex represents not a destination but an ongoing practice of democratic governance that must be continually maintained through the supporting structures below.

Figure 7.1 The Drinking Water Governance Framework



Pyramid diagram showing three levels: Base = Hydrologically-Bounded Citizenship, Middle = Trust as Institutional Infrastructure, Apex = Strong Principle of Equality

A missing component at any level naturally erodes the foundation of democratic process. Without proper delineation of the demos (hydrologically-bounded citizenship), it remains unclear who has standing to participate. Without trust, technical solutions cannot gain legitimacy regardless of their quality. Without equality in decision-making, even well-intentioned processes replicate the quasi-guardianship patterns documented in Chapter 5 where technical expertise displaces democratic participation.

7.2.3 Democracy Versus Quasi-Guardianship in Water Governance

The DWGF's emphasis on democratic processes requires explicit justification: why not expert-led governance for technical infrastructure? As Chapter 1 established, the alternative to democratic water governance is quasi-guardianship, the arrangement where technical expertise and regulatory authority limit civic engagement while maintaining the appearance of democratic processes. Wilson et al. (2023) describe the tenuous relationship between public trust in water systems and experts. I offer that water experts may serve as quasi-guardians upholding quasi-guardianship. Guardianship, as Dahl (1989, 55) defines it, involves a small group of adults not subject to the democratic process, such as the Supreme Court.

Dahl (1953, 1985) discusses complex public policy calling for expert decision-making beyond the average citizen's knowledge, in which traditional democratic theory cannot easily answer what appropriate democratic processes should be in place. However, Dahl (1989) further analyzes this situation and states that "policy judgments also invariably require judgments about trade-offs among values or policy goals" (p. 338). Few experts, Dahl argues, will have the moral qualities to make these value-based decisions. The solution is to "narrow the growing gap that separates policy elites from the demos" (Dahl 1989, 338). During this period, Dahl referred to nuclear weapons as complex public policy that is ultimately weighed on values that can be explained to the average citizen. Contemporary water policy runs parallel: while technical expertise is necessary for infrastructure design and operations, fundamental decisions about service priorities, acceptable trade-offs, and governance structures involve value judgments that must be made democratically.

In creating new institutions that regionalization demands, the fear of losing local control operates on two levels, as Chapter 2 established: it serves as a reminder of historical social cleavages, and it reveals the wideness of the gap between elite and demos. As Burns (1994, 36) notes, local control can serve two distinct purposes: "racial exclusion" or efforts to "bring government closer to the

people." In the context of water governance, resistance to regionalization may mask exclusionary impulses disguised as democratic ideals, but it may also reflect legitimate concern about losing meaningful participation in governance decisions that affect daily life. Only through genuinely democratic processes can these tensions be reconciled rather than one preference simply dominating the other.

The Sandbranch case demonstrates concretely why democratic processes are essential. As Chapter 5 documented, technical experts and administrators made repeated decisions about the community: siting the wastewater plant, expanding it, and implementing the buyout program, all without meaningful community input. Each decision was technically defensible within its own frame: the plant needed to be built somewhere, expansion addressed EPA violations, and the buyout addressed flood risk. Yet the cumulative effect was systematic exclusion that no amount of technical expertise could justify on democratic grounds. Residents' knowledge of the levee that doesn't appear on FEMA maps, of their community's history predating the plant, and of their desire to stay rather than relocate was dismissed in favor of expert judgment. The result was not just a technical failure but democratic failure.

Scale complicates but does not resolve this democratic failure. Had decisions about the wastewater plant siting or Dallas County buyouts been made through regional referenda—say, a Dallas County-wide or Trinity River Watershed-wide vote—would that constitute meaningful democratic participation for Sandbranch residents? Procedurally yes, but substantively the answer is more complex. A regional vote where Sandbranch residents constitute a tiny minority would provide formal participation but potentially replicate the very majoritarian tyranny that bounded citizenship describes—where small, marginalized communities remain systematically outvoted by larger populations whose interests diverge from theirs. This is precisely why the DWGF emphasizes not

just participation but equality in decision-making, with mechanisms like guaranteed representation and community veto authority for decisions affecting specific localities. Regional governance addresses the boundary problem by expanding who participates, but democratic legitimacy requires ensuring that participation yields genuine influence, not merely the appearance of consultation before predetermined outcomes. The wastewater plant case illustrates this distinction: even if a regional vote had approved the siting, the systematic erasure of Sandbranch from official planning documents (documented in Chapter 5) and the absence of any consultation or mitigation measures would still constitute democratic failure—not because residents lost a vote, but because they were never treated as equal participants whose concerns merited serious consideration and response.

This concern is not merely theoretical. Beard and Sarmiento's (2014) study of the Santa Ana Station District shows that even a well-organized, bilingual, consensus-driven community coalition with 38 substantive demands ultimately could not compel a binding Community Benefits Agreement, because the city held agenda control and council members voted to approve the project despite documented conflicts of interest. The DWGF's guaranteed representation and veto mechanisms address this structurally, though I acknowledge that designing such mechanisms to be both legally durable and resistant to the kind of elite capture documented in Santa Ana remains an open challenge this dissertation does not fully resolve.

7.3 Operationalizing the DWGF: Watershed-Based Regional Integration

The DWGF provides normative principles for democratic water governance, but implementing these principles requires concrete institutional mechanisms. This section examines how the framework can be operationalized through watershed-based regional integration that addresses the specific barriers documented in Sandbranch's case while remaining applicable to water poverty more broadly.

This watershed-based approach exemplifies what Chapter 1 described as the "curb cut effect" in water governance. Solutions designed specifically to address water poverty in historically marginalized communities like Sandbranch, including guaranteed service obligations within watersheds, expanded definitions of colonias, and mechanisms for accountability, create systemic improvements that benefit all water users. Because U.S. water governance is a federalist patchwork, these solutions must operate simultaneously across federal, state, regional, and local scales; but the logic of the curb cut effect holds at every level. Just as curb cuts installed for wheelchair accessibility also help parents with strollers, delivery workers, and cyclists, regional governance structures built to overcome the exclusion of communities like Sandbranch create more resilient, transparent, and democratically accountable water systems that serve everyone better. Improving water governance for those who have been most systematically excluded strengthens the entire system's capacity to withstand technical, financial, and managerial pressures while maintaining democratic accountability.

7.3.1 Watershed-Based Service Obligations and Regional Integration

The core operational mechanism of the DWGF involves allocating funding to regional water utilities within the same watershed and requiring them to connect underserved communities either managerially or physically to the main regional water system. This approach maintains hydrological connections while addressing the governance fragmentation that perpetuates water poverty, operationalizing the principle of hydrologically-bounded citizenship.

Under this framework, federal and state funding would flow to regional water utilities with the explicit requirement that they extend service to all communities within their watershed boundaries. This could take different forms depending on specific circumstances. Physical connection through pipeline extensions would integrate communities into regional systems. Managerial assistance would help communities develop their own systems with technical support and oversight. Hybrid approaches would combine local control with regional technical support and resource sharing.

For Sandbranch specifically, this approach would likely involve the Trinity River Authority or Dallas Water Utilities, given the community's location within the Trinity River watershed. Rather than requiring Dallas to annex Sandbranch, a process that raises the governance and trust concerns discussed throughout this dissertation, the watershed approach would create a service relationship that could preserve some degree of community autonomy while providing access to regional infrastructure and technical expertise.

The watershed-based approach offers several advantages over current fragmented governance. First, it recognizes that water systems operate according to hydrological rather than political boundaries, creating more sustainable and technically sound solutions. Second, it addresses the regionalization challenges discussed in Chapter 2 by creating incentives for larger utilities to incorporate smaller, underserved communities rather than leaving them to struggle independently. Third, it provides a democratic basis for regional authority by grounding it in shared ecological systems rather than administrative convenience. Fourth, it creates opportunities for regional cost-sharing that makes infrastructure investment economically viable even for small communities.

7.3.2 Implementation Challenges and Legislative Requirements

The watershed-based approach faces significant implementation challenges, particularly regarding existing utility service territories and regulatory frameworks. Current Texas law generally prohibits utilities from serving customers outside their designated service areas without approval from the Public Utility Commission, creating legal barriers to watershed-based service provision.

However, these barriers are not insurmountable. The Texas Legislature has demonstrated willingness to create special provisions for underserved communities, as evidenced by the colonias programs and EDAP. A watershed-based approach would require similar legislative action to create

exceptions or modifications to existing territorial restrictions, coupled with funding mechanisms that incentivize utility participation rather than making regional integration purely voluntary.

More fundamentally, the watershed approach requires a shift in how we conceptualize utility service obligations. Rather than viewing water utilities as private or quasi-private entities serving discrete customer bases, this approach recognizes water service as a public good with regional responsibilities. This aligns with broader trends in water governance toward regional approaches and ecosystem-based management, but it challenges deeply embedded assumptions about local control and utility autonomy. Specifically, it challenges the assumption that water utilities operate as quasi-private entities serving discrete customer bases rather than as public institutions with regional responsibilities; the assumption that smaller communities can and should remain independent even when lacking technical or financial capacity; the assumption that local control necessarily means fragmented governance rather than participatory authority within regional systems; and the assumption that utility territorial boundaries, once established, represent permanent rather than adaptable service arrangements. These assumptions, while presented as pragmatic or neutral, often serve to perpetuate existing power relationships and justify excluding small, marginalized communities from essential services.

7.3.3 Expanding Colonias Definitions and Funding Mechanisms

The practical sustainability of the watershed-based approach depends significantly on whether communities like Sandbranch can access the funding streams that make regional integration financially viable. The first step toward this is expanding eligibility for infrastructure funding beyond current geographic restrictions. Building on Representative Howard's observation that poverty and infrastructure deficits extend beyond traditional colonia regions, federal and state definitions should be expanded to include all communities facing similar challenges, regardless of location. This

expansion recognizes that water poverty, as defined in Chapter 1, reflects systematic exclusion rather than geographic accident.

However, expanding definitions alone is insufficient. The expanded framework must include mechanisms that address the democratic deficits in current programs. Rather than simply making more communities eligible for existing top-down programs, expanded funding should be coupled with requirements for community participation in decision-making, transparent governance structures, and accountability mechanisms that give residents genuine authority over implementation through mechanisms such as reserved seats on utility boards, community veto power over major decisions, and local control over service priorities.

State-level policy changes needed to implement the DWGF include expanding the definition of colonias to include communities like Sandbranch that face similar infrastructure challenges regardless of geographic location, coupled with increased funding for infrastructure development and technical assistance. Additionally, modifying utility territorial restrictions to allow or require watershed-based service provision would be necessary; this could be structured as an expansion of existing utility service obligations or as a new category of regional service responsibility. The legislation must include provisions for community representation and democratic oversight to address the trust and accountability concerns documented throughout this research. Finally, requiring counties to adopt the Model Subdivision Ordinance as a condition for receiving state infrastructure funding would help prevent the creation of new communities without adequate infrastructure while providing incentives for proactive development oversight. Dallas County could adopt this ordinance, preventing future Sandbranches from emerging through the same patterns of developer profit and resident abandonment documented in Chapter 4.

