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July 2020

An Ethnography of WaSH Infrastructures and Governance in Sulphur Springs, Florida

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An Ethnography of WaSH Infrastructures and Governance in Sulphur Springs, Florida

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Applied Anthropology
with a concentration in cultural anthropology
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Date of Approval:
July 2, 2020

Keywords: water, sanitation, hygiene, infrastructural violence, structural violence, environmental justice

Dedication

I dedicate this dissertation to my wife Doreen Ikhuva, my son Ryan and my parents (Fred Wakhungu and Violent Nanyama), who have given me the love, support, and strength necessary to accomplish this significant dream. I love you all. This project is also in loving memory of the late father-in-law Mr. Hudson Lugano, who will forever remain in our hearts.

Acknowledgments

I take this chance to acknowledge and appreciate my advisor Dr. E. Christian Wells, for his endless support and guidance, without which this dissertation would not have been completed. I also wish to acknowledge the advice and unwavering support of my committee members, Dr. Rebecca K. Zarger, Dr. Antoinette T. Jackson, Dr. Qiong Zhang, and Dr. Anand Kumar, for making this study a success. A heartfelt thank you goes to my family and friends for their encouragement and initial financial support that kickstarted my doctoral journey. I gratefully acknowledge my colleague Alex Webb for his constructive contributions towards this study. Finally, I wish to thank all stakeholders who participated in this project.

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Abstract

This dissertation describes the forces that shape the perceptions and practices in Water, Sanitation, and Hygiene (WaSH) services in the community of Sulphur Springs, Tampa, Florida. It also explores how these forces, perceptions, and practices produce adverse experiences and inequalities in water, sewer, drainage, and laundry services. This ethnographic study combines participant observation, ethnographic interviewing, freelisting, oral history, and GIS to uncover the context, experiences, and perceptions about WaSH in Sulphur Springs. The study finds that the present conditions and perceptions about WaSH are embedded into the historical contexts— especially racial segregation, the construction of the interstate, and multiple economic downturns in the neighborhood. Collectively, these forces have influenced the demographic, socioeconomic, and infrastructural makeup of the community, but also shaped conversations about WaSH. These forces also intersect to create a climate of silence and a lack of collective voice, further complicating the WaSH situation for underserved and marginalized groups. The study reveals that the aging infrastructures mean WaSH amenities break down frequently, and that is made worse by hands-off governance styles by last-mile service providers. For water, the concerns are primarily about water quality, while solid waste problems and inadequate drainage infrastructures constitute drainage concerns. Unfortunately, residents with low-income and in rental housing units were the ones who bear the brunt of WaSH service insecurity in Sulphur Springs. This project gives an account of people's experiences but also seeks to contribute to ongoing efforts to confront the challenges that stand in the way of the residents' water, sanitation, and hygiene goals.

Chapter One: Introduction

Access to safe and adequate water, sanitation, and hygiene (WaSH) has been part of the global development agenda for over 40 years. In a 1977 resolution at a United Nations Conference in Mar del Plata, Argentina, countries committed to ensuring every person has access to water of safe quality and adequate quantity, as well as basic sanitary facilities by the year 1990 (Bhandari and Grant 2007). The Mar del Plata resolution was followed by Millennium Development Goals (MDGs), which aimed to reduce the global population that lives without adequate drinking water and sanitation by half before 2015 (Dar and Khan 2011). As we embark on a Post-2015 Agenda of Sustainable Development Goals (SDGs), over 2.1 billion people still lack access to safely managed drinking water, while 4.5 billion people still live without proper sanitation services (Guest 2019; Kapembo et al. 2019; Nhamo et al. 2019). Majority of those without access to water and sanitation are in developing countries (Hutton et al. 2007; Moe and Rheingans 2006; Sriyalatha 2016).

Even with concerns about water scarcity, rapid population increase, and urbanization, many developed countries like the United States have made significant improvements to access to water and sanitation (Hart 1997). Such progress has been primarily due to technological advancements and financial investments to expand WaSH infrastructures (Bhandari and Grant 2007). This expansion of WaSH services has had many positive impacts on urban communities. For example, WaSH development has reduced the spread and deaths from water-borne diseases (e.g., diarrheal diseases, typhoid, and guinea worm). Such developments have also helped mitigate

water-washed infections (related to personal hygiene such as trachoma, skin, and eye infections) and vector-borne diseases (e.g., malaria, dengue fever, and zika virus) (see Benelli and Mehlhorn 2016; Dar and Khan 2011; Howard et al. 2003; Patz et al. 2008). From a socio-economic view, WaSH expansion has alleviated the financial burden of treating water-related diseases (Hutton et al. 2007; Sriyalatha 2016) and improved food security (Iram and Butt 2004). Besides creating employment opportunities, studies show that the expansions of WaSH services go a long way in reducing time and energy spent retrieving water, and increasing educational opportunities for underserved communities (Burger and Esrey 1995; Collignon and Vézina 2000; Dar and Khan 2011; Hutton et al. 2007; Sriyalatha 2016).

As much as the modest expansion of WaSH infrastructures and services has brought significant health and socio-economic gains. In high-income countries like the US, there are notable challenges to the attainment of universal access to quality water and sanitation. The period after World War II saw significant financial investment and rapid expansion of water and sanitation infrastructures to cater to the industries and growing population. However, limited resources were set aside for upgrades and maintenance. Today, many cities in the US, including Tampa, are struggling with aging WaSH infrastructures. (Folkman 2018; Patz et al. 2008). As result, the aging infrastructures are even more vulnerable during extreme weather events such as floods (Curriero et al. 2001; Patz et al. 2008).

As a result of the deferred maintenance due to lack of funds, reports on water main breaks and sewage spills have become a common occurrence. Between 2017 and 2018 alone, the City of Tampa reported 1200 water main breaks and 1,000 sewer spills (WFTS Digital Staff 2019, August 26). Unfortunately, many of these infrastructural failures occur in marginalized communities, further exacerbating existing racial and socioeconomic disparities (Jepson and Brown 2014;

Jepson et al. 2017; Jepson and Vandewalle 2016). For instance, there are concerns about the affordability of water and sanitation for low-income groups (Folkman 2018), and the quality of drinking water supplies due to pollution by lead, pharmaceuticals and industrial by-products (Campbell et al. 2016; Folkman 2018; Krasner et al. 1989; Sathyanarayana et al. 2006).

These challenges exacerbate existing racial, gender, and socio-economic disparities with regards to the access to water and sanitation (Balazs et al. 2011; Patel et al. 2017). For example, the breakdown of WaSH infrastructures and services during Hurricanes Katrina, Harvey, Maria and Irma (Bortz 2018; Hlady et al. 1994; Lopez-Candales et al. 2018; Voorhees et al. 2007), and the lead disaster in Flint, Michigan (Campbell et al. 2016; Grimmer 2017), not only reminded us of the precarity of urban life but also highlighted the adverse impacts of the failure of water and sanitation infrastructures. Unfortunately, the effects of infrastructural failures often disproportionately affect sensitive populations such as the urban poor, minority ethnic groups, and women who bear the ultimate water and sanitation responsibility in many households (Balazs et al. 2011; Coleman 2014; Larkin 2013; Star 1999; Strang 2016).

These disproportionate distribution of WaSH benefits and risks are also inextricably tied to the failure to conduct service evaluations (Moe and Rheingans 2006). Research has shown that evaluations help determine the success of water and sanitation interventions but also highlight service inequities (Star and Ruhleder 1996). However, evaluating people's experiences and relationships with WaSH is in itself a relatively complicated endeavor: it is dependent on what constitutes equitable WaSH services (Moe and Rheingans 2006), what makes successful and sustainable interventions, and also the cultural meanings of peoples' needs and experiences. These complexities make service evaluations a productive ground for anthropological inquiry.

Towards an Anthropology of User Experience

Within and outside the field of anthropology, inquiries into the workings of infrastructural services have taken two notable directions. Most are investigations into how politics and bureaucratic processes produce disparities in everyday life (e.g., Coleman 2014; Larkin 2013; Rodgers and O'neill 2012), and recently, how technological arrangements and processes create an unequal distribution of risks and benefits (e.g., Alda-Vidal et al. 2018; Anand 2015). However, research has shown that the social-economic and political context within which infrastructure services are provided significantly influence people's experiences and the success of infrastructural interventions (Bezaitis and Robinson 2017; Sunderland and Denny 2016). Ethnographic investigations are, therefore, valuable in mapping the contexts under which people interact with infrastructure services and the conditions that shape their perceptions, experiences, and governance decisions (e.g., Bhandari and Grant 2007; Miller 2017 :10; Wasson 2000).

Much of this work is related to the recent interdisciplinary trend in user experience (UX) research, whose primary agenda is to evaluate the human perceptions emanating from people's interaction with engineered products or services (Hassenzahl 2008; Miller 2017). In this type of research, the primary unit of analysis is the "user," particularly, their persona, their goals, priorities, their journeys, and how they relate to their experiences with technologies or products (Bezaitis and Robinson 2017; Gunn et al. 2013; Sunderland and Denny 2016; Wasson 2000). Although much of such works are popular outside academia, a few scholars in anthropology have embraced user experience approaches to gain a nuanced understanding of conditions under which disparities in infrastructural services occur.

Mari Clarke's *Engendering Transport: Mapping Women and Men on the Move* (2016) is perhaps one of the most well-known examples of the intersection between user experience and

advocacy for equitable infrastructural services. Clarke examined how the rapid expansion of the transportation infrastructure had exacerbated gender class inequities in developing countries. Reflecting on the positive and negative impacts of the accelerated infrastructure development, Clarke makes a case for anthropological research on user experiences to map gender and class dimensions of infrastructure services. Although such ethnographic inquiries are scarce, they highlight the experiences of minority groups and, more importantly, assumptions and biases in service design that entrench inequalities and exclusion of particular user groups (see Bhandari and Grant 2007; Moe and Rheingans 2006; Suchman 2007; Vajjhala and Walker 2009).

Purpose and Goals

This dissertation investigates the historical and present context in which water, sanitation, and hygiene (WaSH) infrastructures mediate the relationship between people's experiences and WaSH governance in Sulphur Springs, Tampa. In discussing people's experiences, I refer to the attitudes or embodied feelings of satisfaction or dissatisfaction emanating from the interaction with WaSH infrastructures or services, and the extent to which people's needs and expectations are met (see generic definition in Zeithaml et al. 1993). Although anthropological studies examining people's experiences concerning WaSH services and governance are rare, a few environmental studies have analyzed the concept of user satisfaction with water and sanitation services (eg., Bhandari and Grant 2007; Han et al. 2015).

In taking the lead from these studies, needs are here defined as what a consumer or user requires to solve a water or sanitation problem as defined by the user. Dimensions of WaSH needs and experiences include water quality such as smell, taste, softness or hardness (Lou et al. 2007), water sufficiency, water safety, water pressure, reliability, affordability, accessibility, and customer service (Anand 2011; Anand 2012; Bhandari and Grant 2007; Haider et al. 2013; Han et

al. 2015). On the other hand, hygiene and sanitation are often evaluated based on accessibility, functionality, and the safety of wastewater systems (Morales 2016; Morales et al. 2014). However, these studies may have downplayed the distinction between needs and expectations and how they influence user experiences: the latter being what one would expect or desire from WaSH services depending on their cultural background, lifestyle, character, marketing, or interaction with similar products (Zeithaml et al. 1993).

Consequently, a nuanced understanding of user disparities in WaSH requires the recognition that people's experiences are culturally constituted by people's personalities, needs, expectations, as well as their past and present interactions with infrastructural services. With this aim, the general question for this project is: *how and under what conditions do people interact with water, sanitation, and hygiene (WaSH) services and governance in the Sulphur Springs, Tampa?* Answering this question required attention to the historical and contemporary processes shaping the provision and consumption of WaSH services in the community, but also the personas of the users (including their needs or concerns, and day to day journeys with elements of water and sanitation). Consequently, three specific questions emerged:

1. How do people's experiences with water, sanitation, and hygiene (WaSH) services and governance inform their perceptions of WaSH in Sulphur Springs? In other words, within social economic and cultural contexts that define WaSH needs and expectations in Sulphur Springs, how do the residents perceive the historical and current water and sanitation situation, and why? These questions demanded an ethnographic investigation into not only what constituted salient WaSH concerns but also circumstances that produced satisfactory or unsatisfactory experiences among user groups (Hassenzahl 2008).

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2. How are these perceptions of water, sanitation, and hygiene (WaSH) services and governance shared, negotiated, and contested among users and among service providers? Building upon the previous question, this question assessed the degree of consensus among user groups with regards to WaSH concerns and experiences. Given the segmentation of the Sulphur Springs community based on race, ethnicity, socio-economic status, gender, occupation, housing status, nationality or citizenship (as evidenced in Arney 2012; Chavez 2013; Jackson 2010; Sabogal 2013), this question sought to provide insight into the extent to which user personas and varying user perceptions contribute to disparities in WaSH. The second part of this question juxtaposed user perceptions with service provider opinions. As demonstrated by Clarke (2016) and Anand (2012), disparities in the distribution and experience of infrastructure services are embedded in the attitudes and practices of those who manage them.

3. How and under what conditions do peoples' social and behavioral perceptions influence the governance of WaSH services and the experiences of underserved groups in Sulphur Springs? Many researchers and organizations (public and private) spend time and money to assess the concerns and experiences of customers (e.g., Atkinson 1993; Brown and Swartz 1989; Tsai et al. 2011; Williams and Calnan 1991). Whether these evaluations contribute to better management practices and experiences of their customers was a question worth investigation. Answering this question entailed a critical review of ways in which service providers engaged WaSH users on their needs, expectations, and experiences as well as the efficacy of such engagements in shaping water and sanitation decisions. More importantly, it also required an assessment of the extent to which voices of the underserved user groups within Sulphur Springs translate to improved experiences with WaSH services.

Motivations

In answering these research questions, I hoped to share insights into the lived experiences of Sulphur Springs residents with WaSH services. My motivation was to highlight people's concerns but also dismantle the assumptions and the power structures that stand in the way of just service provision, particularly for underserved groups. In writing about WaSH services from a multivocality perspective (that includes both the residents and service providers), I hoped to demonstrate the value of understanding the operational context within which services are provided and experienced. I strived to write in accessible language to make these insights palatable and useful to readers in the community, but also contribute to intellectual thought in the field of anthropology.

From an intellectual standpoint, I sought to understand how behavioral perceptions and practices around WaSH in Sulphur Springs would further contemporary anthropological theory. Whereas the wide-ranging attention in social science literature on the socio-political and socio-technical construction of experiences and perceptions with infrastructures cannot be overlooked, the concept was infrastructural violence was particularly relevant to my topic of study. In their introduction of this completely new concept, which I discuss in the next chapter, Rodgers and O'neill (2012) challenged us to examine when, for whom, under what conditions, and why infrastructures become violent.

In assessing the extent to which social and behavioral perceptions influence WaSH governance and, in turn, user experiences, this study is among the first to address these theoretical challenges empirically. This contribution was meant to create a conceptual link between culture and the topic of inequities, which is particularly relevant to social science literature. From a methodological standpoint, the juxtaposition of ethnographic accounts contributes to the

development of comparative methodologies that enable a side by side comparison of their user and service provider perceptions (recommended by design anthropologists like Nader 1972; Seaver 2018; Suchman 2007). Such a comparison provides a unique insight into how these perceptions are discursively managed and negotiated to inform everyday decisions and experiences of users.

Besides addressing the gaps in knowledge, this project also sought to address critical issues outside academia. At a fundamental level, this study was a response to an apparent need by institutions in the City of Tampa to understand customer concerns: as input for day to day decision making and emergency planning. The thinking was that ethnographic accounts would offer a broader perspective of WaSH in Sulphur Springs and inform critiques to help improve the design and governance of infrastructural services.

The hope was that disseminating such knowledge would highlight areas that require community intervention. In the long run, their voices would contribute to the mitigation of conditions under which infrastructures cause harm to underserved groups. More importantly, in examining the needs, expectations, and experiences of vulnerable groups; and enhancing the participation of local communities in improving WaSH governance, this study contributes to the attainment of the United Nations Development Program (UNDP) goal of sustainable and equitable management of water and sanitation for all by the year 2030.

Organization of the Dissertation

This dissertation situates people's experiences and perceptions of WaSH within the historical and present context in Sulphur Springs. Chapter One provides an introduction into the main research questions and motivations given the global and national WaSH realities as wells as anthropological discourse. Chapter Two goes further to trace the history of discussions about

WaSH in social science literature and related concepts around my primary theoretical framework, which is infrastructural violence. Chapter Three then helps contextualize the history of WaSH in Sulphur Springs based on previous studies and archival information. Chapter Four outlines data collection methods (including ethnographic and oral history interviews, freelisting, online survey), sampling strategies, and relevant data analysis procedures used in this study. In Chapter Five, I talk about the different social, economic, and political forces that have shaped how WaSH is experienced and perceived in Sulphur Springs. In the next Chapters, Six, Seven, Eight, and Nine, I further explore the experiences and perceptions of Sulphur Springs residents of water, sewer, drainage, and laundry, respectively. I end the dissertation in Chapter Ten with discussions that answer the research questions, and how the findings inform the discourse around infrastructural violence. Being an applied study, I conclude by offering recommendations in confronting the complex and multifaceted challenges in WaSH for marginalized and underserved populations.

Chapter Two: Anthropology of Infrastructures and Infrastructure Violence

Beyond the pursuit of answers to the research questions discussed in the preceding section, this study also sought to contribute to social science theory by linking theoretical arguments using field inquiry, but also identifying gaps in the existing literature. In using the term 'infrastructure,' my view is not limited to the physical components. Instead, I see WaSH infrastructures as an amalgamation of the material and non-physical, visible, and non-visible technologies used to extract, circulate, treat, use, dispose, or even reuse water resources. They also include the day to day processes, techniques, and programs that produce WaSH services.

In this chapter, I critically review social theories informing the concept of infrastructural violence and evaluate its utility in studying the WaSH infrastructures, especially the perceptions and inequalities that emerge from the tripartite interaction between people, governance, and WaSH infrastructures. Before I delve into the different kinds of social theories related to infrastructural violence, it would be useful to provide a historical context to the discussions about infrastructural services within the discipline of anthropology.

Anthropology of Infrastructures

Inspired by the ground-breaking work by Charles Darwin on human evolution, debates by 19th-century anthropologists like Hebert Spenser, John Lubbock, Lewis Henry Morgan, Edward Taylor, and James Frazer focused on the cultural evolution of man: the social systems, economy, race, culture, and languages. It was in the 19th century when anthropology theory made inferences to what we could consider as 'infrastructures.' In the work of Karl Max and Friedrich Engels, the

organization of means of production—which include infrastructures like highways, railways, electricity—were influential in the class struggles that resulted in new forms of economic organization (Murphy 2016:40). However, the role of infrastructures was made more explicit in the 1960s by Marvin Harris in his reflection on cultural materialism. He argued that technological infrastructures influenced cultural evolution because they mediated the relationship between biological (ecological elements and people), social organizations (structures), and ideologies (superstructures) (Patterson 2001:129). This inclusion of infrastructures in explaining the change in the society came at a time in the latter part of the 20th century when many anthropologists were exploring new ideas and fields. Besides building on Marxist legacies, Harris set the stage for intellectual conversations on the role of infrastructures in shaping everyday experiences in the 21st century. But why has the subject of infrastructure been of interest to anthropological scholarship?

First, infrastructures have become the subject of anthropological inquiry because they are the nervous system of modern life (Di Nunzio 2018). It is in the Anthropocene, a geological epoch characterized by the domination of humans over the environment resulting in planetary change that the role of infrastructures in mediating the relations between nature and society has become visible (Moore 2016). One such function has been in natural resource extraction. Reflecting on the shift from studying the interaction of the society with abundant renewable resources to scarcity, and how natural resources become resources, Richardson and Weszkalnys (2014) place infrastructures at the center of the interaction between human culture and nature. In their own words,

> "natural resources are not "out there" ready to be seized upon and utilized but always in flux and open-ended. They "become" as resource materialities, that is, as constitutive of and constituted within arrangements of substances, technologies, discourses, and the practices deployed by different kinds of actors" (2014:16)

From this perspective, the recognition of the role of infrastructural arrangements is in resource making, and associated evils like overexploitation, pollution, climate change, and ecological disasters necessitated a multidisciplinary inquiry beyond the anthropologies of natural resources. *In A Billion Black Anthropocenes or None*, Kathryn Yusoff (2018) situates infrastructure within the history of slavery and the construction of race. Relevant to this study is that infrastructure in the Anthropocene facilitated spatial dispossession, colonization, and saw the emergence of slave labor. Even today, the historically enslaved, displaced, and disposed communities are still the ones that suffer the impacts of the human domination of the earth, such as pollution and climate change.

Secondly, infrastructures carry the promise of technological solutions for resource extraction as illustrated, but they are also crucial in the mitigation of environmental disasters (e.g., stormwater infrastructures like dams, ponds, and drains are critical in mitigating flooding). Perhaps the most influential factor that brought infrastructures from the fringes of anthropology is their failures. Even though infrastructures such as pipes, valves, and plugs are said to be functional, others consider them to be invisible and mundane material arrangements that are too boring to study (Star 1999; Star 2002). However, social science literature has seen surging interest in infrastructure and their role in shaping everyday life (Di Nunzio 2018; Larkin 2013; Star 1999).

The academic interest in infrastructure services runs parallel to the increased infrastructural failures (Di Nunzio 2018). It has become more apparent to scholars that whereas infrastructures perform mundane functions, their failures and shortcomings often reveal the precarity of everyday life (Graham 2010:88; Schwenkel 2015; Star 1999). This visibility of failures and their impacts on urban living has made anthropologists think about theories that explain the different kinds of

perceptions and practices around infrastructural services. One such theory is infrastructural violence.

Since its introduction at a panel debate at the annual American Anthropological Association (AAA) meeting in 2009, the idea of infrastructural violence has gained popularity in social science literature. Whereas the scholarly interest resulted in the publication of a special issue, *Ethnography* in 2012 (Rodgers and O'neill 2012), the term infrastructural violence, perhaps due to its recency, is still not well defined. Thus, in discussing infrastructural violence, I refer to the direct or indirect link between infrastructure service design, management, and adverse user experiences (also see Appel 2012; Desai 2018). I prefer this definition as it considers how social and technical arrangements behind WaSH and how they intersect to produce suffering and inequalities. Having introduced the historical context and the forces that have influenced the anthropology of infrastructures, I now turn to the different theoretical insights that have reinforced the concept of infrastructural violence. The main ones are governmentality, structural violence, and environmental justice.

Governmentality

The currents that have placed infrastructures at the center of human-nature relations and their shortcomings did not just reveal the underlying socio-economic, technical, and political practices that keep them working. They also brought to light the undesirable experiences in urban life when infrastructures are not well managed. Of these three, sociopolitical practices, play the most significant role in creating and maintaining infrastructures as well as inequalities in urban society. As Harvey and Knox (2015:4) argue, politics brings infrastructure to being; it sustains it, undermines it, and, in turn, it creates political power. So far, the thinking about material politics

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and their implications has proven to be a fruitful theoretical space for understanding the position of infrastructures and their effects on society.

And, how does a sociopolitical perspective further the understanding of infrastructural violence? The answer to this question lies in Michel Foucault's idea of governmentality. This intellectually liberating idea, originating from his book *Madness and Civilization* (1965), and later solidified in *Security, Territory, and Population* (1975), looks at how the state exercises control over its citizens through laws, policies, interventions, and technologies. Some examples of governmentality include the medicalization of mental illness using asylum and prisons (Murphy 2016:653), the delegitimization of migrants through immigration policies (Fassin 2011), and the medicalization of homeless people using disease models (Lyon-Callo 2000). In other words, the rationale behind the processes and strategies that lead to the creation, operation, and maintenance of socio-economic, legal, and technological arrangements (among them infrastructures) is to regulate how society acts and behaves.

Presently, neoliberalism is one such rationale behind governance decisions. Neoliberalism is a governance logic based on capitalist thinking with which policymakers and leaders use to justify interventions (Barrios 2017). It is characterized by the consideration of the costs and benefits, deregulation, minimal state intervention in private affairs, free-market, and the partnership of the state with the private sector in service provision (Ortner 2016; Rutherford 2016; Strang 2016). Moreover, the neoliberal thinking has reconfigured the role of the state in critical service provision, and this has often led to even bigger problems. For instance, Adams et al. (2009) highlight how the capitalist interests were at the center of the disaster response during Hurricane Katrina in 2005 in New Orleans. The involvement of corporations saw the emergence of disaster capitalism as private sector actors increased insurance rates, capped reimbursement, and sold toxic

trailers. Based on ethnographic research, Barrios (2017) demonstrates how Neoliberalism as a governmentality logic influenced disaster reconstruction in southern Honduras, New Orleans, southern Illinois, and San Juan de Grijalva, Mexico, following Hurricane Mitch, Katrina, the Mississippi River flood, and Grijalva River landslide respectively. The recovery programs and plans were opportunities for experts, political leaders to transform the communities to fit into the cost-benefit thinking and the modernization project.

Besides disaster recovery, neoliberal thinking has also permeated modern-day infrastructure governance. According to Strang (2016), the lack of funds and break down of infrastructures has seen the emergence of public-private partnerships in the provision of water and sanitation services in high-income economies such as the UK, the US, and Australia. However, as the state shifts the responsibility of WaSH provision to the private sector, it becomes more challenging to hold service providers accountable. In the neoliberal environment in the US, private sector actors serve the interests of shareholders, often leading to infrastructure disinvestment, austerity measures, and disenfranchisement of minority communities (also see Cramer and Katsarova 2015; Silver 2019). Therefore, an important question in our reading of the idea of infrastructure violence is how neoliberalism as a force and logic of governmentality produces infrastructure violence.

Additionally, the idea that infrastructure services are tools of governmentality is even more apparent in what Mann (2008) refers to as infrastructural power. Mann re-emphasizes the view that infrastructure services are institutional channels for social regulation (see also Rodgers and O'neill 2012). Thus, the sociopolitical perspective becomes an essential building block for the idea of infrastructural violence. It reminds us of the duality of infrastructures, where infrastructures, apart from serving society, are tools of subjectification and abjectification.

In literature, the sociopolitical processes and consequences of domination over people by political strategies are often conceptualized as subjectification and abjectification. On the one hand, subjectification (also referred to as objectification) is the idea that domination makes people objects or subjects of control by stripping away their agency. For example, Fassin (2011) demonstrates how states create subjects of incarceration, deportation, and cheap labor through immigration policies like permits, passports, and entry visas.

On the other hand, abjectification because of domination is a process that produces persons that are different or opposite of what is acceptable in the society in ways that legitimize their conditions: meaning it causes a feeling of rejection. Biehl (2001), in his ethnographic work on the experiences and treatment of people with mental illness and AIDs, offers a great example of abjectification. He describes how labeling a woman 'mad' legitimized the lack of medical care, abandoned and condemnation to deathly conditions at Vita, Brazil. Here a label acts as a tool for abjectification. Therefore, understanding how governmentality creates subjects and feelings of abjectification is particularly helpful if we are to consider ways with which infrastructures become violent by stripping away agency and creating a sense of rejection among the urban poor.

Considering the politics of infrastructures or material politics, and their use to govern society, the argument is that infrastructures become violent when political interests trump the needs of the citizens. That is to say; infrastructures become violent when used as tools of political patronage at the expense of service provision. In sociopolitical circles, WaSH, roads, railways, electricity represent what Larkin (2013) and Coleman (2014) call development, progress, or civilization in human societies. As documented in many parts of the world, mostly in developing countries, politicians promise infrastructures as development to get elected, but what they do not reveal is that they will use the same infrastructures for capital gains and to subject the electorate

to some unwarranted loyalty. In such cases, infrastructures become a powerful tool to control how citizens elect and reward patronage. For example, the construction of highways that 'go nowhere' help consolidate political support, and are used to reward political networks (Larkin 2013; Mbembé 2001)**.** Therefore, this focus on the political benefits of infrastructures creates conditions where infrastructures fail to meet people's needs.

At its best, understanding governmentality is useful when considering the extent to which infrastructures, when used as tools for power and governance, create inequalities and injustices in urban life, particularly among the vulnerable households. More importantly, the argument also reminds us that as we study infrastructural violence, there is a need to research decision-makers, their perceptions about infrastructures, and how they affect service provision.

Structural Violence

Besides the duality of infrastructures as apparatus of governmentality, access to power, and service provision, the notion of structural violence is perhaps the most influential social theory in contemporary anthropology, more so for scholars interested in the intersection between human experiences and the role of institutionalized processes. Notably, structural violence is crucial in the understanding of infrastructural violence because it highlights the processes and undesirable outcomes of sociopolitical forces such as subjectification and abjectification.

The notion of structural violence came to be in 1969 in the work of Johan Galtung, a Norwegian sociologist, and mathematician. In his text, *Violence Peace and Peace Research*, he made distinctions between personal and structural violence and different ways in which these two forms of violence manifest themselves. To make our understanding of personal and structural violence less abstract, Galtung (1969) gives two distinctions: (1) Personal violence happens that

at the individual level, it is measurable or observable; however, structural violence silently acts on large social groups. (2) Personal violence occurs due to an individual agency, but structural violence is embedded within social structures or institutions. It is from these two distinctions, also built upon by Paul Farmer, that we have come to understand the meaning of structural violence as violence exerted through societal institutions indirectly to people belonging to certain social classes or groups (also in Farmer et al. 2004).

Above all, the main contribution to our understanding of the notion of infrastructural violence lies in Galtung's discussion of how personal and structural violence is actualized. On the one hand, personal violence can be a physical attack that results in bodily harm. Poisoning water is an excellent example because it causes physical harm and sometimes death. On the other hand, personal violence can be physiological where harm is less direct—for example, denying someone water, causing dehydration. Although these two typologies are difficult to separate, they highlight the aggressive and passive forms of violence.

At the far end of the violence continuum, structural violence, which is non-personal, is associated with the power, which creates inequities (Farmer et al. 2004; Galtung 1969). According to Galtung, structural violence is often recorded as physical or physiological violence because it is latent, but it is apparent when we consider its causal factors. In other words, violence caused by bodily harm or denial of physiological needs only becomes structural when institutionalized practices cause it. Many scholars have shown how deliberate acts or failures of institutions have resulted in physical and physiological harm.

For example, Adams et al. (2009) blame US institutions like Federal Emergency Management Agency (FEMA) for the bureaucratic processes and failures that resulted into

physical, physiological and psychological trauma during Hurricane Katrina in 2005 (e.g., loss of life, injury, displacement, suicides, and mental illness respectively). Here, Adams and colleagues remind us that the identification of infrastructural violence, like structural violence, requires an evaluation of the causal factors because they both result in physical, physiological, and psychological forms. From this perspective, one would argue that the lead poisoning of water in Flint, Michigan, was physical violence because it resulted in deaths. However, by considering the acts of commission and omission by institutions that led to the suffering of city residents, the violence becomes structural: and infrastructural because water infrastructures caused it.

Besides the physical and physiological means of violence, other typologies of structural violence have emerged. For example, Green's (2011) account of the experiences of immigrants in Guatemala expand our understanding of structural violence by introducing economic dimensions to the physical, physiological, and psychological typologies. In her ethnographic account, the US immigration policies allow the incarceration of immigrants and physical abuse by US border patrol. Moreover, the policies are responsible for their economic exploitation because immigrants are forced to work for low wages. Other examples of economic violence given by Adams et al. (2009) include the destruction of property and livelihoods, and disaster capitalism—where private corporations made profits in the guise of humanitarian aid in the aftermath of Hurricane Katrina. These two case studies demonstrate that structural violence acts on many spheres of human life. Therefore, in thinking about infrastructural violence, we need to adopt a holistic view that goes beyond the physical, physiological, and psychological forms of violence.

Moreover, our understanding of the causes of structural violence can inform our discussion on the condition under which infrastructural violence occurs and to whom. In his pioneering work, Galtung (1969) argues that structural violence occurs when sociopolitical ideologies in society

converge to create institutionalized processes, policies, interventions that cause inequities. These ideologies are often linked with gender, ethnicity, nationality, and so on. Indeed, notable figures in anthropology have written provocative ethnographies and theoretical texts in support of this view.

For instance, the idea of citizenship and nationalism are at the heart of the suffering of immigrants. In two distinct ethnographies, Fassin (2011), and Green (2011) show how the need to define people's citizenship and protect the independence of the US has created subjects for institutionalized violence and legitimized oppressive interventions. The issuance of permits, passports, entry visas, and labeling migrants as criminals legitimizes their incarceration, deportation, and the use of the military in border zones (Castañeda 2019). While these studies tell us that the poor with contested citizenship are likely to suffer from structural violence, they encourage us to examine how identity politics influence infrastructural arrangements and disparities in service provision.

Given the history of racial segregation, race is an important axis of structural violence. For instance, black feminist scholars such as Simone Brown demonstrate that since the times of black slavery, surveillance and policing technologies and practices have continued to reinforce and normalize the targeting of African Americans. But, perhaps more relevant to my discussion on WaSH, Ranganathan (2016), illustrates how race (as an axis of structural violence) played a crucial role in the Flint lead poisoning. In their reading of structural racism, Ranganathan traces the flint tragedy to the neoliberalization of housing. Put differently; the Flint disaster had its roots in the racial discrimination of African Americans when it came to housing. After the 1930 great depression, for instance, the Federal Housing Administration guaranteed contractors that excluded black areas. The discursive devaluation of black areas through labels such as slums, and high risk

by redlining practices further excluded black and mixed-race areas from mortgage subsidies. That justified the disinvestment in critical infrastructures and austerity measures (such as the change of the city's water source and the lack of anti-corrosion treatment). Thus, understanding infrastructural violence in the US requires us to interrogate the role of structural racism in shaping the present WaSH conditions.

These examples are by no means exhaustive of the body of work on structural violence, as to its means and causes. However, they all point to the idea that institutionalized violence can be physical, physiological, and socio-economic. They also show that structural violence occurs when sociopolitical ideologies inform decisions that cause the suffering of vulnerable groups. The utility of the structural violence framework is that it can be used to study the intersection between ideologies, power, and undesirable effects of governance.