At the federal level, expanding HUD's definition of colonias and increasing funding for rural water infrastructure could support the watershed-based approach. The Infrastructure Investment and Jobs Act provides significant new resources for water infrastructure, but these funds need to be targeted specifically to underserved communities with mechanisms for community participation and oversight built into funding requirements rather than left to local discretion.

7.4 Community Control, Hybrid Governance, and Democratic Accountability

The DWGF's principles of trust-building and equality in decision-making require institutional mechanisms that give communities genuine authority while accessing the technical expertise and resources necessary for sustainable infrastructure. This section examines how hybrid governance models can address the tension between local control and regional integration.

7.4.1 The Democracy and Trust Dilemma

The biggest hurdle to implementing any policy solution is not technical feasibility but democratic acceptability. As documented throughout this dissertation, residents' trust in external governance entities is limited by decades of exclusion and abandonment, the pattern of institutional path dependency that Chapter 5 traced through critical junctures. The question posed in Chapter 2's thought experiment, whether residents would trust water managed by the neighboring city that has excluded them, reveals the fundamental tension between residents' desire for basic services and their skepticism of external control.

This tension emerged powerfully in the 1991 interview that opens this chapter. Mr. Scott's question, "What do they want to do with us?", reveals awareness that municipal decisions are driven by fiscal calculations and resource extraction rather than service obligations, the same pattern that Chapter 4 documented in the airport proposal of the 1980s. His gesture of holding contaminated water up to the light while questioning external motivations symbolizes the embodied knowledge and critical

analysis that residents bring to governance discussions. This is not ignorance or irrationality but an accurate assessment based on the lived experience of how institutions have treated the community.

7.4.2 Community-Controlled Alternatives and Their Limitations

Interview data from Chapter 6 revealed that many residents preferred community-controlled solutions, reflecting both pragmatic considerations (residents' intimate knowledge of local conditions) and deeper democratic values about self-determination and autonomy. The survey findings showed the highest trust in university scientists and local actors who demonstrate immediate engagement, suggesting a preference for governance arrangements that maintain community visibility and accountability.

However, community-controlled water systems face significant practical challenges, particularly for small, economically precarious populations like contemporary Sandbranch. The economic analysis in Chapter 6 revealed that most residents cannot afford $400 emergency expenses, yet well pumps cost $300-350 to maintain or replace, creating impossible financial burdens. A community-controlled system would face similar challenges: ongoing maintenance costs, technical expertise requirements, regulatory compliance obligations, and capital investments for infrastructure improvements all require resources that individual households and small communities lack.

Moreover, as Chapter 5 documented, Sandbranch's population declined dramatically following the Dallas County buyout program, falling from approximately 300 residents to fewer than 80 households today. This population loss crossed an invisible threshold, moving the community from "small but viable" to "too small to justify investment" in the calculus of policy-makers and administrators. A community-controlled system must somehow generate sufficient revenue from this small population to maintain infrastructure, meet regulatory requirements, and build reserves for future needs—an economically daunting prospect even with external technical assistance.

The tension between community control and economic viability requires honest acknowledgment rather than idealistic assertions. While residents articulated clear preferences for local authority, they also demonstrated pragmatic understanding of limitations. The challenge for the DWGF is not to choose between community control and regional integration but to design hybrid models that combine the democratic legitimacy of local authority with the technical capacity and economic sustainability of regional systems.

7.4.3 Hybrid Governance Models: Combining Local Authority with Regional Capacity

The watershed-based approach can incorporate hybrid governance principles through several mechanisms that address the democratic deficits of purely top-down regionalization while acknowledging the practical limitations of complete local control. Community representation on utility boards would ensure that regional water authorities serving watershed areas include guaranteed representation from all communities within their boundaries, with particular attention to ensuring underserved communities have proportional voice. This could involve reserved seats for community representatives, rotating representation structures, or weighted voting systems that prevent larger municipalities from dominating decision-making. The key is ensuring that representation provides genuine authority rather than merely consultative roles.

Local advisory committees with formal authority would allow each community within a regional system to maintain decision-making power over certain service decisions: local infrastructure priorities, service standards, water quality monitoring protocols, and community engagement approaches. These committees would work in partnership with regional utility technical staff but would possess decision-making authority rather than merely providing input that can be ignored. This addresses residents' need for visible, accountable local governance while leveraging regional technical capacity.

Revenue-sharing and community benefit arrangements would ensure that regional systems include mechanisms that provide communities with resources for local priorities beyond basic water service. This could involve returning a portion of water revenue to communities for infrastructure improvements, economic development, or other community-identified needs. Additionally, explicit community benefit agreements, similar to those increasingly used in environmental justice contexts, could ensure that infrastructure investments generate local employment, address complementary community needs (flood protection, parks, etc.), and demonstrate a genuine commitment to community wellbeing beyond service provision.

Transparent governance and accountability mechanisms would address the trust deficits documented in Chapter 6 through robust structures. Regular community meetings where utility staff present water quality data and answer questions in accessible language would provide visibility. Citizen monitoring programs that train residents to conduct their own testing and provide oversight would build capacity. Public access to real-time water quality data through online dashboards or community bulletin boards would demonstrate transparency. Formal grievance mechanisms with enforcement teeth would provide residents with recourse when institutions fail to deliver promised performance or respect community authority.

Finally, pilot programs and adaptive implementation would allow for testing different approaches in various contexts rather than imposing a single hybrid governance model across all communities. This allows for learning from experience, adapting approaches based on what works, and building evidence for broader implementation. Pilots should include rigorous evaluation of both technical performance (water quality, system reliability) and democratic outcomes (community satisfaction, participation rates, trust levels).

These hybrid governance mechanisms address the core tension identified throughout this dissertation: residents' legitimate desire for self-determination and their equally legitimate need for technical capacity and economic resources that small communities cannot provide independently. By distributing authority across multiple scales, regional for technical and financial capacity and local for democratic accountability and priority-setting, hybrid models offer pathways beyond the false choice between complete independence and complete dependence on external authorities.

7.5 Addressing Historical Trauma and Building Trust Through Reparative Practice

The institutional path dependency documented in Chapters 4 and 5 created not only material deprivation but also accumulated trauma from repeated disappointments and systematic exclusion. Policy solutions must address this historical legacy rather than simply proposing new technical interventions that ignore the relational damage done by decades of quasi-guardianship and bounded citizenship.

7.5.1 The Path Dependency of Exclusion and Intervention Fatigue

As one resident described the cycle of failed interventions documented throughout Chapter 6: "Yeah, there's been a lot of people come through trying to get water, but nothing ever happened, you know. Nothing... they come. And then they just disappeared. And next year is like, same thing, like I say, redundant." This pattern has created what might be termed "intervention fatigue"—a protective skepticism that residents have developed in response to repeated disappointments. Chapter 6 documented this as part of the broader pattern of "poverty tourism" where communities are studied, documented, and promised help without experiencing actual change.

This intervention fatigue reflects rational adaptation to institutional failure rather than resident apathy or inability to recognize genuine opportunities. As Chapter 5 demonstrated, Sandbranch has experienced multiple moments when solutions seemed imminent—the airport proposal of the 1980s, the state-funded water infrastructure project of 1999, various nonprofit interventions—only

to have progress halted by administrative complications or shifting priorities. Residents have learned through experience that promises are cheap while infrastructure is not forthcoming.

Policy solutions must acknowledge and address this historical trauma rather than adding another layer of unfulfilled promises. This requires what restorative justice scholars call "acknowledgment and repair"—formal recognition of past harms coupled with concrete actions to address their ongoing effects. For water governance, acknowledgment means explicitly recognizing that Sandbranch's exclusion resulted from institutional decisions, not community deficiencies. It means documenting in official records that the wastewater plant was sited with knowledge of the community's existence, that official planning documents systematically erased Sandbranch even as federal maps showed its presence, that buyout programs provided inadequate compensation while halting infrastructure projects.

Repair means concrete actions that demonstrate commitment to change: immediate investments in interim solutions (well testing and repair, water delivery during transition periods), transparent timelines with accountability for meeting commitments, and penalties for institutions that fail to deliver promised services. Repair also means addressing the broader effects of historical exclusion through community benefits that go beyond basic service provision—preferential hiring for local residents in infrastructure construction and maintenance, investments in complementary infrastructure like flood protection, and resources for community-identified priorities.

7.5.2 Trust-Building Through Transparency, Visibility, and Accountability

The survey findings discussed in Chapter 6 showing residents' preference for seeing water testing conducted onsite rather than receiving laboratory reports suggests specific approaches to trust-building that address the legacy of exclusion. Transparency and accountability mechanisms should be designed to provide residents with direct, observable evidence of system performance rather than

relying solely on technical reports or regulatory compliance that happens in distant spaces beyond community view.

This emphasis on visibility reflects more than simple preference—it reflects residents' accurate understanding that they have been excluded from decision-making processes. When institutions make decisions behind closed doors and present only polished reports of outcomes, communities have no way to assess whether their concerns were actually considered or whether technical judgments reflected community values. Visibility creates opportunities for residents to witness how decisions are made, to see their input incorporated (or demand explanation when it is not), and to develop understanding of institutional processes that demystifies rather than obscures governance.

Specific trust-building mechanisms that operationalize these principles include regular public water quality testing events where utility staff conduct tests in visible, accessible ways—not just present results but also demonstrate the actual testing process. This addresses residents' stated need to "see someone test the water" while creating opportunities for education about water quality parameters and regulatory standards. Open governance meetings held in community spaces at times accessible to working residents, with interpretation services for non-English speakers, childcare to enable parents' participation, and facilitation approaches that encourage rather than intimidate public comment would demonstrate commitment to participation. Citizen monitoring programs that equip residents with skills to conduct their own water quality monitoring, collect samples, and interpret results would build both technical capacity and community ownership while providing ongoing oversight that complements utility monitoring.

Real-time data transparency through public dashboards showing current water quality data, infrastructure status, and service metrics would demonstrate institutional commitment to openness. While not all residents will regularly check dashboards, their existence provides resources for

community advocates to hold utilities accountable. Accessible communication that presents information in plain language accessible to non-technical audiences, available in multiple languages, and distributed through channels that reach all community members (not just those with internet access or English proficiency) ensures broad understanding. Finally, formal grievance mechanisms with enforcement capacity that allow residents to file complaints, receive timely responses, and escalate concerns when local resolution fails would provide genuine accountability. Critically, these mechanisms must include the ability to compel utility responsiveness rather than merely documenting resident concerns.

These trust-building mechanisms require sustained commitment and resources. Trust cannot be built quickly or cheaply—it emerges through repeated interactions over time where institutions demonstrate both competence (performative trust) and genuine concern for community interests (moral trust). The DWGF positions trust-building not as a preliminary step before implementing solutions but as an ongoing institutional practice that must be maintained indefinitely.

7.5.3 Community Benefits and Reparative Justice in Infrastructure Investment

Given the historical context of exclusion and the extractive development patterns that created Sandbranch's water poverty, policy solutions should include explicit community benefits that go beyond basic service provision. This aligns with environmental justice principles that recognize the need for reparative investments in communities that have borne disproportionate environmental burdens—in Sandbranch's case, living adjacent to a massive wastewater treatment facility while lacking access to clean water themselves.

Community benefits could include several interconnected elements. Preferential hiring would ensure local residents receive priority for employment in infrastructure construction and maintenance, with training programs to build capacity where needed. This creates economic benefits that flow directly

to community members while building local expertise. Revenue sharing would return a portion of water service revenue to communities for local priorities—infrastructure improvements, economic development, community facilities, or other resident-identified needs. This recognizes that water systems generate value and that communities should share in that value rather than merely paying for service. Complementary infrastructure investment would couple water infrastructure projects with investments in related needs—flood protection, road improvements, parks and recreation facilities, community centers. This addresses the reality that water poverty rarely exists in isolation but is part of broader infrastructure deficits.

Cultural and historical recognition through formal acknowledgment of community history—historical markers, documentation of oral histories, and protection of community landmarks like the Sandbranch cemetery (discussed in Chapter 4)—would address residents' need for recognition and belonging, honoring community persistence despite systematic exclusion. Finally, environmental remediation would address ongoing impacts from adjacent facilities. Where water infrastructure investment occurs in communities that have borne environmental burdens, complementary investments in environmental cleanup and restoration would demonstrate commitment to comprehensive wellbeing. For Sandbranch, this could involve addressing any ongoing impacts from the adjacent wastewater facility or sand and gravel operations documented in Chapter 4.

These community benefits serve multiple functions. Practically, they address interconnected needs and build community capacity. Symbolically, they demonstrate that infrastructure investment represents genuine commitment to community wellbeing rather than minimal compliance with service obligations. Democratically, they provide resources that enable more meaningful community participation in governance—residents with stable employment and improved living conditions have greater capacity for civic engagement than those struggling with daily survival.

7.6 Implementation Pathways and Political Feasibility

This multi-scalar approach also forces honesty about decentralization and about participation itself. The framework's emphasis on community control should not be confused with a claim that smaller is automatically better, nor that local advisory committees automatically produce the outcomes residents want. As Carolini (2015) notes in her account of participatory budgeting in Maputo, even reforms designed explicitly to redistribute decision-making authority can run into what scholars have called the "tyranny" of participation: meetings that exhaust residents' time without producing commensurate influence, processes that privilege those with the resources to attend, and consultative gestures that substitute for substantive power (Carolini 2015; Cooke and Kothari 2001). That literature has largely developed in the global South, but its critiques apply just as well here: public comment periods scheduled during business hours at distant regional offices, formal participation channels that require navigating bureaucratic processes communities lack the staff to engage, and "community input" that arrives after technical decisions have already been made. Decentralization, in other words, can mask exclusionary politics as easily as it can deliver responsive governance (Burns 1994), and very small communities can face genuine tradeoffs between democratic participation and the technical and financial capacity needed to deliver safe water. The DWGF holds that those tradeoffs are real and that they must be navigated through institutional design, including guaranteed representation, community veto authority over decisions that fall disproportionately on a single locality, and super-majority rules for actions that impose distinctive burdens, rather than wished away by invoking "local control" as a virtue that requires no further specification. The implementation pathways below take the messiness of that work as the premise, not as a complication to be managed after the fact.

7.6.1 Building Political Will Through Coalition Formation

Implementing the DWGF requires political will that currently does not exist—particularly given the fragmentation of water governance authority across municipal, county, regional, and state levels. Building this political will requires coalition formation that brings together diverse actors with different motivations for supporting reform. Environmental justice advocates recognize water poverty as a civil rights issue and see the DWGF as addressing systematic exclusion through democratic participation and reparative investment. Public health officials concerned about health disparities linked to water access and quality can document how democratic water governance would improve population health outcomes. Environmental advocates value watershed-based governance for its ecological benefits and recognize that hydrologically-bounded citizenship aligns with ecosystem-based management principles. Fiscal conservatives recognize that current fragmented approaches create inefficiencies and that regional integration could provide better services at lower per-capita costs through economies of scale. Regional water utilities see opportunities for sustainable revenue growth through serving expanded service areas while maintaining or improving service quality. Local elected officials face constituent pressure to address water poverty but lack resources or authority to act independently, and see regional approaches as providing political cover for difficult decisions.

These diverse actors will not agree on all aspects of the DWGF, but they can form coalitions around specific implementation steps. The key is designing proposals that serve multiple goals simultaneously—environmental sustainability, public health equity, economic efficiency, and democratic participation—so that different actors can support reforms for their own reasons while moving toward common outcomes.

7.6.2 Phased Implementation and Demonstration Projects

Rather than attempting comprehensive statewide or national implementation immediately, the DWGF could be implemented through phased approaches that build evidence and capacity over time. The first phase would involve pilot projects and demonstration communities, selecting 3-5 communities facing water poverty in different watersheds across Texas to pilot different hybrid governance approaches. Substantial funding and technical assistance would ensure success while rigorously evaluating both technical performance and democratic outcomes. Documenting lessons learned and disseminating findings would build support for broader implementation.

The second phase would involve regional expansion based on pilot results, expanding to full watershed-based regional integration in areas where political support exists and institutional capacity is adequate. This creates competition among regions for state and federal funding, incentivizing adoption of DWGF principles. The third phase would codify DWGF principles in state water policy through statewide policy institutionalization. Once sufficient evidence demonstrates effectiveness, legislative action would expand colonias definitions, modify utility territorial restrictions, require democratic participation mechanisms, and establish funding formulas that support hybrid governance. The final phase would leverage successful state-level implementation to advocate for federal policy alignment and scaling through HUD definition expansion, EPA guidance on community participation requirements, and targeted infrastructure funding that requires DWGF-aligned governance approaches.

This phased approach allows for learning and adaptation rather than betting everything on a single comprehensive reform. It builds political momentum through demonstrated success rather than requiring leap of faith. However, it also means that communities not selected for early pilots continue experiencing water poverty—raising equity concerns about who gets helped first and whether politically weak communities like Sandbranch would be prioritized or overlooked yet again.

7.6.3 Federal and State Legislative Opportunities

Despite political challenges, several legislative opportunities exist for advancing DWGF principles at both the state and federal levels.

At the state level, the Texas Legislature meets every other year, creating regular opportunities to introduce policy. The most direct avenue is to expand colonias definitions by removing geographic restrictions and adding provisions for community participation and democratic oversight. This approach can be framed as both an equity argument (treating all communities with comparable needs comparably) and an efficiency argument (addressing infrastructure deficits wherever they exist). A second avenue is to modify utility service obligations by creating a new category of watershed service areas, under which regional utilities receive funding and incentives to serve all communities within watershed boundaries rather than only those within existing service territories. County ordinance requirements could make adoption of the Model Subdivision Ordinance a condition for receiving state infrastructure funding, preventing new communities from being created without infrastructure while pairing requirements with funding incentives. Finally, establishing minimum community benefit standards for infrastructure projects that receive state funding, covering preferential hiring, revenue sharing, and complementary investments, would institutionalize reparative justice principles directly in water policy.

At the federal level, several existing programs could be leveraged to support DWGF implementation. Infrastructure Investment and Jobs Act funding could be targeted to underserved communities with explicit requirements for community participation and hybrid governance approaches; HUD, EPA, and USDA all play roles in water infrastructure funding and could align their requirements around DWGF principles through coordinated rulemaking. Federal colonias definitions could be expanded through HUD programs to increase both eligibility and funding while adding community participation requirements and capacity-building support. EPA environmental

justice initiatives create openings for incorporating DWGF principles into guidance documents, enforcement priorities, and grant programs. Finally, Clean Water State Revolving Fund provisions could be modified to include community participation standards and preferential financing terms for projects that adopt hybrid governance approaches aligned with DWGF principles.

7.6.4 Regional and Local Implementation Requirements

Even with enabling state and federal policy, successful implementation requires intensive regional and local coordination. Regional planning processes would bring together water utilities, county governments, state agencies, and community organizations to develop watershed-specific implementation plans. These processes must be genuinely inclusive rather than merely consultative, with community representatives having equal voice in decisions. Capacity building for community participation would provide resources for communities to participate meaningfully in regional planning—stipends for community representatives' time, transportation to meetings, technical assistance to understand complex proposals, and facilitation support to ensure their voices are heard and respected. Technical assistance for utilities would help many utilities, particularly smaller ones, that lack experience with community engagement and participatory governance develop capacity for inclusive practices rather than expecting them to figure it out independently. Finally, trust-building through acknowledgment would ensure that local implementation begins with formal acknowledgment of past harms and clear commitments to change. This requires uncomfortable conversations about how communities came to be excluded, why promises were not kept, and what specifically will be different this time. Without this acknowledgment, implementation efforts risk being dismissed as more empty promises.

7.7 Conclusion: Toward Democratic Water Governance

The Drinking Water Governance Framework presented in this chapter represents more than technical fixes to infrastructure problems. It constitutes efforts to address the democratic deficits that created and perpetuated water poverty in Sandbranch and similar communities. The empirical findings documented throughout this dissertation demonstrate that water poverty is fundamentally a democratic failure: institutional decisions made without community participation, administrative processes that substitute expert judgment for citizen voice, and governance structures that create bounded citizenship where formal membership coexists with practical exclusion from services and decision-making.

The DWGF addresses these democratic failures through three interconnected principles: hydrologically-bounded citizenship that defines the demos based on shared ecological fate rather than arbitrary political boundaries, trust-building through institutional practices that demonstrate both moral commitment and performative competence, and equality in decision-making that gives communities genuine authority rather than merely consultative roles. These principles are operationalized through watershed-based regional integration combined with hybrid governance models that distribute authority across multiple scales, regional for technical capacity and economic sustainability and local for democratic accountability and community control.

However, the success of any policy intervention ultimately depends on its ability to address the trust and accountability concerns that residents have developed over decades of exclusion and abandonment. The voices and visions of Sandbranch residents documented throughout this research provide essential guidance for policy design. Their emphasis on community control, transparency, and accountability, articulated clearly in Chapter 6, should inform the development of governance mechanisms that support regional integration while preserving local autonomy. Their skepticism of external promises, grounded in an accurate assessment of institutional track records documented in

Chapters 4 and 5, should motivate the creation of trust-building processes that demonstrate genuine commitment to community well-being through concrete actions rather than bureaucratic procedures.