The notion of structural violence profoundly expanded the thinking of violence beyond the physical forms—as we know it. In doing so, it opened discussions about the subtle and often invisible injustices and disparities in the interaction of people with infrastructural arrangements like WaSH. These discussions remind us to pay attention to the causal factors, the physical, physiological, social, economic, cultural, emotional, and symbolic forms of violence. In answering the question, who suffers when it comes to infrastructural violence? The discussion on structural violence tells us that people are affected differently depending on their demographic and socio-economic dispositions.

However, the concept of structural violence has its limitations. For instance, the sociopolitical perspectives, a cornerstone of this concept, mainly supports resistance anthropology or activist approaches. While this helps to highlight the causes of structural violence and the

everyday experiences of minorities, this framework has made many uncomfortable because they see it as a tool that is more interested in blaming individual actors. However, allocating blame to social institutions is not enough if we are to address the inequities in society. Concerned over the hypercritical approach, proponents of objectivity in anthropology call for less prescriptive and judgmental positions when evaluating people's experiences. Thus, one would expect studies of structural and infrastructural violence to not only documents the experiences of victims but also pay attention to institutional actors and their operational realities. In the case studies, the voice of the latter was lacking. Besides governmentality and structural violence, the concept of environmental justice is perhaps more relevant in the discourse of inequities associated with material aspects of society.

Environmental Justice

The term environmental justice, as used in academic literature, relates to the social movements that respond to the inequalities and disproportionate impacts of environmental problems of minority groups in the society (Brulle and Pellow 2006; Mohai et al. 2009; Sze and London 2008). It was inspired by the concept of environmental racism, which spoke about the unequal distribution of the environmental risks and benefits and effects across race (Lee and Chavez Jr 1987). This idea came at the high of the civil rights movements in the US in the 1980s (Ministries et al. 2007; Sze and London 2008). The discourse on environmental racism came into light when activists and local communities opposed the disposal of soil that had been contaminated with polychlorinated biphenyls (PCBs) in a low-income African American area in the State of North Carolina (Mohai et al. 2009; Sze and London 2008). Consequently, early work on environmental racism mainly focused on the disproportionate effects of pollution on the health and socio-economic wellbeing of minority races.

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Soon after, there was increased interest in other social categories such as indigenous people, gender, class, citizenship, housing, saw the framework expanded to a broader paradigm that is environmental justice (Sze and London 2008). The extended framework paid attention to the social, political, and economic context within which environmental injustices occur, and stakeholders involved (Pellow 2000). More significantly, the conversations about environmental injustice pushed the paradigm from theory debates and critique to active participation in policy change to address issues (Johnson and Niemeyer 2008; Sze and London 2008). Based on these principles, the concept of environmental justice continued to expand to include the equal protection of all people and communities using environmental and public health laws and regulations (Bullard 1993). That became the basis up which federal, state, and local agencies engaged environmental issues (Mohai et al. 2009). Following President Clinton's Executive Order of No. 12898 of 1994), for instance, the US Environmental Protection Agency (EPA) which was founded in the 1970s to protect human health and the environment expanded its mandate to include the effect of environmental activities to minority and low-income populations (Brulle and Pellow 2006; Sze and London 2008)

Today the US EPA is at the forefront of uncovering and remedying environmental injustices through research, community engagement, legislation, policy-making, and enforcement (US Environmental Protection Agency 2016). Within the US, the primary environmental justice issues that have attracted public and academic interest include hazardous waste in urban and native lands (Johnson and Niemeyer 2008; Sze and London 2008). That has also seen an increase in research and redevelopment of Superfund and brownfield sites in low income and vulnerable communities (Perkins 2007; US Environmental Protection Agency 2016). The redevelopment of the brownfield sites in the University Area Community in Tampa, not so far away from the study

site, is an excellent example of collective environmental justice efforts between local communities, academia, and government agencies (Lehigh 2018). In this project, stakeholders came together, acquired contaminated properties, redeveloped them into a park that included a community garden, kids playground, walking trail, and outdoor recreation spaces. Besides toxic/chemical pollution, the environmental justice paradigm has been useful in addressing concerns such as air and water pollution, and the poor working conditions of immigrant workers (Brulle and Pellow 2006; Bullard 1993; Ministries et al. 2007; Sze and London 2008).

Although environmental justice campaigns and scholarship began in the USA, they have since spread to many other parts of the world. Examples include the US-Mexico border industrialization that had left residents of *Derechos Humanos* living in an abandoned landfill and toxic wastelands (Johnson and Niemeyer 2008); the tension between global companies and the *Ogoni* people in Nigeria of the effects on oil extraction on public and environmental health (Agyeman et al. 2003); and the tension closure of high polluting urban industries in Delhi (Alley and Meadows 2004; Leichenko and Solecki 2008). Moreover, environmental justice has also taken center stage in identifying and addressing the disproportionate benefits and burden associated to environmental conservation and protection policies on indigenous communities in East and Southern Africa, Asia, North, and South America and Asia (Emerton 1998; West et al. 2006; Zackey 2007).

Perhaps more significant to the subject of infrastructural violence is that environmental justice scholarship and campaigns also expanded the inequitable access to infrastructure services such as housing water, sewer, drainage, and transportation (Sze and London 2008). For example, social science research has shown that low-income and minority neighborhoods often receive inferior services, or even worse, lack critical amenities compared to those in wealthier

communities. For example, studies have documented that in many rural and urban areas across the world, gender, and class intersect to produce transportation inequities (Clarke 2016). In the US, disproportionate planning in the transport sector has limited transit options for many low-income and communities of color (Bullard et al. 2004; Lucas 2012). Consequently, poor transport planning means, limited access to education, employment opportunities, long commute hours that also translate to less family time or recreation time for those who can't afford to buy cars and rely on public transport system (Chen 2007; Clifton and Lucas 2004; Sze and London 2008; Ward 2000). Even with the inferior transportation services, the other dimension of environmental justice is that black communities still suffer the impacts of urban renewal and highway construction. Rodriguez and Ward (2018) show how activists and community leaders fought against the proposal for the expansion of an interstate highway that would have caused massive displacement of residents in East Tampa that had struggled with a neglected transportation system for decades. Like transportation, other studies have observed that the inextricable relation between urban planning at the distributive injustices around water, sanitation, and hygiene amenities. For example, Leichenko and Solecki (2008) found that while wealthy residents who stayed in private cities around Jakarta, Indonesia, had full access to piped water and excellent sewerage, recreational amenities, these services were not available to residents in the townships of Jakarta. Moreover, research has shown that environmental injustices are embedded in the social, economic, and technical systems that further marginalize people based on their race, class, and even citizenship (Anand 2011; Anand 2012; Patrick 2011). In border towns and cities, like *colonias* in Texas, social class and immigration status significantly determined who has access to clean water and adequate sanitation services (Jepson and Brown 2014; Jepson et al. 2017; Jepson and Vandewalle 2016).

In much of the literature, analysis of environmental justice, including infrastructure services, took socio-economic dimensions. In other words, the initial studies focused on the disproportionate distribution of environmental risk and benefits based race, class, gender, citizenship, among others (Brulle and Pellow 2006; Mohai et al. 2009; Sze and London 2008). However, the discovery that environmental injustice was tied to the location: where they stayed relative to environmental hazards (Borden et al. 2007; Cutter et al. 2008; Sze and London 2008). Additionally, studies showed that the development of exclusive suburban areas for the wealthy and concentration of vulnerable populations in neighborhoods meant that environmental inequities (whether due to pollution, poor infrastructures) were spatially distributed (Leichenko and Solecki 2008). That has necessitated investigations into the spatial distribution of environmental injustices in addition to the socio-economic and political profile of the population of interest (Mohai et al. 2009; Sze and London 2008).

Examples of studies combining GIS analysis of hazards and sociodemographic characteristics include spatial analysis of the impact of the proximity to hazardous waste on Hispanic and Black communities in the US (Downey 2006); and spatial inequalities in the investment of infrastructures between wealthy suburban communities and low-income neighborhoods in Sao Paulo (Leichenko and Solecki 2008; Rolnik 2001). The trend to apply spatial methodologies in environmental justice scholarships has seen the development of an interactive tool to identify and map problems. In collaboration with state and non-state actors, the US, Environmental Protection Agency developed an EJ Screening Tool that uses spatial data and sociodemographic data to help stakeholders to identify not only vulnerable communities and environmental justice issues but also drive collective actions to remedy the problems (US Environmental Protection Agency 2016). Thus, the continued refinement of the concept of

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environmental justice has turned it into a form of praxis: that combines both the focus scholarship and actions to address injustices.

Conceptualizing Infrastructural Violence

At its best, the idea of infrastructural violence provides the basis for understanding conditions under which infrastructure services can produce inequalities in society. Additionally, this concept offers an opportunity to evaluate and critique the active and passive outcomes of governance decisions on the quality of infrastructural services (e.g., Clarke 2016; Rodgers 2012). In much of the social science literature, however, there is a perceived effort to focus on sociopolitical contexts under which infrastructural violence occurs.

In the sociopolitical context where power and politics influence the design and management of infrastructures: resulting in physical, physiological, and socio-economic harm to minority groups. Several studies provide this sociopolitical explanation of infrastructural violence in WaSH services. For example, Anand (2012) reveals how citizenship and party affiliation influences who gets water connections, and the quality of services people get in Mumbai, India. Elsewhere, Morales (2016) and Morales et al. (2014) observe how sanitation services have historically been used as powerful tools to mark social classes and perpetuate racial or colonial agendas. These few cases speak to the idea that infrastructures cause harm when they are deliberately used to consolidate power or as tools of organizing society (also see Coleman 2014; Larkin 2013).

Rather than improving people's experiences, these scholars argue that politics creates inequities and conditions where infrastructures fail to meet people's needs, especially for vulnerable and minority groups. While the sociopolitical perspective allows us to interrogate the

influence of power and politics in the governance and experiences with of infrastructures, the main critique is that in focusing on political structures and processes, such discourse obscures the everyday realities in the management of infrastructures (Anand 2015) and is ineffective in providing practical recommendations to actors (see Linda Green comment in Farmer et al. 2004);

However, there is a growing body of work to support the idea that infrastructural violence is embedded in technological and operational processes that maintain infrastructures. Such studies reveal the adverse impacts of technical deficiencies such as the design of infrastructures, age of components, operational processes (such as water pumpings schedules and maintenance), and administrative arrangements like staffing (Alda-Vidal et al. 2018; Anand 2012; Anand 2015; Campbell et al. 2016; Gostin 2016). In doing so, these studies address the overemphasis on power and the politics of managing infrastructures but also show opportunities for researchers to provide more actionable recommendations to decision-makers.

Theoretical Lacunae

Whereas these works of literature provide political and technical explanations to how, why and when infrastructures become violent, there is a notable effort to discount the influence and contribution of culture, (i.e., people's social perceptions and practices) in the interaction with infrastructures, and in turn, defining what constitutes violent experiences. In such efforts, it becomes difficult to determine who defines what is "violent" and to whom. My approach is conscious of Susan Star's (1999) observations that, indeed, infrastructures are relational: people's interaction and unequal experiences are influenced by their personas, goals, social norms, and cultural values. For instance, while infrastructures may play a facilitative role to a group of users such as drivers, they can be barriers to another (e.g., pedestrians and cyclists), and topics to those who manage them (also see Star and Ruhleder 1996).

Consequently, I argue that infrastructural violence must be examined in the context of user perceptions and practices, particularly people's personalities, their needs, expectations, and how they relate to their interactions with infrastructures (see e.g., Anand 2012; Clarke 2016; Morales et al. 2014). By foregrounding the social and cultural dimensions of user interactions with WaSH services, this study contributes to social science literature on infrastructural violence, which then becomes the cultural, political, and technical processes that create harmful interactions between people and infrastructures. As discussed in the introduction chapter, a user experience approach provides a grounded understanding of the lived experiences of users as they interact with infrastructure services (Bezaitis and Robinson 2017; Gunn et al. 2013; Hassenzahl 2008; Miller 2017; Sunderland and Denny 2016; Wasson 2000). It is within the user stories that we can locate infrastructure violence within the context of wash in Sulphur Springs. More importantly, culturally grounded experiences can help us understand how residents navigate infrastructural violence and help inform interventions.

Having discussed the influence of governmentality earlier in this section, I argue that our reading of infrastructure violence ought to consider the power of neoliberal thinking in producing infrastructural violence. This is particularly relevant to the current trend where the private sector, austerity, and capitalist logic have taken center stage in WaSH service provision. Since the theory of infrastructural violence is still in its formative stage, the literature reviewed does not clearly address the role of commodification of resources, privatization, and the influence of free-market forces on WaSH services. It was my hope that this study would fill this gap. Moreover, examples presented in my discussion of structural violence indicate that race, racism, and segregation practices in the US determined infrastructural conditions in minority neighborhoods. As currently

constituted, the discourse on infrastructural violence does not include the formative role of structural racism. This was yet another gap this study sought to address.

Lastly, it is noteworthy that the connection between the scholarship of infrastructural violence and its place in addressing infrastructure inequalities is still unclear. Although that is understandable because the concept is fairly new, there is a need to situate infrastructure violence between academia and the discourse on regulations, policies, and stakeholder initiatives. Environmental justice provides an excellent example of praxis stand that infrastructural violence can borrow. Considering my discussion on environmental justice, I would expect infrastructure inequities to also vary with location in urban areas where low-income and minority populations are segregated and concentrated in the same area (Borden et al. 2007; Cutter et al. 2008; Sze and London 2008). Accordingly, infrastructural violence scholarship would greatly benefit from approaches that incorporate spatial analysis. Combined with a praxis model, understanding the spatial variation of infrastructural inequities would enrich the theory and allow informed and solution-oriented engagement with stakeholders.

Chapter Three: Study Site

Sulphur Springs is a community rich in history, culture, and touristic attractions, but also a past marked by racial segregation. Much of its history is in dissertation and oral history projects by anthropologists from the University of South Florida in partnership with the community. What I present in this chapter is an abbreviated history of Sulphur Springs. In situating WaSH in the larger history of Spring Hill and the lived experiences of African Americans, I drew upon active and ongoing ethnographic research in the Sulphur Springs. The work in the community was conducted by the USF Heritage Lab through the leadership of Dr. Antoinette Jackson, an African American female anthropologist, and professor.

Sulphur Spring is a one square mile neighborhood within the City of Tampa located along the northern banks of the Hillsborough River. It is to be found west of the city's train tracks on Rowlett Park Drive, and South of the Bush Boulevard Avenue. Although some sources place the eastern boundary on Nebraska Avenue, other maps have extended the border eastwards to Florida Avenue (see Figure 1). Based on a historical timeline constructed by Jackson (2010), Sulphur Springs was initially sold to John Mills as a large tract of land in the 1890s. To take advantage of the clean water fizzing from the spring, Mills developed a park and a resort community equipped with bathhouses, a fishpond, and a large swimming pool that drew water from an adjacent spring. In addition to Mills' developments, other investors brought in ships to sail the Hillsborough River and a trolley line in 1908. These investments were later followed by the construction of the arcade in 1925 that housed shops, hotels, a post office, a sheriff's office, and a jail (ibid 2010). Together,

these developments made Sulphur Springs a tourist magnet to Tampa locals and visitors from Florida and beyond.
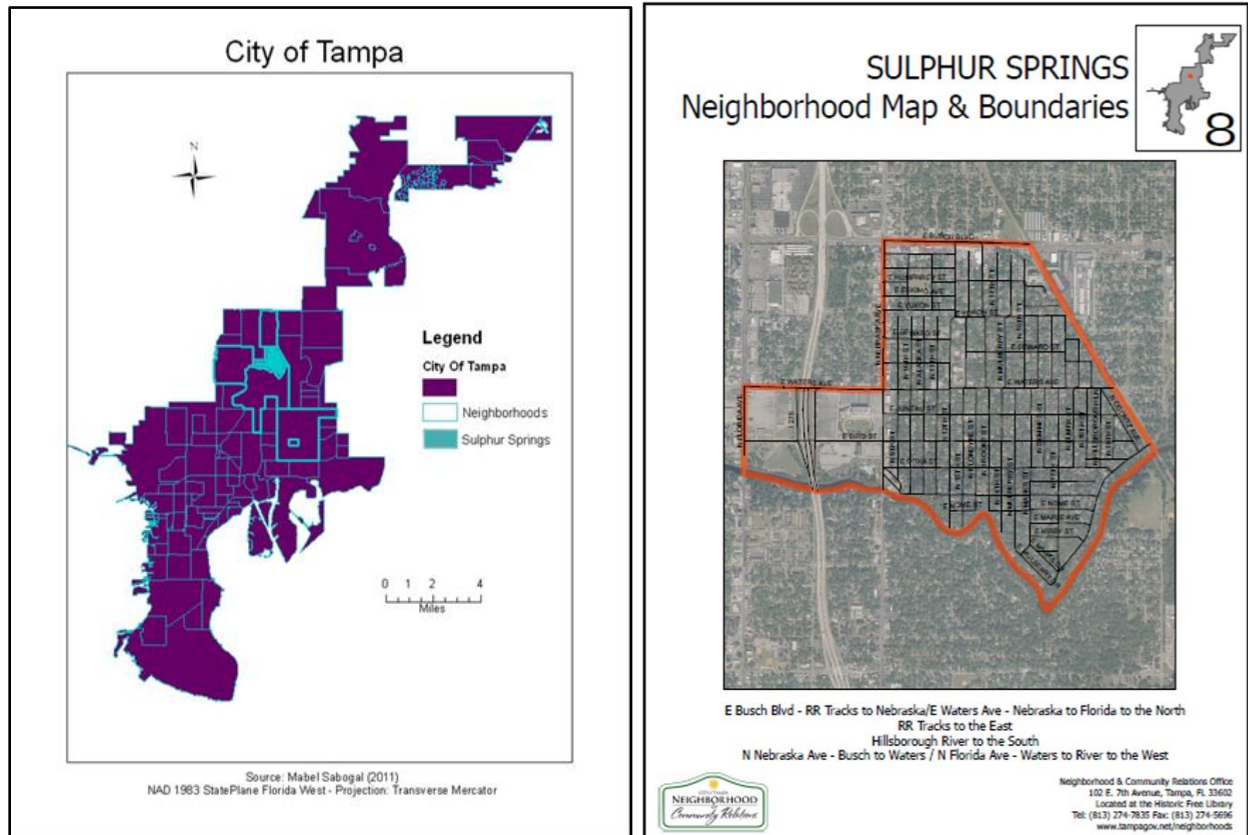
Figure 1. Maps showing the location of Sulphur Springs in the City of Tampa, and the extended neighborhood boundary (Arney 2012; Sabogal 2013).