The implementation pathways explored in Section 7.6 acknowledge the political and practical challenges of transforming water governance. Change will not happen quickly or easily. It requires sustained commitment from multiple levels of government, civil society organizations, and regional water utilities. It requires acknowledgment of past harms and genuine commitment to reparative justice. It requires resources, both financial and human, to build institutional capacity for democratic participation and community control. Most importantly, it requires recognizing that the residents of Sandbranch and similar communities are not problems to be solved but citizens whose knowledge, experiences, and visions are essential for creating just and sustainable water systems.

As Mr. Scott's question from 1991 continues to resonate today, "What do they want to do with us?", the answer must be clear: not to do something to or for these communities, but to work with them as equal partners in creating the democratic, accountable, and just water governance that all communities deserve. This is not simply a technical challenge but a democratic imperative that will require the best of our collective imagination, commitment, and political will.

The path forward demands fundamental transformation of how we conceptualize water governance, from treating water as a commodity managed by expert administrators to recognizing it as a public good requiring democratic control, from viewing underserved communities as administrative problems to honoring them as citizens with rights and knowledge, from maintaining fragmented systems that perpetuate inequality to building regional structures grounded in hydrological reality and democratic principles. The Drinking Water Governance Framework provides a roadmap for this transformation, but the journey requires courage to acknowledge past failures, creativity to

design new institutional arrangements, and commitment to sustaining democratic practices even when they prove more complex and demanding than expert-led alternatives.

The residents of Sandbranch have waited long enough. They have survived decades of exclusion, adapted to circumstances that no community should face, and maintained dignity and democratic aspirations despite systematic marginalization. They have articulated clear principles for what just water governance would require. The question is no longer what they need, as the answer is evident from this research. The question is whether institutions are willing to transform themselves to meet these requirements, to embrace the democratic accountability that genuine service to all citizens demands, to build the trust that decades of failure have eroded. The DWGF provides a framework for answering that question affirmatively, but frameworks alone do not create change. Change requires political will, institutional commitment, and recognition that democracy in water governance is not a luxury but a necessity, the foundation without which technical solutions cannot achieve legitimacy or sustainability.

Chapter 8: Future Research Directions: Expanding the Framework

"If the democratic process is not firmly anchored in the judgments of the *demos*, then the system will continue to drift toward quasi-guardianship. If the anchor holds, the drift will stop."

— Robert A. Dahl, Democracy and Its Critics (1989, p. 338)

Dahl's diagnosis names the stakes precisely. Without the *demos* as anchor, governance drifts toward quasi-guardianship, and this dissertation has documented what that drift looks like in practice: a community failed across four decades by institutions that retained the appearance of democratic process while routing actual decisions around the people they affected. The DWGF developed in Chapter 7 offers a framework for arresting that drift. However, a framework is only as useful as the scholarly work that tests, refines, and extends it.

If implementing the DWGF in practice will be the work of utilities, legislators, regional authorities, and communities, refining it as a contribution to democratic theory will be the work of scholars. This chapter identifies five directions where that work is most urgently needed, treating each as a continuation of the dissertation's central commitment: that water poverty is a problem of democracy, and that the institutions which govern water deserve the same scrutiny we give to any institutions that allocate political voice. The five directions are comparative governance studies (Section 8.1), emerging pressures from data centers and competing demands (Section 8.2), deeper theoretical work on environmental democracy and ecological citizenship (Section 8.3), methodological innovations for measuring democratic outcomes (Section 8.4), and implementation science for learning from failure (Section 8.5). They are not exhaustive, but they are the directions where the framework most clearly meets its own limits.

8.1 Comparative Governance Studies Across Different Contexts

The DWGF was developed through intensive case study of a single community experiencing extreme water poverty. Future research should examine how the framework applies across different governance contexts, comparing communities with varying demographic compositions, governance structures, and water challenges. Comparative studies could examine whether the three principles of the DWGF—hydrologically-bounded citizenship, trust-building, and equality in decision-making—operate similarly in predominantly Latino colonias along the Texas-Mexico border, in rural white communities facing water poverty in Appalachia, or in urban neighborhoods experiencing water shutoffs in cities like Detroit or Baltimore.

Such comparative research would test the framework's generalizability while revealing how racialized histories, regional political cultures, and existing governance structures shape possibilities for democratic reform. Does trust-building require different institutional mechanisms in communities with different histories of exclusion? How does the concept of hydrologically-bounded citizenship translate to contexts where watersheds cross state or national borders? Comparative analysis would refine understanding of which aspects of the DWGF represent universal democratic principles and which require contextual adaptation.

Additionally, comparative governance research should examine successful examples of regional water integration that incorporate democratic participation mechanisms. As mentioned in Chapter 2, the Murray-Darling Basin Authority in Australia, the European Union's Water Framework Directive, and Great Lakes management between the United States and Canada all demonstrate cross-jurisdictional cooperation. However, these examples involve established governments collaborating across existing boundaries rather than addressing the fundamental inclusion problem facing communities like Sandbranch. Future research should identify and analyze cases where regional governance successfully incorporated previously excluded communities, documenting the

institutional mechanisms, political conditions, and trust-building processes that enabled integration while preserving democratic accountability.

Beyond studying existing governance models, future research must also anticipate emerging challenges that will test the DWGF's principles in new ways. Among the most urgent of these are rapidly evolving technological demands on water resources.

8.2 New Pressures on Regional Water Governance: AI Data Centers and Competing Demands

Emerging technological developments create new pressures on water governance that the DWGF must address. The rapid expansion of artificial intelligence data centers represents a particularly urgent challenge. These facilities require enormous quantities of water for cooling—a single large data center can use millions of gallons daily, equivalent to the consumption of entire small cities. As technology companies rush to build AI infrastructure, data centers are being sited in regions chosen for their access to cheap electricity and available water, often without meaningful consideration of existing community needs or regional water scarcity.

This development raises critical questions for the DWGF. How should regional water authorities governed by hydrologically-bounded citizenship principles allocate water between long-standing residential communities and new commercial demands? When communities like Sandbranch lack basic water infrastructure while tech companies secure rights to millions of gallons for data centers, what does political equality in water governance demand? Does the DWGF's emphasis on democratic decision-making provide mechanisms for communities to contest industrial water appropriation, or do existing legal frameworks around water rights supersede democratic governance principles?

Future research should examine how the DWGF could be applied to these emerging conflicts. This requires empirical investigation of communities where data center development creates water

competition, analyzing whether existing governance structures provide meaningful participation in water allocation decisions. It also requires theoretical development of how democratic principles should guide water allocation when essential human needs compete with commercial demands. The DWGF's principle of equality in decision-making suggests that communities should have authority to prioritize drinking water for residents over industrial cooling, but operationalizing this principle requires developing specific institutional mechanisms and legal frameworks.

Moreover, data center development often follows patterns similar to the wastewater plant placement documented in Chapters 4 and 5—corporations site facilities in or near low-income communities and communities of color that lack political power to resist. This creates potential for new critical junctures that could lock communities into further disadvantage. Future research should examine whether and how the DWGF's emphasis on trust-building and transparent governance could prevent such outcomes, or whether additional protections are needed to ensure that regional water governance serves democratic rather than purely economic priorities. These emerging practical challenges raise deeper theoretical questions about the foundations of the DWGF itself—questions that warrant sustained philosophical investigation alongside empirical application.

8.3 Deepening Theoretical Connections: Political Equality, Environmental Democracy, and Ecological Citizenship

This dissertation has focused primarily on the practical dimensions of water governance reform, but the DWGF raises profound theoretical questions that warrant deeper philosophical investigation. The concept of hydrologically-bounded citizenship challenges traditional theories of political membership by grounding citizenship in ecological rather than political geography. This move has implications beyond water governance for how we conceptualize democracy in an era of environmental crisis.

Future research should develop more robust theoretical foundations for hydrologically-bounded citizenship by engaging with several bodies of scholarship. First, environmental political theory offers concepts of "ecological citizenship" that recognize humans' membership in ecological communities alongside political ones. Scholars like Andrew Dobson argue that environmental challenges require reconceiving citizenship to include responsibilities to ecosystems and future generations, not just rights within current political communities. The DWGF's principle of hydrologically-bounded citizenship aligns with this thinking but requires deeper exploration of how ecological citizenship can be institutionalized through governance structures rather than remaining merely an ethical ideal.

Second, the relationship between political equality and environmental justice requires theoretical elaboration. This dissertation has demonstrated empirically that water poverty violates political equality by excluding communities from decision-making about essential resources. However, the theoretical question remains: what does political equality *require* in terms of environmental conditions? Beitz's (1989) concept of "fair terms of participation" suggests that political equality demands material conditions enabling meaningful civic engagement. Future research should develop this argument systematically, examining whether political equality requires not just formal access to participation but also substantive environmental conditions—clean water, breathable air, safe housing—that enable full citizenship.

This theoretical work has practical implications. If political equality requires certain environmental conditions as prerequisites for meaningful participation, then environmental degradation becomes not merely a policy problem but a democratic crisis. Communities experiencing water poverty, air pollution, or toxic contamination are not just environmentally burdened but democratically

excluded. This reframing could strengthen arguments for environmental remediation as a democratic imperative rather than merely a matter of distributive justice.

Third, the DWGF's emphasis on trust as institutional infrastructure opens questions about the relationship between interpersonal trust, institutional trust, and democratic legitimacy. Political theorists have long debated whether democracy requires trust among citizens (what Putnam calls "social capital") or whether well-designed institutions can enable cooperation even among mutually suspicious actors. Chapter 6's findings suggest that Sandbranch residents' distrust of external institutions reflects accurate assessment of institutional track records rather than deficit of social capital. This raises theoretical questions: Can institutions that have violated trust be reformed to earn it back, or do some democratic failures create irreparable breaches? What does "trust as institutional infrastructure" mean theoretically—is it a property of institutional design, a quality of relationships between institutions and citizens, or something else entirely?

Future theoretical research should also examine how the DWGF relates to broader debates about deliberative democracy versus participatory democracy. The framework emphasizes community decision-making authority (participatory) but also values transparency and reasoned dialogue (deliberative). Does the DWGF suggest a synthesis of these approaches, or does its emphasis on communities that have been systematically excluded require prioritizing participatory mechanisms over deliberative ones? These theoretical questions have practical importance for designing the governance mechanisms described in Section 7.4. While theoretical development strengthens the DWGF's conceptual foundations, empirical validation requires equally rigorous methodological innovation—particularly for assessing whether reforms achieve democratic outcomes in practice.

8.4 Methodological Innovations: Measuring Democratic Water Governance Outcomes

If the DWGF is implemented through pilot programs as proposed in Section 7.6, future research will need robust methods for evaluating both technical performance and democratic outcomes. While water quality and infrastructure reliability can be measured through established engineering metrics, assessing democratic governance requires methodological innovation.

Future research should develop and validate instruments for measuring the three principles of the DWGF in practice. For hydrologically-bounded citizenship, this might include metrics of governance inclusivity: what percentage of watershed residents have formal representation in water authority decision-making? How proportional is this representation relative to population? Are historically excluded communities included at rates equal to their population share? For trust-building, measurement could include longitudinal surveys tracking changes in residents' trust in water institutions over time, combined with behavioral indicators like participation rates in community meetings and monitoring programs. For equality in decision-making, metrics might assess whether community input demonstrably shapes outcomes: can researchers identify decisions that changed based on community input versus those where participation was merely consultative?

Additionally, future research should develop comparative frameworks for assessing whether governance reforms reduce or perpetuate water poverty. This requires operationalizing water poverty as defined in Chapter 1—not just physical access but also affordability, reliability, and trust in water sources. Longitudinal studies tracking communities before and after governance reforms could assess whether the DWGF's principles actually translate into improved material conditions and reduced disparities. Comparative studies could examine whether communities with governance structures aligned with DWGF principles experience better outcomes than those relying on traditional utility models, controlling for factors like population size, water availability, and economic conditions.Yet even the most sophisticated measurement frameworks cannot fully capture the

messiness of real-world implementation, where political resistance, institutional inertia, and unforeseen complications inevitably arise. Learning from these challenges requires embracing failure as a source of knowledge.

8.5 Implementation Science: Learning from Failure and Adaptation

Finally, future research should apply implementation science frameworks to understand not just whether the DWGF works but how and why. As Section 7.6 acknowledged, implementation will encounter political resistance, institutional inertia, and practical challenges. Rather than treating these as merely obstacles to overcome, future research should examine them as sources of learning about what democratic water governance requires in practice.

Implementation research should document attempts to apply DWGF principles—both successes and failures—with attention to contextual factors that enable or prevent change. Why do some utilities embrace community participation while others resist? What political conditions enable state legislatures to expand colonias definitions and modify territorial restrictions? How do communities build capacity for meaningful participation, and what resources prove most critical? This research would provide practical guidance for subsequent implementation efforts while refining understanding of the institutional and political conditions necessary for democratic water governance.

These future research directions would strengthen the DWGF while extending its implications beyond water governance to broader questions of environmental democracy, political equality, and institutional design for sustainability and justice. The framework presented in this chapter provides a foundation, but realizing its potential requires sustained scholarly engagement with both its theoretical foundations and practical applications.

8.6 Conclusion

The future research directions outlined in this chapter—comparative governance studies, responses to emerging water demands, theoretical deepening, methodological innovation, and implementation science—represent essential next steps for refining and validating the Drinking Water Governance Framework. Each direction addresses critical gaps in current understanding while building toward a comprehensive approach to democratic water governance that can address not only Sandbranch's water poverty but similar challenges across diverse contexts. Sandbranch's story does not end with this dissertation—it continues as residents, advocates, and institutions work toward the democratic water governance this community has long deserved. The scholarly work outlined here provides pathways for ensuring that academic research contributes meaningfully to that ongoing struggle, rather than merely documenting it from a distance.

Appendices

Appendix A

Survey Administered in Sandbranch, Spring 2024

Sandbranch Community-Based Water Research Project

The following survey instrument was administered door-to-door in Sandbranch, Texas in March 2024 as part of the Sandbranch Community-Based Water Research Project, supported by the University of Wisconsin–Madison Community-Based Water Research Grant. The survey was developed in partnership with Tonnette Byrd of UntilJustice Corporation. Thirty-two household surveys were completed; approximately eighteen were read aloud to participants due to vision or reading conditions. Participants were compensated $30 in cash. The instrument is reproduced below substantially as it was administered, with formatting adjusted to fit the dissertation page layout.

Informed Consent

Welcome to the Sandbranch Community-Based Water Research Project

Thank you for your interest in participating in this survey. The purpose of this survey is to gather information about people's experiences with water access. This information will be used to improve water access for everyone in the community. This project is made possible by the University of Wisconsin–Madison Community-Based Water Research Grant. A team of researchers, led by Laura Morales-Whetstone, Ph.D. candidate at the University of Wisconsin–Madison, in partnership with Tonnette Byrd of UntilJustice Corporation, has teamed up to evaluate the community's experience with water access.

Participation

If you choose to participate, you are verifying that you are above 18 years old and a community member of Sandbranch, Texas. For completing the survey you will receive $30 (cash compensation) as a thank you. This is limited to one (1) survey entry only. Participation is voluntary; you may withdraw or choose not to participate at any time.

Confidentiality

The data collected will remain confidential and will be stored on password-protected servers at the University of Wisconsin–Madison and UntilJustice Corporation. All information will be stored in a way that cannot release your identity. Your individual response will be confidential.

Risks and Benefits

This survey is considered to be no more than minimal risk, meaning there is no more expected risk to you than what you might experience on a typical day. You may skip any question you prefer not to answer. You may withdraw from the survey at any time; if you withdraw, your information will not be retained or used for this research project.

Questions and Concerns

Questions about the research may be directed to Laura Morales-Whetstone at ljmorales2@wisc.edu or (920) 350-3516. Questions about your rights as a research participant or complaints about the research study may be directed to the confidential research compliance line at 1-833-652-2506.

Consent Statement

- I have read the above information. I agree to participate in the research.
- I do not agree to participate in the research.

Contact Information

- First and Last Name
- Physical Address (Line 1, Line 2, City, State, Zip Code)
- Mailing Address (if different from Physical Address)
- Phone Number
- Email Address

What is the best way to contact you? (Email / Phone Call / Text Message / In-Person)

Q1. Do you currently have a hydropanel installed? (No / Yes)

Government Trust

Q2. In your own words, how would you define the word trust?

_____

_____

Q3. How would you rate the trustworthiness of the following types of organizations, where 0 means not confident at all and 10 means extremely confident?

Organization	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
University scientists/researchers											
Federal Government											
State Government											
Local Government											
Business Corporations											
Small Business											
Environmental Groups											
Nonprofits											

Organization	0	1	2	3	4	5	6	7	8	9	10
U.S. Environmental Protection Agency											
Federal Emergency Management Agency											
Waste and Water Utilities											

Q4. Indicate what you think the appropriate role, or level of government, should be involved in managing drinking water and wastewater (setting access, regulating, or pricing).

Authority	Extremely inappropriate	Somewhat inappropriate	Neither	Somewhat appropriate	Extremely appropriate
Federal Government (e.g., U.S. EPA, U.S. Army Corps of Engineers)					
State Government (e.g., Commission on Environmental Quality, Department of Agriculture)					
Local Government (e.g., Planning Department, Water Utility, County Health Department)					
Regional Water Authority (could contain multiple cities)					
Private Industry					
Farmers					
Nonprofit Cooperative					
Individual Property Owners					

Q5. Some cities have a regional authority, meaning services such as transportation, schools, or water extend beyond city limits. Some people say that this adds another layer of government and means people will have less of a choice over that service. Other people say regional authorities provide a minimum level of service which is important even if you do not have complete say. How much trust would you put into this type of authority?

- A great deal
- A lot
- A moderate amount
- A little
- None at all

Q6. Some cities have a regional authority that is part of private industry, meaning services such as transportation, schools, or water extend beyond city limits. Some people say that this adds another layer of corporate bureaucracy and means people will have less of a choice over that service and it might cost more. Other people say regional authorities provide a minimum level of service but might produce a higher quality service. How much trust would you put into this type of authority?

- A great deal
- A lot
- A moderate amount
- A little
- None at all

Water Assessment (Personal Consumption)

Q7. Would you purchase a hydropanel? A hydropanel draws water vapor from the air and condenses it into clean water using solar energy. The current cost is between $2,000 and $3,000.

- No
- Maybe
- Yes

Q8. If you selected "No" or "Maybe," please select all that apply.

- □ I would like more water generated from it
- □ The cost would be too high; I would need financial assistance
- □ I am not sure if it works adequately
- □ I am worried about the maintenance
- □ I already own one
- □ Other (please specify)

Q9. Where do you get most of your drinking water for personal consumption? Select all that apply.

- □ Hydropanel
- □ Bottled water / gallons
- □ Water kiosk
- □ Well
- □ Water truck / hauler
- □ Other (please specify)

Q10. Some residents in other communities source their water for hygienic purposes (showering, bathing, flushing toilet, tooth-brushing) from other places in large amounts. If this describes you, please tell us where (location or person) you source most of your water.

_____

Q11. When it comes to drinking water you trust, how important are the following:

Attribute	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Taste					
Clarity					
Smell					
Affordability					
Reliability					
Appropriate pressure (if from indoor plumbing)					
Source (well, spring, reservoir, hydropanel, etc.)					

Q12. If you drink bottled water, what brands come to mind that are preferred?

Q13. How much water would you say you consume a day? (Please describe in 8 oz bottles or gallons.)

Q14. On a typical day, how much would you be willing to pay for an 8 oz bottle of water?

Q15. Have you personally been affected by drought in your area in the last five years? (No / Yes)

Q16. Have you personally been affected by flooding in your area in the last five years? (No / Yes)

Q17. Consider the following hypothetical situation. A monthly residential "water utility bill" without using water to maintain a lawn or plants may have five components:

Charges	Cost (1 person)	Cost (2 persons)	Cost (3 persons)	Cost (4 persons)
Base Charge	$10.62	$10.62	$10.62	$10.62
Water Consumption (min. 80 gal/day/person)	$4.78	$11.42	$21.82	$32.21
Sewer Consumption (min. 80 gal/day/person)	$13.60	$27.21	$40.82	$54.43

Charges	Cost (1 person)	Cost (2 persons)	Cost (3 persons)	Cost (4 persons)
Storm-water Fee	$2.15	$2.15	$2.15	$2.15
Fire Protection Fee	$0.50	$0.50	$0.50	$0.50
Total	**$31.20**	**$51.90**	**$75.91**	**$99.91**

Q18. Based on your household size, personal consumption habits, and financial situation, this total bill seems:

- Far too little
- Slightly too little
- Neither too much nor too little
- Slightly too much
- Far too much

Q19. How much notice would you need to start paying a monthly bill for your residence?

_____

Q20. Some cities have water affordability programs for low-income consumers, however they would require documented proof of income. If applicable to your situation, which of the following would you be able to provide?

- □ Most recent tax return
- □ Pay stubs
- □ Unemployment benefits
- □ Proof of Medicaid or Medicare coverage
- □ Proof of current SNAP, TANF, or WIC benefits
- □ Lone Star Card
- □ Proof of disability benefits or disability (SSDI/SSI or documented disability by physician)
- □ None

Q21. If you answered "None" and an affordability program would be applicable to your situation, what other low-income assistance programs have you been eligible for in the past? (For example, a medical transportation program or reduced transportation fare.)