Demographics

In this 1911 to 1930 period, when the popularity of Sulphur Springs as a recreational destination was soaring, the city's population was snowballing. That also corresponded with an influx of settlers in Sulphur Springs. According to Jackson (2010), the 1920 Federal Census put the community at 591 people (83 percent were White, and 17 percent were African American). With its popularity as a recreational destination, Sulphur Springs was an attractive neighborhood for settlers, many of whom were white middle class. This period also coincided with Jim Crow racial segregation laws enacted in 1896 in southern states of the US. As a result, African American

settlers could only settle in the northwest parts of the community. They were also forbidden from accessing 'white-only' establishments, including the Sulphur Springs Swimming pool, parks, restaurants, and even schools. (Arney 2012; Chavez 2013). The racial segregation resulted in the establishment of Spring Hill, an African American neighborhood within the larger Sulphur Springs community. According to Jackson (2020), Waters Avenue was the dividing line of Spring Hill to the north and the "whites-only" section to the south. The creation of Spring Hill in 1911 underscores the history of racial exclusion in Sulphur Springs but also demonstrates the resistance and power of placemaking as African Americans established churches, shops, and leisure facilities (Jackson 2020: 62-66).

Although the racial segregation left a lifelong legacy, the great depression that hit many economies in the world in the 1930s, and the decline of the housing market in the United States in 2008 were equally responsible for the socio-economic disparities within the Sulphur Springs community. Moreover, the popularity and conditions of Sulphur Springs further deteriorated when the arcade, which had been the focal point of the neighborhood for 50 years, was demolished in 1976. What followed was the disbandment of the harbor club, a favorite joint for white locals, and a series of floods that hit the community in the 1960s (City of Tampa 2016, Oct 11). Spillane (2007) and Brown (2004) found that the turbulent economic times began to alter the demographics of Sulphur Springs. As businesses closed, longtime residents started moving out, new residents came in and left, leaving a less stable population of residents. The influx of transient residents led to a decline in the popularity of Sulphur Springs and the beginning of social problems such as crime and drugs (Spillane 2007).

The combined effect of the extreme economic, weather events and the declining popularity of the neighborhood led to a mass exodus of longtime and wealthier residents leaving back a low-

income population that was predominantly African American. Compared to the 17 percent African American and 83 percent White population in 1920, Jackson observed that of the 6,300 residents in the Federal Census in the year 2000, African Americans made up 58 percent of the population. Thirty-two percent were White. Ten years later, the population of African Americans was 62 percent (Chavez 2013: 53). In the past 20 years, Sulphur Springs has, however, seen an increase in the number of other races and ethnicities, especially Hispanics (Arney 2012; Chavez 2013; Sabogal 2013; Spillane 2007).

Studies have shown that Sulphur Springs remained a low-income neighborhood in those 20 years. Of the 5,724 people living in Sulphur Springs in 2010, 47 percent were living below the poverty line— compared to 20 percent in the year 2000. Compared to the city's average annual income of USD 28,362, 47 percent were earning around USD 13,171 annually. Moreover, 65 percent of these households that lived under the poverty line had children under the age of 18 (Arney 2012:173). Amidst these economic conditions and a history of segregation, life in Sulphur Springs was particularly tough for these African American families, especially those with children. Due to the vulnerability profile of the households, studies done in Sulphur Springs between 2010 and 2016 (e.g., Sabogal 2013, Chavez 2013) indicated that out of the 1,864 households, 1,326 relied on public assistance such as food stamps from the Florida Food Assistance Program.

Housing and Gentrification

In addition to the miserable living conditions due to poverty, racial segregation, and the great depression, the mortgage crisis in the United States left an indelible mark on the housing arrangements within Sulphur Springs. All these events culminated in an unprecedented fall of property values in the neighborhood in the year 2008, and African American residents were among the hardest hit due to their low income. Despite the reduced home prices, the average cost of a

home (USD 47,000 in the year 2011) was still too high for the residents who were living below the poverty line (Chavez 2013). Through an oral history project, Brown (2004) found that in the period beginning 1930 to the mid-2000s, being poor in Sulphur Springs meant living in multifamily housing units. While some of these multifamily dwellings were large houses occupied by generations of the same family, others were divided into small apartments for different families.

Even worse, the few African Americans who could afford to buy homes faced discriminatory housing laws. As a result, many Sulphur Spring residents remained as renters of neglected homes surrounded by abandoned properties and dilapidated WaSH amenities (Chavez 2013). However, there was a sense of respite for the housing sector when Sulphur Springs was included in the Neighborhood Strategy Areas (NSA), an urban renewal program for the City of Tampa funded by the US federal government. As much as this program was meant to improve the living conditions in Sulphur Springs, the biggest beneficiaries were wealthy people living outside the community. According to Chavez (2013), the renewal program justified the eviction of low-income homeowners and tenants from old houses. However, when the newly developed homes were completed, they were bought by wealthy landlords because the inflated prices were too high for residents. Consequently, the program ushered in an era of absentee landlords and negligence that has made Sulphur Springs what it is today: a mixed neighborhood of low- income and underserved residents, and a few wealthy and self-sustaining households.

Sulphur Springs Today

Today Sulphur Springs, compared to other neighborhoods in the Tampa Bay, is a primarily transient and renters' neighborhood with a mix of multifamily homes for low-income residents and a few single-family homes. US Census data on the EJ screening tool (Center For Brownfields Research And Redevelopment 2020) estimates the population to be 4,500 people in 3386

households in Sulphur Springs (see Table 1). The current median age of the residents is 38 years. Children under the age of 5 years and adults over 64 years make up 8 and 13 percent of the population, respectively.

Table 1: Sociodemographic Characteristics of Block Groups in Sulphur Springs

Sociodemographic Characteristics	Value
Demographics	
Population 2018:	4,500
Households 2018	3386
Median Age	38
Population Under the Age 5 yeas	8%
Population Over the Age 64 years	13%
Less than High School Education	28%
Minority Population	78%
Race/Ethnicity	
African American	48%
White	42%
Hispanic or Latino	8%
Other	2%
Economics	
Median Household Income 2016	$27,424
Households Below Poverty Level	33%
Housing	
Units Owned	26%
Units Rented	59%
Housing Build Before 1960	39%

Note: Data from Florida Brownfields Redevelopment Atlas (Center For Brownfields Research And Redevelopment 2020)

Although Sulphur Springs had transitioned into an African American neighborhood, the in-migration of other races/ethnicities has made it a somewhat multiethnic. Today, Blacks make up 48 percent of the population compared to 62 percent in 2010 (Chavez 2013: 53). Whites, Hispanic or Latinos, make up 42 and 8 percent of the current population, respectively (see Table 1). However, Sulphur Springs is still considered a low-income neighborhood with a median income of $27,424 and 33 percent of the households living below the poverty level, compared to $54,599 and 20 percent for the City of Tampa (Data USA 2020). With regards to housing, rental units make up 71 percent of the dwelling in Sulphur Springs, including those occupied by residents on Section 8 housing assistance (Center For Brownfields Research And Redevelopment 2020). Perhaps more relevant to the conditions of housing and WaSH amenities, 39 percent of the residential units in Sulphur Springs were built before the year 1960.

As such, one would expect infrastructural violence in Sulphur Springs to be a consequence of a blend of forces whose genesis can be traced back as far as 1910. First, the racial segregation laws separated the community along racial lines. Even though Sulphur Springs had become a transient neighborhood and the years of racial segregation were long gone, Brown (2004) found that the residents still referred to "race" when describing the community. The oral history project revealed that a "Black" Spring Hill and "White" Sulphur Springs existed in the minds of longtime residents. Therefore, segregating African Americans to the North of Sulphur Springs could have laid the ground for infrastructure inequalities in the community. However, the longstanding income disparities—exacerbated by the great depression, would undoubtedly contribute significantly to the service inequities in Sulphur Springs. Since the socio-economic disparities significantly affect the affordability of WaSH services, failure to consider people's ability to pay for services can produce infrastructural violence.

Likewise, the eclectic home occupation created by the urban renewal program is partly responsible for the inequities in Sulphur Springs. While wealthy homeowners would be capable of renovating their WaSH infrastructures, low-income tenants are relegated to homes with neglected WaSH amenities due to absentee landlords that only care about rental income. Therefore, socio-economic factors such as age, gender, education, race, income, and homeownership are thus indispensable when evaluating how different interactions produce infrastructural violence in Sulphur Springs.

WaSH in Sulphur Springs

Whereas the factors discussed above provide a socio-economic context in which WaSH inequities may occur in Sulphur Springs, infrastructures (such as the Hillsborough River, the springs, the Sulphur Springs Water Tower, and the Hillsborough dam) are central to the community's perceptions and experiences with WaSH. First, the Sulphur Springs community is located along the Northern banks of the Hillsborough River. The river has been the primary source of water supply and an essential ingredient for the community's popularity as a recreation center in the early 1900s. When the community was developed as a resort destination (equipped with bathhouses, a fishpond, swimming pool, sail ships, trolley line, and shopping arcade), the Hillsborough River was the key water source for the rapidly growing population of locals and visitors. Just after the completion of the arcade in 1925, Josiah Richardson, the second owner of the neighborhood, build the Sulphur Springs Water Tower at the cost of USD 180,000 to meet the growing water demand for residents and businesses (Spillane 2007). Although it served the community for a while, the water supply was later taken up by the city's public works. Today, the Sulphur Springs Water Tower located on the western border of the Sulphur Springs remains a key monument in the community (see Figure 2).

Figure 2: The Sulphur Springs Water Tower (Source: YouTube.com).

In the late 1800s to 1923, the city's public water supply relied on deepwater wells — supplemented by the Ulele Spring (now located at the Water Works Park at the corner of North Highlands and Henderson Avenue), and the Sulphur Springs on Nebraska and East Bird Avenue. As the population, businesses, and tourism activities increased, the demand for water in Sulphur Springs, and other neighborhoods in the city also grew. The city administration knew the water sources were not enough, and the option was to source water from the Hillsborough River. However, that saw an increase of complaints about hard water, concerns about the inadequate expansion of water connection, high-water rates, and bad customer service (City of Tampa 2016, Oct 11).

Under these circumstances, the city saw the need to leverage on the now Hillsborough River Dam, which had been constructed for hydroelectric power generation in 1895 by the Consumers' Electric Light and Street Railroad Company. In the early years of its construction,

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which also coincided with the development of Sulphur Springs, many residents around the dam violently opposed its completion and operation due to land conflicts, loss of pastures for cattle, and mosquito issues. Following its partial destruction in 1898, a new entity, Tampa Electric Company (TECO), took over after the original company went bankrupt (City of Tampa 2016, Oct 11). Despite the threats and sabotage, TECO operated the dam for power generation for years until the city set in motion plans to build a filtration plant next to the Hillsborough Dam. Currently, the dam, shown in Figure 3, is the primary water source of over 1.2 billion gallons of drinking water for the city (City of Tampa 2019).

Figure 3: The Tampa Electric Company Dam and the Hillsborough River Dam renovated in 1925, 1945, 1999, and 2001 (top) and The David Tipping Water Treatment Plant located on the eastern border of Sulphur Springs (City of Tampa 2019).

Central to the water provision from the Hillsborough Dam is the David L. Tippin Water Treatment Facility (in Figure 3), also located on the East of Sulphur Springs. It was constructed in 1924 in response to the water quality complaints that had inundated the city administration. After its completion in 1925, the water plant and the dam became critical water infrastructures for access to safe and reliable water for Sulphur Springs and other neighborhoods in the City of Tampa. In the same year, the city also laid large water mains, which are still the core of the current water infrastructure (City of Tampa 2019).

Although the dam became a critical water infrastructure for the city residents, its construction and operation came at a cost for Sulphur Springs residents. Besides the mosquito problem that fueled the opposition for the dam in the 1890s, the dam's consequences to upstream communities like Sulphur Springs have been grave. Spillane's (2007) historical account documented how the failure of the dam—after an intense tropical storm in September of 1993, caused severe damage to the roads, bridges, and properties in Sulphur Springs. In March of 1960, 13.5 inches of rainfall hit Tampa for three days, and according to a City of Tampa documentary (2016, Oct 11), the peak river flows flooded upstream communities, washed up roads, destroyed properties and displaced riparian residents including those in Sulphur Springs.

The negative impacts of the dam on Hillsborough River to Sulphur Springs became even more visible three months later during a tropical storm and Hurricane Donna. This category four hurricane hit Florida in the latter part of 1960. In both events, Sulphur Springs remained inundated by floodwater for extended periods causing further destruction to transport and WaSH amenities, property, and livelihoods. To date, Sulphur Springs remains vulnerable to flooding not only due to its proximity to the Hillsborough River; but mainly due to the water surge caused by the dam that often overwhelms the stormwater infrastructures. Despite the significance of the Hillsborough dam

to the water supply, it was a source of pain as it exposed upstream residents, such as those in Sulphur Springs, to flooding.

Moreover, the use of the spring located in the community as a water source for the city caused pollution problems in Sulphur Springs. Pittman (2012) of the Tampa Bay Times linked the excessive pumping of water from the spring and surrounding aquifers by the city and Pinellas County to increased water pollution in Sulphur Springs since the 1980s. The increased bacterial count in the water, forced the city to disconnect the adjacent Sulphur Springs swimming pool from the spring. To make it worse, the excessive water pumping by St. Petersburg and Clearwater led to an unprecedented number of sinkholes that funneled solid waste into the spring. It took the intervention of the Southwest Florida Water Management District (SWFMD), a water district established in the 1970s to regulate surface and groundwater use, to settle the Tampa Bay water war. In the end, SWFMD succeeded in reducing groundwater pumping that had also caused severe drought in Sulphur Springs and other neighborhoods (Meindl 2014). These cases provide a few examples of historical environmental justice and infrastructure violence issues in Sulphur Springs.

As we have seen, these historical problems around WaSH act on a low-income population that has endured long periods of racial segregation. In a global context, therefore, Sulphur Springs bears a striking resemblance to other communities studied with regards to infrastructural violence. One example is the Muslim residents of Premnagar in Mumbai. Although the latter live in informal settlements, low-income and racial prejudice contributed to the vulnerability profile of both communities but also shaped the quality of WaSH services they received. However, Sulphur Springs' history is unique because the racial segregation and the urban renewal program further entrenched wide-ranging experiences with WaSH infrastructures within the same community. For instance, Sulphur Springs had an underserved population to the north—where many African

Americans settled, and a reasonably wealthy population occupying former white-only areas to the south of Sulphur Springs. Due to this heterogeneity of the Sulphur Springs community, one would expect diverse user perceptions and experiences with WaSH amenities.

The accounts presented in this chapter shed light on the prevailing WaSH conditions in Sulphur Springs. Besides illustrating how efforts to supply water to the city have made Sulphur Springs vulnerable to flooding and water pollution, they tell us about a community with an aging water infrastructure laid in the 1920s and amenities for the many houses that had been built before 1960. Like other neighborhoods, Sulphur Springs would be prone to frequent water leaks due to water main breaks. Consequently, the neglect by absentee landlords means that most residents have little agency to change their living conditions. Ninety-four years after building the treatment plant to guarantee access to safe and reliable water supply, has the city administration resolved people's concerns with hard water, inadequate expansion of water connection, high-water rates, and bad customer service? The answer to this question was in the study's evaluation of user concerns and perceptions on WaSH infrastructures.

Chapter Four: Methods

Months before I conceptualized the proposal for this study, my advisor and I had time to discuss my longstanding interest in understanding the social and cultural underpinnings of WaSH provisions. As we sifted through GIS data on different neighborhoods in the city, it became clear that Sulphur Springs and the University Area Community were among city neighborhoods with a high risk of WaSH insecurity because of their social demographic and infrastructural characteristics. Of the two, Sulphur Springs had a rich ethnographic potential to understand infrastructural violence because of its history with racial segregation. Unlike the University Area Community that was an incorporated part of Hillsborough County, Sulphur Springs would have allowed us insight from users, state and non-state actors into how infrastructural violence is produced.