_____

Q22. Outside the community, have you ever talked with someone about water access? (No / Maybe / Yes)

Q23. If "No" or "Maybe," is there anything that causes hesitation?

_____

_____

Housing (Sandbranch-Specific)

Q24. What is your housing status?

- Renter
- Homeowner
- Rent-to-own
- Living with friends or family
- Other

Q25. Do you have full plumbing (e.g., working toilet, shower/bathtub, sink) in your home? (No / Yes)

Q26. If "No," please specify.

_____

Q27. How many years have you lived in Sandbranch?

_____

Q28. Prior to living in Sandbranch, what was your previous address (or have you lived here as long as you can remember)?

_____

Q29. How did you find your current home?

- A friend, neighbor, or family member told me about it
- Newspaper
- Internet
- Rental agency
- Sign on the building/home
- Other (please specify)

Q30. How would you compare your current home to your last one? (About the same quality / Better home / Worse home / Never moved)

Q31. How much do you pay for rent or mortgage each month?

_____

Q32. How many times have you been evicted from your home in the past 7 years?

_____

Q33. When did you learn about Sandbranch's issues with water access? Please specify.

_____

_____

Personal Finances

Q34. What is your current financial situation in your home?

- I prefer not to say
- I am going into debt
- I am doing okay
- I have a little bit of money left over

- I have enough left to save
- I do not know

Q35. Do you currently have a bank account? (No / Yes / Other, such as a prepaid debit card)

Q36. Suppose that you have an emergency that costs $400. Based on your current financial situation, how would you pay for this expense?

- Pay using cash
- Pay using one credit card
- Pay using debt (such as title loan or paycheck advance)
- I could not pay
- Borrowing money from family or friend
- Other (please specify)

Q37. What is your primary employment status?

- Employed full-time
- Employed part-time
- Unemployed looking for work
- Unemployed not looking for work
- Retired
- Disabled
- Seasonal worker
- Stay-at-home caregiver or parent
- I am a student and do not work

Q38. How well does this statement describe you or your situation?

Statement	Completely	Very Well	Somewhat	Very Little	Not at all
Because of my money situation, I feel like I will never have the things I want in life					
I am just getting by financially					
I am concerned that the money I have or will save won't last					

Q39. How well does this statement describe you or your situation?

Statement	Always	Often	Sometimes	Rarely	Never
I have money left over at the end of the month					
My finances control my life					

Personal Health

Q40. On a typical day, would you say your health is: (Excellent / Very good / Good / Fair / Poor)

Q41. Compared to one year ago, how would you rate your health in general now? (Much better / Somewhat better / About the same / Somewhat worse / Much worse)

Q42. The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

Activity	A great deal	A lot	A moderate amount	A little	None at all
Bathing or dressing yourself					
Walking one block					
Walking several blocks					
Walking more than a mile					
Bending, kneeling, or stooping					
Climbing one flight of stairs					
Climbing several flights of stairs					
Lifting or carrying groceries					
Moderate activities (e.g., moving a table or pushing a vacuum cleaner)					
Vigorous activities (e.g., running, lifting heavy objects, strenuous sports)					

Q43. In the past month, have you felt…

Feeling	Clearly	Mostly	Moderately	Slightly	Does not describe
tired out for no good reason?					
nervous?					

Feeling	Clearly	Mostly	Moderately	Slightly	Does not describe
so nervous that nothing could calm you down?					
hopeless?					
restless or fidgety?					
so restless that you could not sit still?					
depressed?					
so depressed that nothing could cheer you up?					
that everything was an effort?					
worthless?					

Q44. In the past five years, have you ever been hospitalized for an acute gastrointestinal illness? (No / Maybe / Yes)

Q45. In the past five years, have you had kidney stones? (No / Maybe / Yes)

Engagement and Inclusion

Q46. When it comes to the community, have you felt that…

Statement	Strongly disagree	Somewhat disagree	Neither	Somewhat agree	Strongly agree
your voice matters					
you have a decision in your community					
you are able to participate					
community meetings are held when you are available					
you have rights and responsibilities as a community member					
things have changed in the past 2 years					

Q47. If applicable, when is the last time you voted?

_____

Q48. In general, do you think of yourself as a…? (Democrat / Republican / Independent / Not sure / Other)

Q49. How do you receive news? Select all that apply.

- □ Local newscast
- □ Social media (Facebook, Twitter, WhatsApp, etc.)
- □ National news
- □ Neighbors
- □ Family
- □ Friends

Q50. Given your time, energy, and willingness to participate, would you attend a community meeting with political or governmental representatives? (Yes / No / Maybe)

Q51. If "No" or "Maybe," what would make you more likely to attend a meeting? Select all that apply.

- □ Free food
- □ Neighbors or someone you knew attended
- □ Topic was important
- □ It was around your schedule
- □ Offered free transportation
- □ Speakers were newly elected members of government
- □ Speakers represented nonprofits
- □ Speakers represented private industry
- □ Speakers were from a university
- □ Other (please specify)

Q52. Some people are shy and do not like to talk in big crowds; others are not. If you attended a community meeting with a speaker presenting a new topic, what would make you feel like your voice was heard or you were able to comment? Select all that apply.

- □ You stood up and said something
- □ The community meeting was divided into smaller groups to discuss the new topic, and you represented the group's thoughts
- □ The community meeting was divided into smaller groups to discuss the new topic, and someone else represented the group's thoughts
- □ A speaker liked your group's thoughts or your response
- □ A speaker called you after the meeting to discuss a summary of the meeting
- □ A poll was taken
- □ Other (please specify)

Q53. In a hypothetical situation, you are randomly selected by a political representative to discuss a new program's budget with other members of the community. What would be your preference if you thought something was not needed in the budget or there is a need for a different direction?

- □ Opt out, leave it to someone else you trust
- □ Start talking with other members and the political representative and discuss it
- □ Only talk with other members, and a group leader expresses the thoughts/concerns
- □ Default to the political representative but leave your comments
- □ Other (please specify)

Demographic Information — Baseline

Q54. What is your age?

_____

Q55. What is the highest level of education you have completed?

- No formal education
- Elementary school (through Grade 5)
- Middle school (6th–9th grade)
- High school (10th–12th grade)
- High school diploma
- GED (diploma equivalency test)
- Trade or technical school
- Associate's degree (2-year college degree)
- Other post-graduate degree
- Other education choice not listed

Q56. Which language are you more likely to use at home? (English / Spanish / Other language)

Q57. For this survey, "immigrant background" means being born in a country other than the United States, or having parents or grandparents who were born in a country other than the United States. Are you of immigrant background? (No / Yes)

Q58. What is your race/ethnicity? Select all that apply.

- □ Black or African American
- □ White
- □ Hispanic/Latino
- □ American Indian or Alaska Native or First Nations
- □ Asian
- □ Native Hawaiian or Pacific Islander
- □ Two or more races
- □ Some other race

Q59. If you selected "Yes" to immigrant background, please specify the country or countries.

_____

Q60. If you are American Indian or Alaska Native, please specify tribe(s).

_____

Q61. If you selected "Two or more races," please specify.

_____

Q62. If you selected "Native Hawaiian or Other Pacific Islander," please specify.

_____

Q63. If you selected Hispanic/Latino, do you consider yourself Afro-Latino, Mestizo, Indigenous, Ladino (of partial European descent), or Criollo? Please specify.

_____

Q64. What is your gender? (Male / Female / Non-binary or third gender / Prefer not to say)

Q65. What is your sexual orientation? Select all that apply. (Straight / Gay / Lesbian / Bisexual / Questioning / Other / Prefer not to say)

Q66. What is your marital status? (Married / Widowed / Divorced / Separated / Never married / Partner or in a relationship)

Q67. Do you live with your spouse or partner? (No / Yes)

Q68. How many people make up your household (including yourself)?

_____

Q69. Not including yourself, how many other adults (people 18 or older) live with you all of the time?

_____

Q70. Not including yourself, how many other adults live with you some of the time?

_____

Q71. If you have children that live with you either part-time or full-time, please list their ages.

_____

Q72. Federal Poverty Level Income Chart (2024).

Family size	**2024 income threshold**
For individuals	$15,060
For a family of 2	$20,440
For a family of 3	$25,820
For a family of 4	$31,200
For a family of 5	$36,580
For a family of 6	$41,960
For a family of 7	$47,340

Family size	2024 income threshold
For a family of 8	$52,720
For a family of 9 or more	Add $5,380 for each additional person

Q73. Based on your household size and income, how well does this threshold describe your status? (Much lower / Slightly lower / About the same / Slightly higher / Much higher)

Appendix B

Thematic Coding for Interviews and Media

The table below presents the parent themes, child concepts, and brief descriptions used to code semi-structured interview transcripts and media coverage of Sandbranch. Coding combined deductive categories drawn from the theoretical framework (e.g., Bounded Citizenship, Quasi-Guardianship, Trust) with inductive categories that emerged through iterative review of the data. Cross-cutting categories at the bottom of the table were applied across multiple parent themes when warranted by the data.

Theme	Concept	Description
Boundaries and Citizenship	**Boundary Problem**	Misalignment of political and hydrological boundaries.
Boundaries and Citizenship	**Bounded Citizenship**	How political and service boundaries limit participation and access.
Boundaries and Citizenship	**Perceived Inclusion / Exclusion**	Residents' experiences of belonging or marginalization.
Boundaries and Citizenship	**Racialized Historical Context**	Influence of race in shaping citizenship boundaries.
Boundaries and Citizenship	**Structural Limitations**	Exclusion due to service-area boundaries and governance structures.
Environmental Justice & Governance Reform	**Environmental Injustice**	Burdens, pollution, and systemic inequities.
Environmental Justice & Governance Reform	**Governance Reform**	Proposed solutions and governance principles.
Environmental Justice & Governance Reform	**Barriers to Reform**	Obstacles to implementing changes.
Environmental Justice & Governance Reform	**Democratic Governance Principles**	Equity-focused principles for water governance.
Environmental Justice & Governance Reform	**Incrementalism / Minimalism**	Piecemeal reforms driven by cost rather than justice.
Environmental Justice & Governance Reform	**Proposed DWGF**	Framework proposals for drinking-water governance.

Theme	Concept	Description
Environmental Justice & Governance Reform	**Regionalization**	Regional approaches to managing water systems.
Public Health and History	**Public Health Impacts**	Health risks posed by water poverty.
Public Health and History	**Historical Trajectory / Origins**	Key events and conditions shaping current challenges.
Public Health and History	**Historical Erasure**	Lack of recognition in official records.
Public Health and History	**Troubled Markers**	Physical manifestations of historical injustice.
Community Resilience and Agency	**Community Resilience**	Community's ability to persist and adapt.
Community Resilience and Agency	**Beauty**	Positive aspects residents enjoy about their community.
Community Resilience and Agency	**Community Agency / Advocacy**	Resident-led organizing and advocacy.
Community Resilience and Agency	**Homeownership**	Opportunities to buy land or homes.
Institutional Barriers	**Institutional Path Dependency**	How past decisions reinforce current exclusions.
Institutional Barriers	**Blindness to Disparities**	Failure to acknowledge or address inequities.
Institutional Barriers	**Embedded Biases**	Discriminatory practices within systems.
Institutional Barriers	**Institutional Inflexibility / Inertia**	Resistance to change.
Institutional Barriers	**Quasi-Guardianship**	Governance dominated by elites or experts.
Media & Political Framing	**Media Framing**	How news portrays Sandbranch (e.g., as charity, injustice, or cost issue).
Media & Political Framing	**Political Landscape**	Relationships and power dynamics between institutions.
Trust	**Trust**	Essential relational component of governance.
Trust	**Challenges in Marginalized Groups**	Trust issues specific to excluded communities.

Theme	Concept	Description
Trust	**Competence Trust**	Trust based on perceived effectiveness.
Trust	**Moral Trust**	Trust based on values and intentions.
Cross-Cutting	**Racialized Inequities / Historical Legacies**	How race and racism shape systemic outcomes.
Cross-Cutting	**Water Poverty as Democratic Failure**	Water poverty as a breakdown of civic participation and political equality.

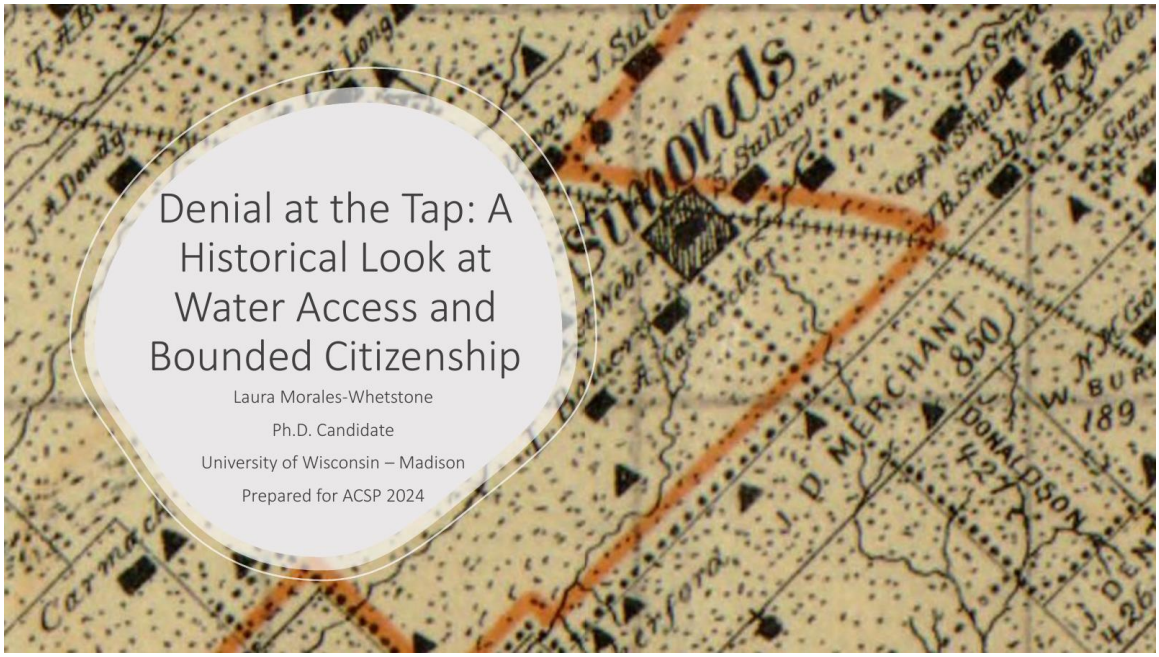
Appendix C

Presentation Slides Shown to Sandbranch Residents

"Denial at the Tap: A Historical Look at Water Access and Bounded Citizenship" — prepared for ACSP, 2024

The slides reproduced below were presented to Sandbranch residents during the community phase of fieldwork and were also delivered at the 2024 conference of the Association of Collegiate Schools of Planning (ACSP). The presentation introduces the case study, the analytical concepts of troubled markers and bounded citizenship, the process-tracing methodology, and preliminary archival findings concerning the relocation history of the community and the siting of the South Side Wastewater Treatment Plant. Slides are reproduced one per page and numbered sequentially.

Slide 1



Slide 2

Contents

- Brief Motivation
- Key Terminology
- Methodology
- Preliminary Findings

Slide 3

Brief Motivation

- Case study
  - Former freedman's community, established late 1800s, urban fringe of Dallas, Texas
  - Previously on well-water, now highly dependent on bottled water
  - No fire hydrants

Slide 4


Brief Motivation
HEALTH
Sandbranch Is Yet Another Poor, Black Community Without Clean Water
They've been without clean water for decades. How is this still the case in 2016?
Environmental justice in America
'America's dirty little secret': the Texas town that has been without running water for decades
Sandbranch is a small, poor, l
community just outside Dall
charitable donations of bottl
Oliver Milman in San
The Water Inequity Network
Feb 3 · 5 min read · Listen
The Hidden Tragedy of Sandbranch, Texas
A 150 Year Tale of Thirst and Neglect
Written by Hiba Hafeez
Sandbranch, a small unincorporated community located just 20 minutes from Dallas, Texas, has never had access to reliable potable water in its nearly 150 year history. Despite its close proximity to the fifth-wealthiest city in the United States, Sandbranch has long been denied access to basic necessities such as clean water and sewage services.
Trying To Make Sense Of Tragedy In A Community With No Running Water
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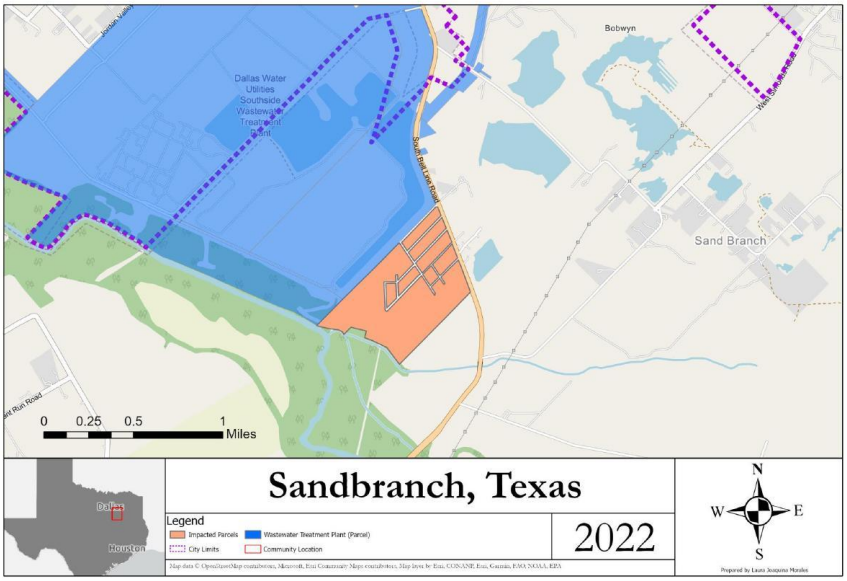
ahey, eyeing the
Curious Texas: Why doesn't Sandbranch have running water?

Slide 5


Dallas Water Utilities Southside Wastewater Treatment Plant
Bobwyn
Sand Branch
South Belt Line Road
0 0.25 0.5 1 Miles
Sandbranch, Texas
Legend
Impacted Parcels
Wastewater Treatment Plant (Parcel)
City Limits
Community Location
2022
Dallas
Houston
N
W
E
S

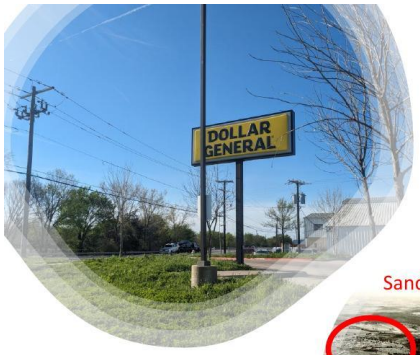
Slide 6

Key Terminology

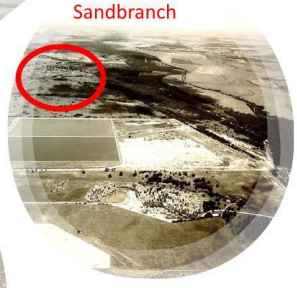
- Troubled markers
- Bounded citizenship

Sources: Image on top and bottom left, photos taken by presenter, image middle right Southside Wastewater Facility, 1968

Slide 7



Sandbranch

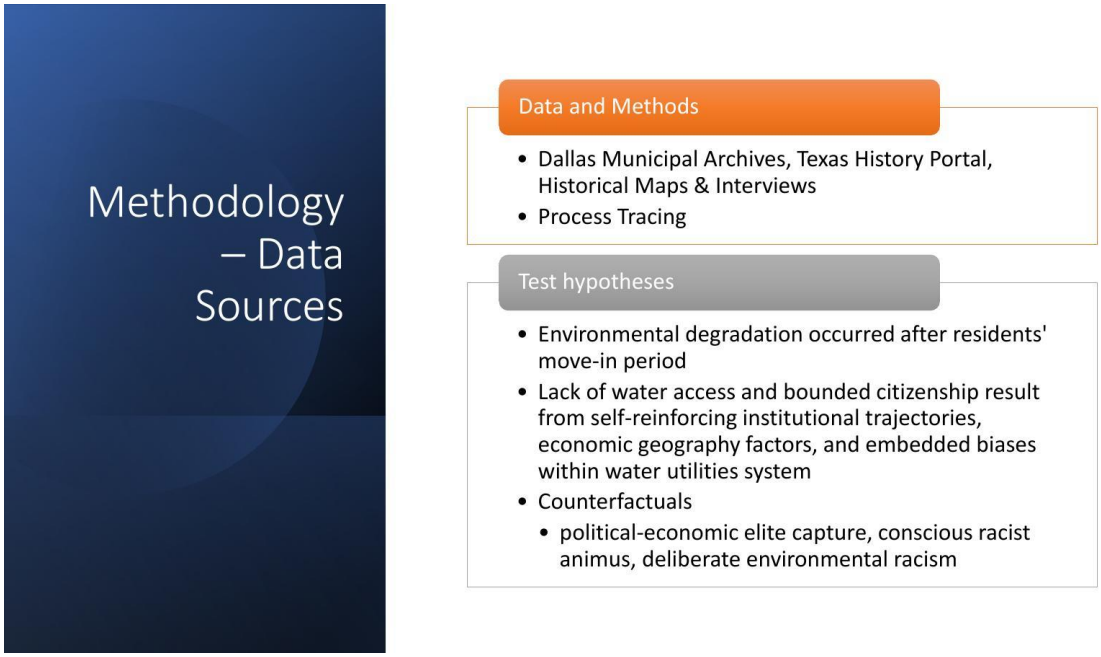


Key Terminology

- Key Terminology
  - Troubled markers
  - Bounded citizenship

Sources: Image on top and bottom left, photos taken by presenter, image middle right Southside Wastewater Facility, 1968