Ethnographic Entry

My first entry into the community was through Dr. Elizabeth Bird, a professor emeritus at the University of South Florida's Department of Anthropology. Elizabeth then connected me to Norma and Joseph Robinson, who founded and ran the Sulphur Springs Museums and Heritage Center with the late Linda Hope. When I approached Norma and Joseph with my proposal in early Springs 2019, they were puzzled that I wanted to study the cultural issues underlying WaSH issues in Sulphur Springs. They wondered how easy it would be for people to talk about mundane infrastructures. After a long pause, Norma said:

Well, I am not sure how you are going to get people here talking about water, stormwater, and wastewater. For example, I rarely think about how the rainwater flows; I don't know what is down there. Maybe these conversations will be relevant to people in other places in the community. All in all, I think your study will be helpful to the neighborhood's working group (Conversation, 7/15/2019, Sulphur Springs Community).

Despite her initial concerns about the practicality of the study, Norma introduced me to Eduardo Felix at the Sulphur Springs Resource Center (SSRC). Eduardo, a USF alumnus, provided me with a letter of support for my Institutional Review Board (IRB) and constant updates on community events. He also introduced me to residents and allowed me to use the resource center for meetings. Having seen the potential value of the study to the neighborhood association, Norma also offered to introduce me to Jacqueline, the executive director for the Sulphur Springs Neighborhood of Promise (SSNOP). The SSNOP is a community organization that looks at issues to be addressed in the community but also works to bring synergy between community organizations. I learned that SSNOP was established after community leaders realized there was a lot of duplication of roles. For her work with the Sulphur Springs Working Group (SSRWG), Jacqueline provided vital connections with key informants from the Code Enforcement, community leaders, and landlords. For this reason, I am forever indebted to Norma, Joseph, Eduardo, and Jacqueline for providing research support in the form of contacts, information about community events, and advice.

As part of my ethnographic entry, I also attended many community events communicated by my key contacts and fliers I picked up the Sulphur Springs Resource Center. These events included poetry meet-ups, museum exhibitions, a town hall meeting on community health, the Sulphur Springs Tower Festival, and water conservation workshops. When the SSNOP organized the Sulphur Springs Lit Block Party, I worked with Jacqueline as a volunteer and participant-

observer. As I floated around helping with different tasks, I got a chance to speak to residents. I made new connections and became a familiar face in the neighborhood.

Besides the said events, my involvement at the Big Wash as a volunteer during free laundry days provided yet another significant ethnographic entry point. I stumbled upon the site a few days into the study. As I took a detour on my way to my first-ever meeting with Jacqueline at Spring Hill Park, I came across an open-air laundromat that would become a critical site to my study. I found a place to park, and as I walked over to take a closer look, it became clear the laundry facility would be a rich ethnographic site. What struck me was the different kinds of activities going on. On one end of the facility, an older woman was folding her laundry while sitting in her wheelchair. Behind her were two parked cars, one with two occupants, and an African American man (in his 40s) was working on the engine of the other vehicle. A group of six men was hanging out on the other end of the laundromat, where a Pepsi vending machine stood. Having seen the potential of the facility, I started spending more time hanging out at the laundromat and floating around the community. At the laundromat, I developed relationships with participants by having informal conversations mostly about the incidents at the facility and their personal experiences with different aspects of WaSH.

In my early days at the Big Wash, I also met a man who had been helping his parents run the facility since he was a teenager. In our conversation, he mentioned their partnership with the Current Initiative, a not-for-profit organization that started at the University of South Florida. The initiative organizes local laundry events with support from different organizations and volunteers. The Current Initiative held free day laundry projects in over 20 locations in the Tampa Bay. I reached out to Jason Sowell, the founder, President & CEO of the Current initiative who involved

me in the project. Through my involvement, I became a familiar figure and build friendships that went beyond the laundromat.

Like any other ethnographer, however, my ethnographic entry had its problems as I initially struggled to start conversations in a new community. On numerous occasions, participants would point out my distinct accent. "Are you from here?" They would ask. These questions didn't make things easier; I felt like an outsider. However, I quickly learned how to use my accent as an ice breaker. I started speaking openly about where I came from, how life is like in my home country, and debunked some of the commonly held mysteries. From then, questions about my accent and where I was from did not make me feel like an outsider. In talking about our different nationalities and experiences, the questions became part and parcel of rapport building. The relationships I build during my involvement at the laundromat and community events pushed me farther into other corners of the neighborhood.

Studying infrastructural violence in Sulphur Springs required a mixed-method approach to gather qualitative and quantitative insights. That included participant observation, ethnographic interviews, freelisting, oral history, and a social survey. Moreover, these methods were guided by the tenets of feminist ethnography. Feminist approaches, born out of the feminist waves in Europe and America, and women movements in different parts of the world in the 1960s and 1970s), helps us acknowledge the differences between and within social categories and integrate the multiple possibilities of social hierarchies into the research design and process (Davis and Craven 2016:11). The fundamental ideology for feminist ethnography is the sensitivity to the power differences between and within social hierarchies, and a commitment to challenge the inequalities that emerge through the research questions and methods (also see Clarke and Clarke 2011:121). In keeping with the feminist perspective, this study sought to understand perceptions and experience with

WaSH within and beyond traditional social hierarchies such as ethnicity, race, class, age, gender, sexual orientation, among others. Aware that these social categories are also heterogeneous (Jaggar 1993), this study also paid attention to inequalities between, and more importantly, within social groups. Recognizing the possibility of power differences within social groups was useful in providing a more granular look into the WaSH service inequities among minority groups (Bernard and Gravlee 2014:154; Clarke and Clarke 2011:122).

Participant Observation

Considering its strength in gathering implicit and explicit social and behavioral insights (Bernard and Gravlee 2014:251), participant observation —a trademark of ethnographic research and cultural anthropology, was the primary research strategy for this study. In classical anthropology, participant observation involves an extended stay at a study site, participation in daily activities (e.g., community meetings, events, and rituals), and personal interactions with informants to build rapport and trust (see Angrosino 2007; Bernard and Gravlee 2014:251). However, my study adopted more contemporary forms of participant observation.

The first was ground-truthing, a kind of field observation used to describe and verify GIS data with what is on the ground (Pfeiffer et al. 2008). As a geographically grounded ethnographic technique, ground-truthing is particularly helpful in mapping environmental issues, toxicities, and health concerns (Fischer 2018:23). In this study, ground-truthing involved driving around the neighborhood to physically map the location of WaSH issues (such as flood sites). Instead of what Ratcliffe calls "bounded-field observations," my ethnography involved multiple sites of observation within Sulphur Springs. That allowed me to interact with an increasingly mobile population to understand how meanings, materials, and identities around WaSH diffused across time and space (Ahearn 2016; Marcus 1995; Mills and Ratcliffe 2012).

Understanding the interactions and behavioral perceptions about WaSH required participant observation. For this study, participant observation involved attending community events and "hanging out," While most of the events I attended did not yield much insight into WaSH in Sulphur Springs as I had expected, they were an opportunity to build relationships. However, the Big Wash Laundromat proved to be even more valuable.

Having seen the ethnographic potential of the laundromat, I spend most of my days observing, taking notes, and having informal conversations with people visiting the facility about WaSH. I later got involved with two laundry projects which sought to provide free laundry for residents. In both projects, I floated around doing different tasks. I ushered people to the registration desk and operated the laundry appliances with the coins provided by the project with the help of other volunteers. Occasionally, I would help people carry laundry to their cars. Through my involvement at the laundromat, I became a familiar figure and build friendships, which pushed me farther into other corners of the Sulphur Springs community, where I conducted more participant observation in private households and premises.

Interviews, Freelists and Oral History

Although participant observation provided invaluable insight into the context, and the practice around WaSH, the bulk of my qualitative data came from one on one interviews. In seeking multiple perspectives on people's interaction with WaSH, stratified purposive sampling was my primary strategy for selecting participants. My initial key informants were selected based on their strategic positions in the community or groups of interest, their knowledge, expertise, and ability to provide essential insights to answer the research questions (Bernard and Gravlee 2014:234; Sommer and Quinlan 2018:4). This sampling criterion enabled me to gather views from community leaders, community historians, and service providers (see Table 2). My second

selection criteria sought to gather perspectives of the users who interacted with WaSH services in question.

In thinking of "who is and not a user," I was aware of the problems associated with sampling participants based on their visible interaction of a WaSH service. In what Cohen (2005) describes as "study[ing] users of X to understand the phenomenon of X, where we can replace X with "mobile phones" or "toothbrushes" or "SUVs" or "Internet-based investment banking tools." According to Cohen, the implication of these interactional sampling criteria would further exclude the voices of non-users from my analysis (also see Venkataramani and Avery 2012). For a study that seeks to shed light on infrastructural violence, it would have been an oxymoron to exclude non-users. This view was particularly useful in sampling views on public laundry. In this study, a more inclusive approach meant sampling residents and non-residents and even those who did not use the public facility. Participants recruited through stratified purposive sampling were then used in snowball sampling. These referrals were particularly valuable in accessing hard to reach populations and areas of the community (Davis and Craven 2016; Onwuegbuzie and Leech 2007).

Eventually, I was able to conduct 28 ethnographic interviews, which also included freelisting and oral history questions (see Table 2). As the demographic characteristics in Table 3 show, the mean age of those who participated in the interviews was 42 years. While the sample for men and women was equal, the majority of the interviewees were black or African American (54 percent) and had attended some college or attained a degree (both 28 percent). Eighty-nine percent of those who were employed had a mean annual income of $43,292. While many of the those I interviewed were renters, residents made up 79 percent of the sample. On average, these residents had lived in Sulphur Springs for 18 years.

Table 2: Summary of Categories, Roles of the 28 Key Informants Interviewed.

Key Informant Category	Role	Number of Participants
Renter	Residents	8
Homeowner	Residents	7
Section 8 or other forms of assistance	Residents	3
Plumber	Residents	1
Water Department	Service Provider	1
Code-enforcement Department	Service Provider	1
Laundromat Owner	Service Provider	2
Landlord	Service Provider	1
Community advocacy	NGO &CBO	2
City Historian	NGO &CBO	2

Table 3: Demographic Characteristics of Study Sample (N=28).

Characteristic	Mean, SD, and % of N	Characteristic	Mean, SD, Or % of N
Age (years)	Mean= 42 SD=10	*Employment*	
		Employed	89%
Gender		Unemployed	11%
Men	50%		
Women	50%	Annual Income	Mean= $43,292 SD=$25640
Race/Ethnicity		*Housing*	
Black, African American or African	54%	Resident Homeowner	37%
Hispanic	18%	Resident Renter	44%
White or Caucasian	29%	Non-Resident-Homeowner	19%
Educational Attainment		*Community Residency*	
Some High School	4%	Resident	79%
High School Diploma	24%	Non-Resident	21%
Some College	28%		
Bachelors	28%	Years living in Sulphur Springs	Mean=19 SD=18
Masters	12%		
Doctorate	4%		

The semi-structured interview guide consisted of mostly open-ended questions that implored peoples' views about their interactions and perception about WaSH (see Appendix I). To help gather more information about issues, I employed probes such as repetition and summary

feedback, walking probes, critical incidents, and others, (Bernard and Gravlee 2014:329-330; De Leon and Cohen 2005). The interview guides included freelisting questions to identify salient WaSH concerns. Freelisting is a rapid assessment technique that elicits a set of related words, statements, or themes relevant to a domain one wishes to study (Bernard and Gravlee 2014:347). More often, freelists are used to aggregate terms from participants into themes about a subject of study (Dressler 2007; Thompson and Juan 2006). To understand the perceptions or experiences with a service, one may, for instance, ask participants to list aspects of the service they liked or disliked. In this study, the freelist items were also used as probes in the interviews to gain a deeper understanding of WaSH concerns in Sulphur Springs.

However, understanding infrastructural violence in Sulphur Springs necessitated the consideration of the history of Sulphur Springs and the broader historical context of WaSH in the City of Tampa. To provide a historical context to people's interactions, perceptions, and experiences with WaSH, oral history interviews were conducted with conveniently sampled participants. These participants were chosen based on their historical knowledge of the Sulphur Springs community, the subject of study, and their ability to communicate (Angrosino 2008: vii; Sommer and Quinlan 2018:4). During these interviews, the participants were asked to recall key events, past conditions, interactions, and experiences with WaSH services. The firsthand narratives were collected through a systematic process —involving one on one interviews using an interview guide (Davis and Craven 2016:87). I have attached the interview guide as Appendix I.

Much of the data collected during participant observation, oral history, ethnographic interviews, and the freelisting was qualitative. In preparation for an iterative data analysis process, field notes and freelists were typed, and audio recordings from the interviews transcribed. These qualitative data were then uploaded to Dedoose, a qualitative analysis application by SCR

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Consultants (2017). Carrying on the grounded theory tradition of ethnographic research—where meanings are drawn from people's words and what we observe, the preferred approach to interpret text data was inductive coding (Bernard and Gravlee 2014:541; Corbin and Strauss 1990). The data from field notes and interviews were inductively coded using a codebook designed to capture themes relevant to the research questions. This iterative coding process started by creating a codebook based on research questions. A codebook contains a list of codes that are labels used to tag thoughts expressed in field notes, interviews, or oral history transcripts. The thoughts were in the form of words, phrases, and sentences representing the thoughts of the participants (Bernard and Gravlee 2014:541; Corbin and Strauss 1990). It was through inductive coding that I was able to make sense of participant responses with regards to their experiences and perceptions on WaSH services.

However, I took a slightly different approach to analyze freelist data. Freelists items often make up what cognitive anthropologists call cultural knowledge or domains (Dressler 2007). That is because freelist terms or statements shed light on people's perceptions that are often learned, negotiated, shared, or contested among social groups (Spradley 2016:107). The freelist data helped identify the experiences and opinions about WaSH services. Understanding the salient perceptions in a community or social group required identification of the topics people frequently talked about— and at what point they spoke about them (Dressler 2007; Horowitz 2009). To this end, I computed the Smith's *S* salience Index for the freelist items in ANTHROPAC 4.0 (Analytic Technologies, Kentucky). The salience index weighted the frequency of each item by the average rank of the item on the lists provided by participants (Fiks et al. 2011; Smith 1993). The assumption was that salient concerns are frequently mentioned. Moreover, the rank of each item is an excellent indicator of salience because critical concerns are often recalled first (Borgatti 1999).

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Mixed-Mode Survey

Insights gathered from these interviews and participant observation then informed a social survey. Administering the survey to a larger sample provided a broader picture of the perceptions about WaSH (Davis and Craven 2016:89). Here, I used a mix of stratified purposeful sampling, and maximum variation sampling: paying attention to the different sociodemographic groups and the geographic zones of the Sulphur Springs.

Although my initial plan was to have the survey administered exclusively online, most of the responses were collected in-person via a Qualtrics (2015) link on my computer tablet (see questionnaire in Appendix II). To avoid researcher bias associated with in-person surveys, I allowed the participants to self-administer the questionnaire without my interruption. This revised approach turned out to be valuable in collecting responses from participants with limited internet access. Additionally, the in-person surveys provided an opportunity at the end of each survey for participants to talk about issues the study had not addressed. These conversations allowed me to capture verbal and non-verbal cues that I would have missed in an online survey. The questionnaire consisted of rating questions, the most salient freelist items, and Likert scale type questions meant to elicit perceptions about their engagements with WaSH services and governance. Like the interviews, I also collected baseline sociodemographic information (e.g., social and economic status, gender, ethnicity, etc.).

At the end of the data collection phase, I had received 107 survey responses—representing a 95 percent confidence level, and ±7 percent confidence interval of the estimated population of 4500 people in Sulphur Springs (see Center For Brownfields Research And Redevelopment 2020). The in-person surveys yielded quantitative data that were examined using descriptive and multivariate analysis in SPSS.

Reflexivity and Ethical Considerations

Even with the methods discussed above, it is worth noting that the positionality of a researcher often influences how they frame the study, the kinds of assumptions they have, their relationship with participants, and how they interpret the findings (Bernard and Gravlee 2014: 664-665). So, applied anthropologists are encouraged to honestly reflect upon how their social backgrounds (either due to race/ethnicity, education, class, or country of origin) and lived experiences impact the study (Jacobs-Huey 2002; LeCompte and Schensul 2010; Roberts and Sanders 2005).

I navigate the discourse of WaSH in the Sulphur Springs community as a black man and international student with a background in environmental conservation and policy research. Much of my previous research was on cost and benefits and policy issues around water recycling. Notwithstanding my earlier experience researching water and sanitation, my understanding of the research process and knowledge construction had changed since I moved to the field of anthropology. I came to this study, having fully embraced the principles of anthropology, especially that people's perceptions are contextual. Thus, it is important to understand their views in the context of their history, lived experiences, and surroundings. In keeping to this principle, my research paradigm endeavors to foreground the voices of participants but also consider multiple views within the broader social, economic, and political contexts.

As an international student from a developing country, I also understood that the WaSH challenges I had faced growing up in rural Kenya, and later in the low-income neighborhoods in Nairobi were much different. However, my beliefs about inequities in WaSH service provision were still unformed at the time of this study. That helped me overcome personal bias as I interacted with the narratives and opinions from the community. Nevertheless, my positionality evolved with

time. As an African man, I went into the study, knowing my lived experiences were not akin to that of the African Americans who made up a large percentage of the population in Sulphur Springs. Barring my skin color, I understood that the African American experience was much different, considering the history of slavery and racial oppression. Consequently, I did not go into this study with any assumptions that I understood what it meant to be African American in the US. As I discussed earlier, my accent was also different. However, these differences did not alienate me from participants; instead, they ignited mutual interest in the history and experiences of people of African descent in both continents. It was through open discussions about personal life and histories that I genuinely became an insider with whom the participants were willing to share their experiences with WaSH.

Moreover, navigating the Sulphur Springs Community and their experiences with WaSH demanded careful consideration of ethical issues. Since the study was of low risk, all stakeholder participation had been exempted (see University of South Florida's Institutional Review Board (IRB) letter of approval in Appendix III). Regardless, I took measures to protect the participants from any harm resulting from this study. To this end, the names contained in this study are pseudonyms, some of which were proposed by the participants. Besides obtaining verbal consent from participants, I also sort permission to audio record interviews and take some of the photos included in this dissertation. Although terms such as "black," "white," "customer," or "slumlord" may be problematic or offensive, I saw it prudent to refer to people in their terms, and also use expressions that represented the voices of those I spoke with.

Chapter Five: The Social Construction of WaSH Insecurity and Inequities

The main objective of this study was to investigate the historical and present context in which water, sanitation, and hygiene (WaSH) infrastructures mediate the relationship between people's experiences and WaSH governance in Sulphur Springs, Tampa. Situating people's interactions, perceptions, and experiences with WaSH in Sulphur Springs necessitated the inclusion of oral history questions into the interview guide. Although my initial plan was to foreground the voices of longtime Sulphur Springs residents, the reality in the field was different. Many of those who lived in the community had moved out or passed on (see Brown 2004).

As I conducted my initial interviews, I met Jacqueline (an African American, middle-aged female community leader) who proved valuable to this study because of the contacts and information they provided. At some point during the meeting, I told her about my plan to interview residents with knowledge of past events around Sulphur Springs. She was, however, quick to point out that it was going to be a difficult task to capture the historical perspective and full gamut of how WaSH had changed because of the transiency of the community, and a lot of the people from the original families were deceased. "Many people have been [in Sulphur Springs] for maybe 20 years," she said. "I'm fourth-generation [in Sulphur Springs]," and you will probably find only four of the older generation alive," She added. As Jacqueline had warned, only a few participants had been in Sulphur Springs for more than 20 years. In this chapter, I, therefore, share historical accounts by Sulphur Springs resident, some of which may be anecdotal, but also draw on interviews with city historians selected because of their interaction with Sulphur Springs and

recollection of historical events. I also draw on past and ongoing ethnographic work, including Brown (2004) and Jackson (2020).

Racial Segregation, the Interstate, and Closure of Businesses

But how did these demographics changes come about, and how did they influence WaSH in Sulphur Springs? As discussed in chapter three, much of the first developments in the 1920s occurred around the natural spring, in which the Sulphur Springs neighborhood got its name. For example, there was the Sulphur Springs Pool, where people would swim, the river for fishing and then came other tourist attractions including an amusement park, a casino, a dance hall, stores, and a large hotel to encourage more people to come and visit. As the popularity of the neighborhood grew into the 1930s, there were ongoing residential developments such as homes, schools, and churches that also led to a population explosion. Much of the population was mostly white and Black families and racially segregated.

Although racial segregation was widespread in Tampa, its impacts were more pronounced and visible in Sulphur Springs. For example, Fred, a 70-year-old black student I met at University during the study, grew up in East Tampa, another segregated neighborhood on the eastern border of Sulphur Springs. He passed through Sulphur Springs every day on his way to school. He vividly remembered the days of racial segregation in the neighborhood when he worked as a journalist for the Florida Sentinel, a black bulletin newspaper. Growing up in East Tampa, he would only see about two Caucasian people in their neighborhood. One of them was an Italian who owned their neighborhood store. Even within the racial segregation, he thought East Tampa was a wonderful neighborhood. They had running water, good drainage, and because they were closer to Downtown Tampa, all streets, curbs, and sidewalks were paved. In East Tampa, there was a lot of progress and modernized infrastructure they realized they had taken for granted when they went for years

without getting new sidewalks. In his mind, however, there was the white section of Sulphur Springs—with better streets, drainage, sidewalks and houses, and another for the colored or the "Negro" with relatively inferior services.

Jacqueline and Marquis are among the participants that once lived in the marginalized section of Sulphur Springs. Jacqueline's father was born in the southwest part of the Sulphur Springs, where her grandmother and many blacks lived. They called this section the "bottom," which was where the current interstate crosses the southern part of the neighborhood. Marquis, a 44-year-old black man I interviewed, was born at the bottom, which he remembers to be on the east of Florida avenue, where there the Sulphur Springs Tower is (see Figure 4). Pastor M (an African American, middle-aged male community leader) I interviewed had been in Sulphur Springs since the early 1970s. He remembers that apart from the bottom, other families lived in what they referred to as the "Boot." The Boot, which got its name because a little corner of the neighborhood, was a small section between East Waters Avenue and East. Bush Avenue to the North, and between Nebraska Avenue and Florida Avenue to the west (see Figure 4). Other parts of the community were predominantly white

Even after endured years of racial segregation, Black families at the *Bottom* and the *Boot* were dealt yet another blow when the construction of the interstate-275 began in 1962. Jacqueline explained that the interstate cut through the black section of Sulphur Springs, causing massive displacement of families. John, (a white, elderly, male city historian) who grew up not so far from the Sulphur Springs pool, also remembered how the interstate destroyed sections of his Seminole Heights neighborhood. "The interstate sliced right through the center of Seminole heights, and Sulphur Springs. It destroyed some of the closely-knit sections of both communities, but the impact was bigger on Sulphur Springs." He said that the impact of the displacement in Sulphur Springs

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was greater because it tore apart well-established black families that had known each other for a long time. "They had built strong relations were getting along beautifully. Suddenly, the black section was cracked in half because the city purchased up, two to three blocks of homes," John recalled.
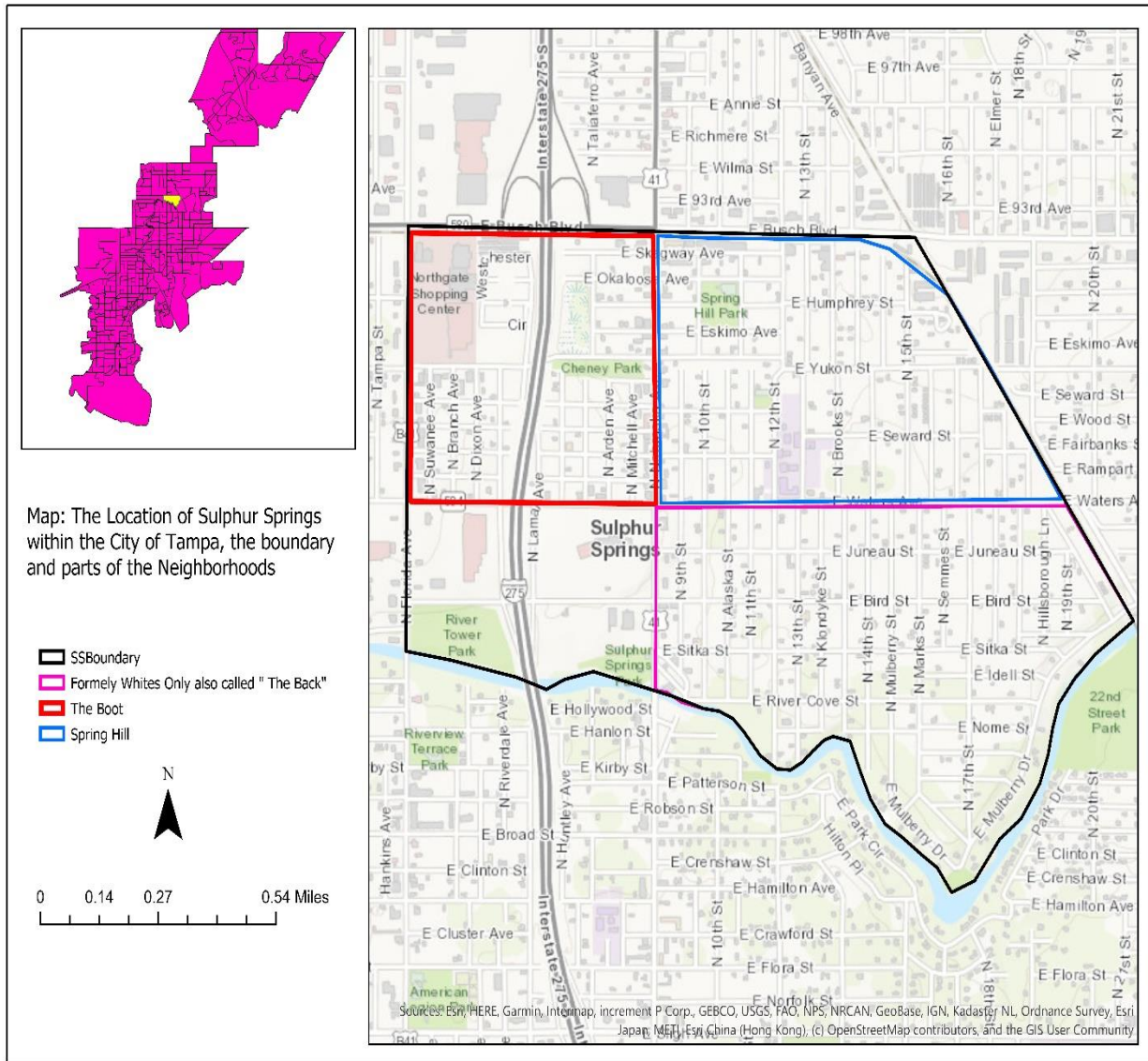
Figure 4: GIS Map showing the boundary and different parts of Sulphur Springs described by participants. The map also shows the Interstate 275 cutting through the northeast section of Sulphur Springs or what residents called the Boot and the southwest parts they called the Bottom (map by Author).

The impact of the interstate was something the middle-aged Pastor also talked about. "Everything changed when they built the interstate. They started moving people out of the *Boot* area because the interstate was coming through there. They ended up dividing the community up." He further explained that the government had bought out most of the properties, only leaving the racetrack and a few homes. To date, only a few residential dwellings remain between Nebraska and Interstate 275. The area is now known for the businesses, health centers, and the Cheney park. Pastor M also remembers that when the interstate came, many businesses in the *Boot* area shutdown, causing further economic devastation to the families that lived there. It was tough that the community was divided, but when the interstate shut down businesses, a lot of the folks that worked there in resorts lost their jobs," he explained.

Probed further about the impacts of the construction of the interstate to the demographics of Sulphur Springs, Jacqueline said the interstate pushed many black families into Springs Hill. Like Pastor M and Marquis (an African American, middle-aged male resident), Jacqueline told me the Springs Hill extended to the northeastern boundary of Sulphur Springs (see Figure 4). However, racial segregation remained somewhat visible as blacks did not settle south of Waters Avenue. These narratives fit in Jackson's (2020: 62-67) description of Spring Hill consisting of five streets north of Waters Avenue: Yukon, Humphrey, Eskimo, Okaloosa, and Skagway. Here, Jacqueline's father and other families that had moved from the *Bottom* to Spring Hill found "better homes with better plumbing" than what they had. John also remembers many displaced families leaving Sulphur Springs. Many of the people whose homes were bought up, didn't stay in the neighborhood. Some moved-out because they could not find a home that they wanted in the area, but others were looking at other new parts of the city or wanted to move closer to where they worked. These accounts on the adverse impacts of the construction of Interstate 275 are an example

of how infrastructure developments become cause injustice and violence (Agyeman et al. 2003; Auyero and de Lara 2012; Haines 2018; Sze and London 2008).

The demographic composition of Sulphur Springs changed further around 1976 with the closure of the arcade and other subsidiary businesses. In the interviews with Jacqueline and Marquis, they explained that when the businesses and activities that brought the economic stability to Sulphur Spring closed, the affluent white families started to move out. It is in this early 1980s period that John started working with the late Linda Hope, a prominent historian, advocate against adverse publicity and author of *The History of Sulphur Springs, The Pennysaver*, and other historic photobooks and stories about Tampa's oldest neighborhoods (Brown 2004). John explained that the arcade was closed because businesses were not doing well. The closure of businesses had devastating impacts on the Sulphur Springs and marked the beginning of a difficult time. He recalled that it is in this period between 1976 to 1985 that Sulphur Springs lost its excitement and tourist draw.

The closure of businesses further rendered many residents jobless, and that is when the problem of crime and drugs started to rise in Sulphur Springs. For example, Marquis and John remember that besides the dog track and swimming pool that remained in place, the empty lots of businesses were occupied by homeless communities, and the once buzzing storefronts and Nebraska Avenue became synonymous to the drug problem and prostitution. During the declining fortune of Sulphur Springs, the City of Tampa was expanding dramatically after 1950. John says new neighborhoods—like North Tampa began developing much further north, and they created interest and opportunity for wealthier families to move out of Sulphur Springs, which was then considered an inner-city from the 1980s. Through an oral history study, Brown (2004) similarly

found that many residents wanted to explore the northern parts of Tampa because of the problem of crime and drugs in Sulphur Springs.

Jacqueline, who was a teenager at this time, says the departure of wealthier white families from Sulphur Springs in the 1980s allowed some black families to move farther into sections of the neighborhoods they had not lived in during the days of segregation. "In 1980s, Waters Avenue all the way to the Hillsborough River was mostly white. From Waters Avenue going north to [East Bush Avenue] was mostly black. That was Spring Hill area," said Pastor M. However, Joseph, an African American, senior male resident, recalls his family being among the first few black families to move into the previously white-only section of Sulphur Springs. "We were among the first blacks on this side of [south of Waters Avenue]. It was all white people, but black people have slowly come to take over". He said.

As more black families moved further south to occupy the homes left by whites, other families from other neighborhoods in the city also joined them. "To be honest, when white started moving out, it was not just Spring Hill that moved over here. It was folks from all over the city," said Pastor M. For example, Joseph remembered seeing fewer white families and more Hispanic families moving into the formerly whites-only part of Sulphur Springs.

Becoming a Low-Income and Transient Neighborhood.

Having seen the closure of businesses, loss of jobs, and departure of wealthier families, Sulphur Springs became a low-income neighborhood that was attractive for those who moved in looking for cheaper and temporary rental housing. The interviews revealed that at least three other factors drove the concentration of low-income and transient families in Sulphur Springs. The first was the introduction of Section 8 assistance in Sulphur Springs. Although, the Section 8 program

has its roots in the federal housing assistance —conceived by the US Housing Act of 1937 after the Great Depression. Initially, the federal housing assistance provided funds for local housing authorities to construct housing for low-income households. Following successive amendments to the US Housing Act, the Section 8 program was created in 1974. However, the focus was on helping pay rent for low-income households (McCarty 2005; Stoloff 2004). Joseph and Fred remember first hearing about Section 8 assistance in the early 1980s in Florida. Like many other participants, Joseph and Marquis said many low-income families came to Sulphur Springs because other neighborhoods in Tampa did not want Section 8 houses. However, Section 8 elicited mixed feelings among those I interviewed. One participant described Section 8 as "a gift and a curse" to Sulphur Springs.

On the one hand, Section 8 housing assistance had substantially uplifted the livelihoods of low-income families in Sulphur Springs. For instance, I interviewed Beyoncé, a 31-year-old black woman who had been on Section 8 assistance for ten years. Through the program, her family was able to live in a decent three-bedroom house that also provided enough space to their family of six. Using the voucher, they could offset about 70 percent of their rent and utilities; and use their earnings to pay the balance on rent, food, and other needs. Pendo, (an African American, middle-aged, female resident) was yet another beneficiary of the housing assistance program. At the time of the study, she had applied to the Section 8 program after getting custody of her grandchildren. She was jobless and was hoping that Section 8 would help her expanded family get a decent roof over her head. In addition to paying rent, vouchers were also given to some low-income households to buy homes. For instance, when Stacey, a Hispanic, middle-aged female resident, I interviewed, lost her husband, her part-time job could not support her young family. She got Section 8 assistance

for a year and went on to use the voucher to buy the house she was staying in at the time of the study.

On the other hand, the interviews revealed that most of the beneficiaries of Section 8 only stayed in Sulphur Springs for a short period. "The neighborhood's makeup has changed from permanent residency to a somewhat more of a transition population. And that's sort of what Section 8 housing has been for this neighborhood," said Gladys (a white, senior female resident). Nonetheless, I met a few beneficiaries like Stacey, who had decided to make Sulphur Spring their permanent home.