Slide 8


Methodology – Data Sources
Data and Methods
• Dallas Municipal Archives, Texas History Portal, Historical Maps & Interviews
• Process Tracing
Test hypotheses
• Environmental degradation occurred after residents' move-in period
• Lack of water access and bounded citizenship result from self-reinforcing institutional trajectories, economic geography factors, and embedded biases within water utilities system
• Counterfactuals
• political-economic elite capture, conscious racist animus, deliberate environmental racism

Slide 9

- Four tests of process tracing
  - Straw in the wind
  - Smoking Gun
  - Hoop
  - Doubly Decisive
- Example of process tracing, hypothesis testing
  - Environmental degradation occurred after residents' move-in period
  - Doubt has been casted on legacy status of the community
    - A resident's statement in a 1980s interview: "This is the third Sandbranch."
  - And overall argument that Sandbranch has been displaced and relocated multiple times throughout its history

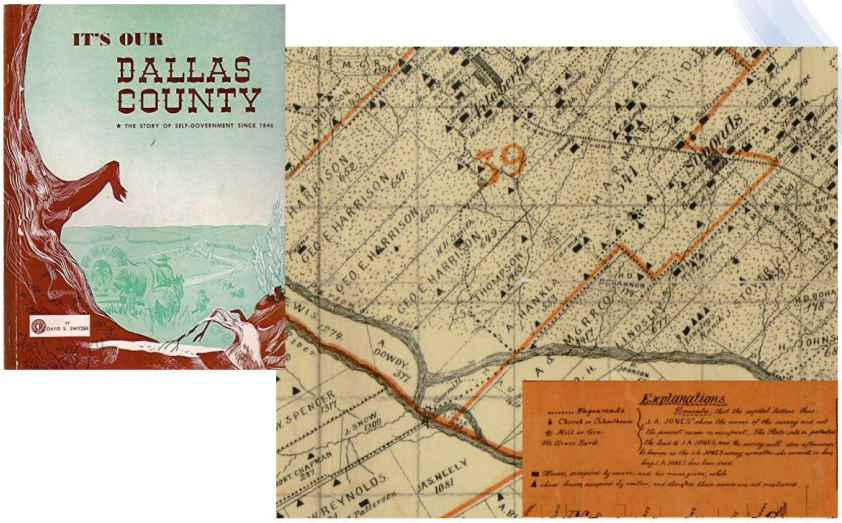
Table 10.1. Process Tracing: Four Tests for Causation[a]

		Sufficient To Establish Causation[b]	
		No	Yes
Necessary To Establish Causation	No	**Straw in the Wind** *Passing* affirms relevance of hypothesis but does not confirm it. *Failing* suggests hypothesis may not be relevant, but does not eliminate it.	**Smoking Gun** *Passing* confirms hypothesis. *Failing* does not eliminate it.
	Yes	**Hoop** *Passing* affirms relevance of hypothesis but does not confirm it. *Failing* eliminates it.	**Doubly Decisive** *Passing* confirms hypothesis and eliminates others. *Failing* eliminates it.

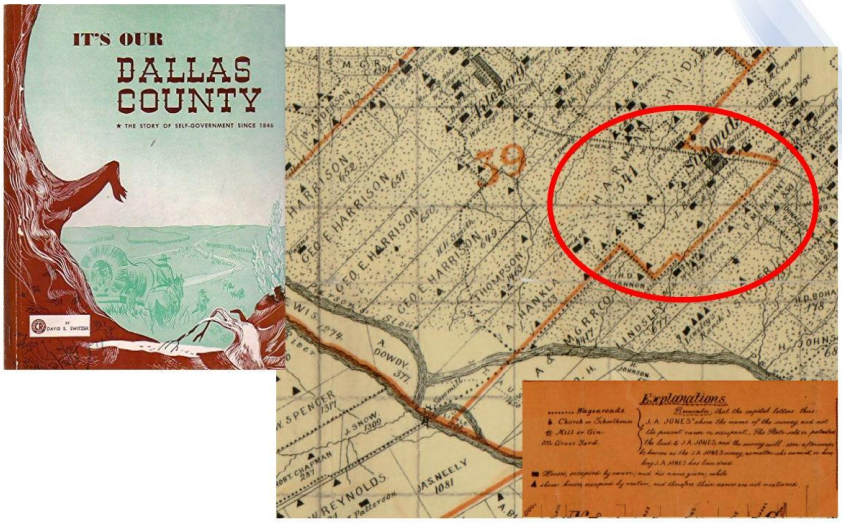
[a] The typology creates a new, two-dimensional framing of the alternative tests originally formulated by Van Evera (1997: 31–32).

[b] In this figure, "establishing causation," as well as "confirming" or "eliminating" an hypothesis, obviously does not involve a definitive test. Rather, as with any causal inference, qualitative or quantitative, it is a plausible test in the framework of (a) this particular method of inference and (b) a specific data set.

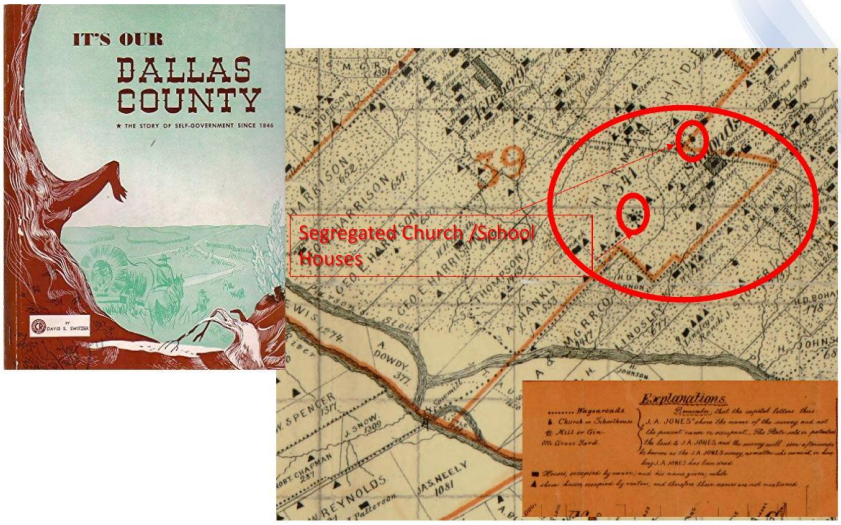
Slide 10


IT'S OUR
DALLAS
COUNTY
★ THE STORY OF SELF-GOVERNMENT SINCE 1846
39
Explanations.

Slide 11


IT'S OUR
DALLAS
COUNTY
★ THE STORY OF SELF-GOVERNMENT SINCE 1846
Explanations.

Slide 12


IT'S OUR
DALLAS
COUNTY
★ THE STORY OF SELF-GOVERNMENT SINCE 1846
Segregated Church /School Houses
Explanations.

Slide 13


IT'S OUR
DALLAS
COUN
Bobwyn
Gravel Pit
Sand Branch Ch
Gravel Pits
Bois d'Arc Island
Slough

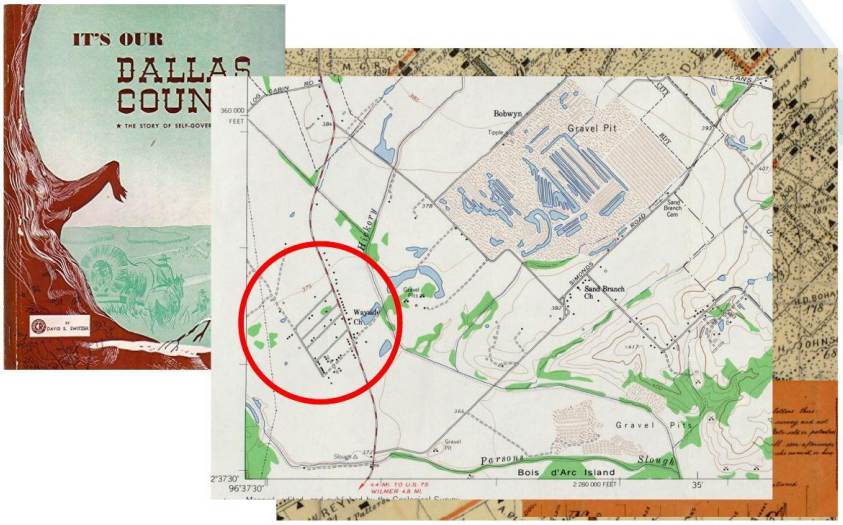
Slide 14


IT'S OUR
Bobwyn
Gravel Pit
Sand Branch Ch
Bois d'Arc Island
Gravel Pits

Slide 15

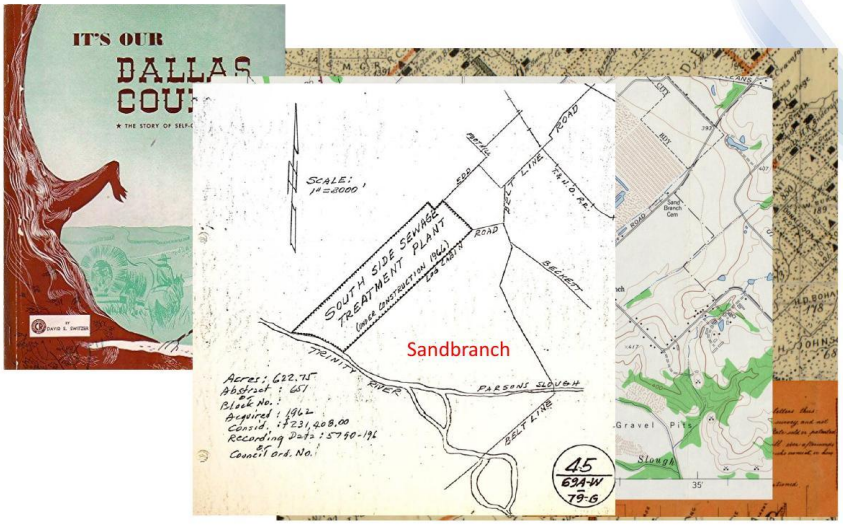

IT'S OUR
DALLAS
COUN
Bobwyn
Gravel Pit
Sand Branch Ch
Gravel Pits
Bois d'Arc Island
Slough
96°37'30"
2°37'30"

Slide 16



- Process Tracing
  - ☑ Straw in the wind (interview)
  - ☑ Hoop (topographic maps)

Slide 17



- Process Tracing
  - ☑ Straw in the wind (interview)
  - ☑ Hoop (topographic maps)
  - ☑ Smoking Gun

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