> Once upon a time, I was a section 8 person, and I never wanted to move around. I think if Section 8 recipient were to stay in the unit for good as long as section exists will be very good. Mr. Napoleon's been there for five years, and he is in Section 8. The lady at the [ground floor of the same apartment] has been there for three years. But before her, there was a young girl she was there a year before her; there was another couple who stayed for a year. In the ten years that we've been here, that unit is on the fifth renter. The lady has been their the longest. On the other side of the street, there are different people every year (Interview 9, 9/24/2019, Sulphur Springs Community).

Stacey attempted to explain how Section 8 recipients frequently moved in and out. However, others like Beyoncé (a young African American female resident) considered her stay in Sulphur Springs temporary. "I think I will move. Honestly, what has made me stay in here is because I can't afford to move right now", she told me in an interview.

Asked about why Section 8 recipients did not stay in Sulphur springs, Pastor M who also owned multiple rental properties in Sulphur Springs, told me that it was easier for beneficiaries to move because the government had subsidized the rent for them. "Compared to those with no housing assistance, they're able to move anywhere that anyone will accept Section 8," he said. According to Stacey, some were moving out of Sulphur Springs because their families had outgrown the houses. "When you get babies, your family size grows, and if you had a two-

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bedroom, you would qualify for three. People want bigger homes, and if Section 8 is offering, why not take it?" She added.

Batman, a middle-aged African American male plumber, and resident, on the other hand, observed that it was not just Section 8 recipients that had a short turnaround of two to three years. The transiency also applied to low-income residents who he thought had become "a disposable community." For the 11 years he had lived in Sulphur Springs, he had seen an increase of low-income residents that found it easier to start over because the already owed much rent. As it turns out, the transiency was detrimental to the image of Sulphur Springs? Fred, who had worked and lived in the city for years, told me the transiency had significantly hurt the image of Sulphur Springs:

> Now, Sulphur Springs, I think to most people who have never lived; there probably falls in the same category with the area known as *suitcase city*, which is very close to USF. I think it's technically called the University Area Community just west of campus. But it got the name suitcase city because so many people moved in and out in and out all the time. You know, you saw moving vans and trucks and coming and going every day, because the rent was cheap. And there was a lot of section eight housing in the University Area Community and Sulphur Springs. So, it does not have a very positive image among most people that I know in Tampa; people come into Tampa if they can afford to live anywhere. Sulphur Springs would not be one of the places they will consider living. They just wouldn't. Even though we have Busch Gardens, you would think that that would maybe change the neighborhood for the better (Interview 12, 9/13/2019, University of South Florida).

The second factor that contributed to Sulphur Springs becoming a low-income and transient community was the HOPE VI program. The US Department of Housing and Urban Development (HUD) created the program in 1992 to revitalized aging public housing by providing grants to local housing authorities in cities across the United States (U.S. Department of Housing and Urban Development 2001; Stoloff 2004). Beyond rehabilitating older housing units into improved apartments and townhomes, the program also aimed at reducing the concentration of low-income households, but also promote a sense of community and responsibility among

residents (Greenbaum et al. 2008; Stoloff 2004; Zhang and Weismann 2015). By the early 2000s, Tampa had received over $19.9 million for Riverview Terrace and Tom Dyer Homes projects and another $32.5 million for East and West Tampa communities (U.S. Department of Housing and Urban Development 2001; Greenbaum et al. 2008).

The interviews revealed that the HOPE VI had counterproductive impacts on other communities in the city. It caused a further concentration of low-income families in marginalized neighborhoods like Sulphur Springs and the University Area Community. In an interview with Pastor M, he explained that when housing authorities wanted to redevelop housing projects, they relocated people to Sulphur Springs to enable them to demolish and rebuild old housing units. However, many of the relocated families did not move back into the rebuild projects. The pastor elaborates:

> When they rebuilt the projects, only about 20% of the people were able to go back. The rest remained [in Sulphur Springs] because they didn't build it to accommodate hundreds of people. They wanted fewer people in new projects. If there were 1000 people over there, only 200 are going to go back because they're not going to build them to accommodate 1000 people anymore. They're still doing that today. They recently moved people from West Tampa to Sulphur Springs and Suitcase City (Interview 25, 12/9/2019, Sulphur Springs Community).

Instead of revitalizing communities by creating mixed-income and stable neighborhoods, the HOPE VI program triggered an influx and concentration of low-income families in small and densely populated areas. "When you bring so many low-income people in one place, it's tough to get things done here because you start having slumlords and a transient community," Pastor M added. This finding adds to the growing evidence on the social impacts of the HOPE VI program. For example, Greenbaum et al. (2008), in their investigation of the effects of the program in the Tampa Bay, found the demolition of houses and dispersal of residents caused poverty

concentration and diminished the much needed social networks and social capital for low-income households.

Thirdly, the influx of low-income families into Sulphur Springs was because many landlords did not use credit scoring to screen tenants. "The way it works is even if you're renting a house in Tampa, you got to have good credit. That never used to be a problem. Sulphur Springs is one of the few neighborhoods where they don't check your credit," said one participant. Pastor M, a community leader, added that "If someone had bad credit or no job, they move to Sulphur Springs or Suitcase City, not anywhere else in the City of Tampa. Outside of this neighborhood, you have to have decent credit to rent."

Across the interviews, participants seemed to view the concentration of low-income households as a driver of WaSH insecurity and inequalities. Pastor M and Jacqueline were both members of the (SSWG) and advocated for improved housing conditions in Sulphur Springs. They agreed that landlords were not keen on checking the credit history of potential tenants because it meant less pressure to fix problems. "A landlord would say I'm not going to take your credit, but I'm also not fixing the problems. And if you don't have any credit or a job, you're not going to tell on your landlord because you can't go anywhere else," said the pastor.

Changing Housing Landscape and Gentrification

Additionally, the interviews showed that the concentration of low-income families in Sulphur Springs had significantly altered the housing landscape and the quality of services in the neighborhood. As more people moved into Sulphur Springs, either through Section 8, Hope VI or in search of less stringent credit screening, the demand for rental housing units increased exponentially. Participants remember seeing a proliferation of duplexes and multifamily homes

replacing single-family homes they had seen in the neighborhood. For example, Joseph and Marquis recall that when Section 8 was introduced in Florida, landlords started turning single-family homes into duplexes and multifamily homes because they saw that the program guaranteed them income. "In the late 1980s, when Sulphur Spring became a renter's community, many low-income people were living there. Then we had old homes torn down and replaced with multifamily home," John remembered.

Gladys, a white woman I had met at the Sulphur Springs Resources Center, took me on tour before our interview to show me how the housing of some streets had changed since she moved to Sulphur Springs in 1986. "When I moved here as a college student, I lived in a small apartment. I later moved to a smaller townhouse then bought this home," she said as she pointed to her four-bedroomed house. As we walked through the formerly whites-only section of Sulphur Springs, Gladys told me:

> There were many single-family homes and a few like this, a rather large home. But we also had little cabins because this was a vacation neighborhood. When there was a rental house boom, investors decided to start building duplexes or multifamily housing, and you still see a lot of that, like the one across the street here in the middle of our block ((points to a new duplex)). And then, of course, the advent of Section 8 housing created more demand for such homes. The high demand for rental changed the makeup of the neighborhood from permanent residency to a more transition population (Interview 11, 9/9/2019, Sulphur Springs Community).

Although Sulphur Springs had become a low-income, rental, and transient community, the participants also thought the changes in the housing landscape were a sign that Sulphur Springs had begun to turn the corner after the loss of tourism, business and the construction of the interstate. When longtime families that had created a close-knit community left, Sulphur Springs had fallen into what John described as a "sad state of abandoned houses and empty storefronts." However, the new housing developments and renovations between the 1990s and early 2000s had reinvigorated the neighborhood. As people moved in, developers saw the potential of the area and

began to buy and renovate houses. Businesses also started to open. For example, John remembered seeing the Tampa Health Centers open on the property where the arcade used to sit.

The 2007-09 housing crisis in the US dealt yet another blow to the recovery of Sulphur Springs. Pendo, who had moved into the neighborhood from Miami in 2006, remembers seeing more empty homes and vacant plots. "Most of these houses you see [on these streets] were empty. There had gone to foreclosure, and then you also started seeing squatters," she said. "The place became a dump when property prices fell. Houses here were abandoned and raggedy. This house ((points to a two-story house across the street)) could only be sold at $35000, which is nothing."

Sulphur Springs had a lot working against it, but the revival of the neighborhood continued through municipal and community initiatives. John remembers the late Linda Hope through the Sulphur Springs Action League, working to clean up the area before and after the housing crisis. "They bulldozed a lot of those abandoned and drug-infested houses and continued with renovating some of the houses," he told me. Much later, around 2014, Tampa Mayor Bob Buckhorn began a project to rebuild the Sulphur Springs neighborhood called the "Nehemiah Project." Gladys said that the project helped reduce abandoned houses but also addressed transiency in the community.

> The Project was in coordination with Rebuilding Together Tampa Bay, and they went around demolishing abandoned houses and building new single-family homes. Those properties targeted for new single-family homes brought in families and permanence to the neighborhood. If a duplex was empty for a period of 180 days, it was converted to a single-family unit. And that began to change things here (Interview 11, 9/9/2019, Sulphur Springs Community).

After the interview, we stood with Gladys at her gate as she showed the different types of houses on her block. "So, on a block like this, we have three duplexes on the block, and one of them is now single-family home. And the other two are still multifamily," she said.

Amidst the optimism surrounding the revival of Sulphur Springs, there was also a certain amount of unease about the ongoing housing improvements. Some residents viewed the developments as gentrification: a process of renovating housing and neighborhoods into a middle- or upper-class state (Chavez 2013). When I asked Tyron what he thought about the changes he had seen during his 20-year stay in Sulphur Springs, (a senior African American male resident) who worked in construction was not excited about the changes:

> [Sulphur Springs] has changed. There is a lot of gentrification going on. You see a lot of rich folks coming here, buying homes for around $20,000 doing small renovations and selling them for over $120,000. What is unfortunate is that they have made houses here unaffordable for folks around here. Now such houses go for around $1100 to $1200 per month for a two-bedroom around here. Being in the mortgage industry, I have been able to see such trends (Interview 2, 8/16/2019, Sulphur Springs Community).

Tyron was not the only one worried about the impacts of gentrification in the neighborhood, especially for residents with low income. Batman was greatly troubled about the effect of the changes on minority groups in the community:

> Everybody wants to buy up a part of [Sulphur Springs] because it is prime real estate. Unfortunately, that is only good for those with money—those with a little clout. But 90 [percent] of those who live here cannot buy their property which will in five years, sell at five times the amount. Most are on food stamps, and a lot of these houses around here are on government assistance—section 8. I am worried that as people buy properties here, all the black people will be shipped out (Interview 18, 10/18/2019, Sulphur Springs Community).

Apart from making renting and homeownership unaffordable for many of the residents, some participants revealed that gentrification had created absentee landlords. Most of those who bought properties in Sulphur Springs, especially after the housing crisis, were investors from all over the city and sometimes out of state. "Some landlords live outside Sulphur Springs, and so, they rarely visit or know what was going on here," said one renter. "Here we have Section 8 houses whose landlords live far away. I know a house with a landlord in California, and very little maintenance goes on." said one participant from an NGO in Sulphur Springs.

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Having gone through a demographic transition and changes in the housing landscape, Sulphur Springs, today, is not just a black community; it is a multiethnic neighborhood with a transient and renter population. The old and abandoned dwellings and vacant plots are a testament that the aftershocks for the exodus of residents in Sulphur Springs and the 2008 housing crisis are still reverberating. But the ongoing housing improvements across the neighborhood suggest that the infrastructural conditions are also going to improve. Together with the old, new single, and multifamily dwellings that make up a mosaic of the housing landscape (see Figure 5), the historical and present socioeconomic contexts make service provision complex.

Figure 5: A Collage of photographs showing the current housing landscape in Sulphur Springs. (A) vacant plot flacked by single-family houses. (B) and (C) show a duplex converted into multifamily rental units and an abandoned house in the formerly white-only section of Sulphur Springs, respectively. (F) is of an upcoming 4-bedroom townhouse while (D) and (E) are recently renovated houses of different parts for the neighborhood (Author).

WaSH Discourse and Service Provision

But how do these historical and social-economic environments shape the conditions of amenities, people's experiences, and attitudes towards WaSH services? The answers to this question were that the changing demographic and housing had shifted the discourse around WaSH from broader conversations about the history and significance of essential water resources and facilities to more short-term household needs. Secondly, these changes had also influenced the quality of services and how service providers responded to people's concerns. More significantly, these changes intersected to produced pervasive stigmatization of the community (which residents linked to poor services) and limited the extent to which residents participated in the governance of essential services. I discuss these further.

As discussed in chapter three, Sulphur Springs had a longstanding history and relationship with WaSH. Besides the natural spring which the neighborhood was named after, Sulphur Springs is associated with the Hillsborough River and Dam, the David Tipping Water Treatment Plant, the water tower, and the swimming pool. And so, I had expected these resources and infrastructures to feature prominently in my conversations. Instead, the discourse on WaSH was more about the concerns around their survival and improving their housing conditions. One community worker said, "Sulphur Springs is a low-income neighborhood. What matters to people here is getting a roof over their heads and food. Things like that. The basics. Some of my friends have never been to the pool, the dam, or the river."

Another stakeholder who had worked in Sulphur Springs for over 30 years also had similar views: "I would say for most the people here the big issue is to survive. Unless something has a direct effect like making them go to the hospital, they are not worried because they're just living at the poverty line. They're about all about what is right in front of them." The discourse is perhaps

indicative of the changes that had occurred in Sulphur Springs. As longtime residents moved out and others moved in, the demographic make-up of the neighborhood had changed into a low income, transient, and renter population, and so did the concerns. The finding that that the perceptions and conservations were shaped social and economic forces in Sulphur Springs speak to the idea that WaSH discourse is socially constructed. Inspired by the work of Berger et al. (1967) *The Social Construction of Reality*, proponents of social constructivism—including key figures in anthropology such as Michel Foucault, Bronislaw Malinowski, argue that everyday sense of reality, conversations, meaning or values are shaped by the social processes, interactions, events and experiences around us (Erickson and Murphy 2013; Murphy 2016; Patterson 2001).

Secondly, the narratives revealed that the demographic and socioeconomic and housing changes that had occurred in Sulphur Springs played a part in how service providers responded to the concerns of the residents. As Sulphur Springs welcomed new residents through housing programs (Section 8 and HOPE VI), and the lenient approach towards credit scores, there was an unprecedented demand for rental housing. Since the upgrades on the housing did not match the market, many of those who moved in settled in poor housing conditions—especially plumbing and air conditioning. Pastor M told me that when the HOPE VI program started to move people into Sulphur Springs, landlords didn't see the need to upgrade the properties. "People were coming in here who didn't have anywhere else to go. Landlords wanted to get maximum dollars because the city and the state were relocating people from projects to the neighborhood," he said. Since many renters were desperate, he also remembers seeing increased rent and delayed response to tenant concerns. "Landlords did not need them as much as the renters needed them. They jacked the prices up and gave them subpar services, especially when it came to any kind of repairs. For the most part, they were very slow if they fixed it at all."

As the population became even more transient, the response by the landlords on house problems seemed to have gotten worse. Having worked in the neighborhood as a plumber for 11 years, Batman observed that short-term renting only benefited the landlords. According to him, landlords did not care that people were moving around because they received huge deposits and sometimes two month's rent. Even though landlords knew the high turnover of tenants left significant damage to their properties, they never cared to repair the house because there was someone else waiting to move in. That was the "landlord's business plan."

In addition to the high demand for rental units and transiency, it was also difficult for tenants to get repairs done because some landlords did not live in Sulphur Springs. The absentee landlords or slumlords, as other participants called them, and discussed earlier in this chapter, came in after the 2007-09 housing crisis. Since they lived far away, they were unavailable and unresponsive when tenants needed repairs. "We have people that own houses in this neighborhood and live in other countries: forget the United States or another state, they live in other countries," said Pastor M. Based on his experiences working with the SSRWG, they had noticed that it was challenging for renters to get repairs done. "All they want to see is the money going into an account at some point in which they can gain access. But then renters don't have great access to the landlord themselves," he added.

Speaking about the impact of absentee landlords on the services tenants were receiving, Tessie (a middle-aged African American female resident) gave an example of the hardships her neighbor who lived in a house owned by a landlord in Temple Terrace went through. "There is a time the lady had water leaking from the walls. Things were pretty bad. The house was flooded. What you don't know is that this owner had around 23 properties in this neighborhood, and most were fucked up," she told me. "It is until Code Enforcement came in and forced him to repair these

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houses. He spent some little money on them and sold them. Right now, he only has about six properties left." Asked why the repairs were not done sooner, she said, "They don't live here. You can't find him. He lives somewhere in Temple Terrace in a nice fancy four-bedroom house," said the visibly frustrated woman. Thus, the housing dynamics in Sulphur Springs laid the ground for a WaSH regime characterized by unavailable, unresponsive, and unaccountable landlords.

Thirdly, the narratives revealed pervasive negative perceptions about Sulphur Springs, that influenced the conditions and governance of WaSH. These attitudes seemed to date as far as 1976-85 when Sulphur Springs lost its tourist draw and some of its keystone businesses. The role of this economic downturn of the neighborhood and concentration of low-income households in the rise of crime, drugs, and prostitution is something many of the participants talked about. In part, the narratives suggest that the negative perceptions about the neighborhood continued to influence how residents were treated.

Many felt Sulphur Springs received subpar services because it was a low-income and black neighborhood associated with crime. "If you do an internet search of worst neighborhoods in town, If I'm not mistaken [Sulphur Springs] is number one." said a participant. "And because of that, we don't have too many people trying to fix things. We need to fix the roads with potholes and more sidewalks, too," they went on. Batman also told me that being a black neighborhood, he felt many of the WaSH problems were not being fixed. He said, "if we are honest, it's about the black population. So, things here will not be fixed unless a whole new wealthier class of people is coming in. I don't care what nobody says. It's an undertone in this country." These are just a small sample of similar comments that link the negative discourse to WaSH insecurity in the neighborhood.

Notwithstanding the history of Sulphur Springs, residents also feel the problems were overstated to the detriment of the community. For example, when Andy moved to the neighboring Seminole Heights community in 2008, most of what she was told or read was about how Sulphur Springs was an unsafe neighborhood. As a swimmer, the 31-year-old white USF student had spent a lot of time in the community when she went to the Sulphur Springs Pool. She also learned that there was a misconception that Sulphur Springs was a dangerous neighborhood. In 2019, Andy and her boyfriend decided to buy their first home in Sulphur Springs. Similarly, Dani, a senior Hispanic woman, felt that since she moved to Sulphur Springs in 1998, there had been investments into new homes and demolition of old houses and reduction in crime through policing. However, she felt the neighborhood was yet to cast a shadow over the negative image from the 1970 and 80s.

The link between negative perceptions and unjust treatment is well documented in social science. Anthropological research has indeed shown that negative discourse, particularly the language, plays a crucial role in legitimizing injustices against certain social groups. In chapter two, I presented examples of how labeling a group or an individual "criminal," "mad," or "illegal" creates power over those we speak about and legitimizes the suffering of subjects the labels create (Biehl 2001; Fassin 2011; Lyon-Callo 2000). This relationship between how we talk about people and how we treat them is central to Michel Foucault's idea that discourse (the thoughts, views, perceptions) have the power to exclude and oppress those we speak about (McHoul and Grace 1997; Murphy 2016:653). However, Gladys and many other community members had been at the forefront of challenging these perceptions.

For the hour I spent with Gladys in her kitchen table drinking coffee and talking, she talked about passionately about the need to change how people spoke about Sulphur Springs. "For some reason, this neighborhood is viewed as something so unusual. Every place you go to has issues,

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but somehow it gets put in a little bit different frame because we're people of low income, people of color. And that's the only explanation I have," she told me. Angered by the denigration of the community, she began to participate in conversations and actions that challenged the negative perceptions. She gave me an example:

> "Someone with a public voice was denigrating this community, so I started participating in that conversation just to make a point. And I called her on it. I sent her an email. And she was like, oh, I wasn't referring to the people. I was talking about the neighborhood. I let it go because first, the words that she used was hardscrabble. And I embrace that I am hardscrabble all the way. I came down here with nothing except all the good education and morals that my parents gave me. And I love Sulphur Springs. I can't imagine living anyplace in Tampa. So hardscrabble. Yes, look it up. I am hardscrabble. But she used it in a derogatory term. And then she denied that she was talking about people. Well, I'm sorry, a neighborhood can't be hardscrabble, that is a description for a living person. So, they hide behind their comments like that one wasn't talking about you. I was talking about the neighborhood. As if they're separate things, you know. Obviously, it rubbed me the wrong way (Interview 11, 9/9/2019, Sulphur Springs Community).

Fortunately, Gladys was not alone in challenging these negative perceptions. I learned that stakeholders such as the Sulphur Springs Neighborhood of Promise (SSNOP), United Way Suncoast, and Community Steppingstone were using arts and education and music to help people talk about Sulphur Springs differently. Additionally, ongoing efforts by the Sulphur Springs Museum and Heritage Center to challenge the negative discourse of the community by collecting, preserving, and sharing historical information, photographs, and artifacts through exhibitions. The museum was also actively engaging the youth and new residents about issues in the neighborhood (also see Spillane 2007).

Lastly, Sulphur Springs' history, the present demographic, and housing makeup of the neighborhood significantly influenced how residents participated in WaSH governance. For the most part, the narratives revealed that there was a limited ability for residents (at the household

and community level) to voice their service concerns. As discussed earlier, the increase in the demand for rental units in Sulphur Springs did not provide an incentive for landlords to upgrade houses or fix problems.

At the household level, the implications were that renters were afraid to move out because there were fewer rental units. One stakeholder told me that with the increase in demand for Section 8 houses, there was a low supply of rental units. Consequently, renters were willing to live in houses with poor conditions. "I know a house with a landlord in California, and very little maintenance goes on. Even with such disputes, the tenants are afraid to move out of such houses because you move today, and someone else moves in the next day," he explained. In the worst-case scenario, tenants would move out.

Through his plumbing work, Batman had met tenants who had no option but to move out when the problems got worse. "For some people, it is easy just to start over when nothing is working if nobody is going to do the repairs." A great example was Tessie, who had lived in four houses within two years. Her first house had plumbing issues, but her attempts to get them repaired by the landlord were futile. So, she moved out. A few months after moving, she remembers living without air conditioning for three months and having numerous plumbing problems. "I always complain. I think that what we black folks have given up on complaining. That is also why the house conditions here are so bad. You move out; someone else moves in," she added. But perhaps more frustrating was that her attempt to get the problems fixed turned into an even bigger nightmare. "The landlord was doing nothing. I told him I was not going to pay rent, and what I got was an eviction letter," she told me. According to Tessie, residents were reluctant to call Code Enforcement or withhold rent to force landlords to fix problems because they ended up getting a

bad record. That is how she moved to the fourth rental unit she was staying at the time of the interview.

Like many other stakeholders who had noted that residents were receiving inferior services, Jacqueline, through her work with the SSRWG, talked about the need for the community to hold business owners accountable:

> I think, as a community, we must help business owners accountable. For instance, we went to the meat market and held him accountable. We were like some of the stuff isn't fresh. Because this is a low-income community, people think they can do anything, which is not right either. So, I think that's a matter of people that utilize facilities holding them responsible based on their expectations. That [a service] is convenient means it should be least cared for. No, it's not acceptable. So, I think that's the part of holding those owners, people that utilize it, teaching them that you can hold these owners accountable (Interview 26, 11/22/2019, Sulphur Springs Community).

However, some of those I interviewed felt it was difficult to get residents to participate in community initiatives to advocate for better services. For example, Joseph felt that Sulphur Springs was among the few neighborhoods that did not hold regular meetings to discuss resident concerns. "We don't have any here like you would see road signs on 34th and Hanna street saying we are having community meetings. That will be a good thing to have here." Even so, Tyron felt there needed to be more publicity if when community forums are organized. "Most of us don't know when they hold such meetings. There are people here who do not know the resource center or museum exists. But, if there is an opportunity to attend, we would like to go."

Community leaders, on the other hand, felt that the limited participation and access to information was a more significant problem. Based on her experience, Jacqueline had observed that even though they tried to inform people about community events, residents did not show up. Jacqueline felt the turnout was more about people's interest than lack of information or forums:

We have done a great job letting people know about events. There are times we have covered every house with fliers, and people don't come. People go to what they want. Yet on Saturday morning, the football field where you don't do any fliers is literally full. If you go any Saturday during our football season, every field from the one across the railroad tracks is full. My point is people go to what they feel is important. When we give away something free for food, you don't even have to send out fliers. You tell one person, and word spreads around (Interview 26, 11/22/2019, Sulphur Springs Community).

As a result, organizations in the neighborhood were using sports events and giveaways to pass information about important community initiatives. The Sulphur Springs Literature Block Party by SSNOP and United Way Suncoast was one such event (See Figure 6). At these events, there were opportunities and incentives to talk to staff from participating service providers such as the water department. The SSRWG also took the opportunity to collect information about what residents were concerned about.

Figure 6: Pictures from the Sulphur Springs Block Lit Party that gave a chance for residents to engage with community organizations and service providers (Author)

However, the common theme was that organizing community initiatives was challenging because Sulphur Springs had a large transient population. Jacqueline remembers instances her organization sent out fliers only to find residents had moved out. Even more significant, she had observed that before Sulphur Springs became transient, it was easier to pass information around the community. She could send an alert to one person, and it will diffuse through the large social networks. "For instance, if your child goes to the schools here, the school will send information to every parent. And the parents would tell others," she explained. The high turnover of residents did not just make information sharing among residents difficult; it also threatened the social cohesion of the neighborhood and the ability of residents to address their concerns collectively.

For the ten years Stacey had lived in Spring Hill, she had seen many people come and go. And most of those were on Section 8 assistance. She told me that many renters on her block did not participate in community initiatives because they did not plan to stay in the neighborhood. "People organize meetings for us to react to things that are happening in the community, and then one person will show. They will say this is a waste of time because they will be gone," she said. Since people were moving in and out, Stacey also felt that the residents did not have enough time to build relationships and a collective voice. "Thank God Napoleon, and a few other people down there have been there for five years. But the rest of them are different faces every year," she told me. "I don't hang out with them. I have three people that I can go to their house. When there is a problem, we discuss it and help resolve it," she went on. Even with the problems associated with transiency, Stacey—and others like Beyoncé and Batman, who lived on the same block, felt their block was more united than others in Sulphur Springs.

Perhaps more significantly, the narratives revealed a hidden and less talked about the racial boundary between the north and the south of Waters Avenue that further complicated the

neighborhoods' cohesion. In part, the divide was linked to the perception that the southern section had high crime levels compared to the Spring Hill. Beyoncé said, "It was really bad on the other side of Waters ((referring to the southern section)). I call it the *Back* of the Sulphur Springs. A lot was going on, so we don't hang out there—a lot of shootings, gang-related stuff, and drugs. Similar sentiments were echoed by Joseph and Stacey, who also lived north of Waters Avenue.

For longtime residents, however, there was also what Jacqueline described as "a perpetual boundary" that existed since the days of racial segregation. "[The divide between the two sections] has to do with the historical boundary that was set where African-Americans lived on one side and Caucasians on the other," she told me. "In some people's minds that area down by the river still a no-go zone, it may not be a real boundary anymore, but it's still a perceptual boundary for black folks," she went on. In her view, the historical boundary has been passed on from generation to generation through stories. "Most people don't go down there because, when my dad was growing up, they couldn't go down there. If you went down there, something bad happened to black people."

These views are consistent with what Brown (2004) and Jackson (2020) found in their oral history projects that even though the racial composition of Sulphur Springs had changed, residents still described the neighborhood based on racial separation. In their study, Brown also found the presence of the "black" Spring Hill community and the pre-1960's segregated "whites-only" south. Ethnographic work by the USF Heritage Lab also revealed that Waters Avenue, as a redline of racial separation, was still embedded in the minds of the older residents. For example, Jackson (2020) found that some of the longtime residents had crossed the Waters Avenue barrier for the first time in 2016. However, Jacqueline was among the residents working on challenging the legacy of racial segregation. Having seen the legacy of racial discrimination on the cohesion of the

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neighborhood, she was working with local schools to break down the historical boundary in the minds of the youth:

> We gotta help change the perception for anybody who lives up here to go down there. We did the community walk, and some students came to me and said my mum told me I couldn't go down there. That is because their mother said to her that when someone went down that she got raped, she got killed because they were African American, they don't belong there. Even though those boundaries have been taken down, there's still that perceived boundary of this is the area you don't go in because these bad things happen. The homeowners down there for a long time didn't look like us, and we not so welcoming, especially the closer you got to the water (Interview 26, 11/22/2019, Sulphur Springs Community).

Much of this chapter has been dedicated to exploring the different forces that have made Sulphur Springs what it is today. It adds much-needed literature on the history of Sulphur Springs contained in local journals, periodicals, and academic research produced by anthropologists from the University of South Florida (e.g., Brown 2004; Chavez 2013; Jackson 2009; Jackson 2010; Spillane 2007). I see that the present conditions and perceptions about WaSH are embedded into the historical contexts—especially racial segregation, the construction of the interstate, and multiple economic downturns in the neighborhood. Collectively, these forces have influenced the demographic, socioeconomic, and infrastructural makeup of the community, but also the conversations about what constitutes salient WaSH concerns. In the next chapters, I delve deeper into these conversations paying attention to water, sewer, drainage, and laundry services.

Chapter Six: Water

Perceptions about WaSH services are embedded within the historical, socioeconomic, political, and sociocultural contexts. As seen in chapter five, it is simply impossible to delink the history of racial segregation, the demographic composition, and the infrastructure mosaic of Sulphur Springs from the current conditions and perceptions about WaSH services. Like in many cities across the world, water, sewer, and drainage services are provided by municipal departments or agencies. Within the jurisdiction of the City of Tampa, the Water, Wastewater, and Transportation/Stormwater are public works and utility departments responsible for these services. Each utility is headed by a director that reports to the mayor through an administrator. In this chapter, I draw on participant observation, interviews, and survey data to explore the arrangements behind these services, and ways in which people talked about them, but also and how the discourse varies among segments of the community.

The Water Department treats and supplies potable water to about 620,000 people in the Tampa Bay area. The utility's service area covers Sulphur Springs and other neighborhoods. But what kinds of arrangements are needed to provide water services? To fully understand the intricacies of water service provision, my initial plan was to take up an unpaid internship position at the Utilities Center. After many phone calls and emails to contacts I had already established, it became clear that the position was out of reach. Since the city had just had an election, most of the connections I had hoped to leverage were reluctant to offer help in the transition period. However, my interview with a senior manager (white and middle-aged male) and interaction with staff from

the Water Department in the field provided adequate insight into the water production and distribution process.

The complex and multilayered process started with what one stakeholder described as a "blended strategy of sourcing water." The primary water source for the City is the Hillsborough River. Occasionally, the department would supplement its sources by buying water from the Tampa Bay Water, a regional retailer established to coordinate water supply for Hillsborough, Pasco, and Pinellas Counties. The retailer sells water consolidated from groundwater from Florida's aquifers, rivers, and desalination of seawater (Tampa Bay Water 2019). The second step in the department's production and distribution process is treatment. Before distributing water through its vast pipeline, the department treats up to 120 million gallons a day at the David L. Tippin Water Treatment Facility (City of Tampa 2019). The treatment process aims at ensuring the water meets both federal and state water quality standards for domestic purposes (such as drinking, cooking, laundry, toilet flushing), commercial and industrial use

Through its distribution network, the Water Department's Distribution and Consumer Services Division delivers water to its customers that include homes and commercial establishments. From the central treatment facility, the utility then pumps water across neighborhoods through a metering system that monitors usage by the customers. As such, the manager explained to me that the city was responsible for laying and maintaining water infrastructures to the water meter. The handing over of last-mile services and infrastructure responsibility to residents and the private sector speaks to the neoliberal model of WaSH provision (see Silver 2019; Strang 2016). With the approval of utility service requests by the water department, residential and commercial customers who are responsible for laying and maintaining water infrastructures on their properties then connect to the city water line. At the end of the

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distribution cycle, the department would provide follow up customer services, including billing and customer engagement. "Normally, the [Distribution and Consumer Services Division] would send the customers a monthly bill. The bill is based on their meter readings and usually consolidated; it also charges for other utilities like sewer and solid waste." said the senior manager. "We also have to listen to customer concerns and act on them. Understanding these customer concerns was a key objective of this study.

The answer came from data collected from interviews (which included freelisting and open-ended questions) and the social survey. Asked to provide a list of aspects of drinking water services they were most concerned about, the freelisting question yielded a total of 16 items. Of the 19 respondents, 63 percent were women, and 37 percent were Men. The majority also self-identified as Black, African American, or African (53%), followed by Hispanics (26%). White or Caucasians represented 21% of the respondents. While all had at least a High School Diploma, the age of the respondents ranged between 19 to 58 years (Mean=37 years) and had also spent between two months to 47 years in Sulphur Springs (Mean=14 years). Some were unemployed, and others earned over $60,000 a year (Mean=$26,989).

The Spectrum of Water Needs

Of the 16 freelist items, two mentioned water quality, and four others were about color, floating particles, and turbidity. Once the six closely related issues had been re-coded, I ended up with 13 unique items. Using ANTHROPAC 4.0, the Smith's *S* Saliency Index, which considers the frequency and average rank of the item on each list, was calculated. Table 4 shows the 13 items ranked by salience.

Table 4: Water Concerns Listed by 19 Respondents Ranked by Salience.

	Item	Frequency (%)	Average Rank	Salience (Smith's *S* index)
1	Turbidity	47.4	1.56	0.389
2	Filtering drinking water	31.6	1.67	0.250
3	Smell	26.3	2.00	0.172
4	Taste	26.3	1.60	0.211
5	Chemicals in my water	26.3	2.60	0.155
6	Water costs	15.8	2.67	0.070
7	Water quality	15.8	1.00	0.158
8	Water safety	15.8	2.67	0.083
9	Awareness of water use volumes	5.3	2.00	0.035
10	Water resource protection	5.3	1.00	0.053
11	Adequate water supply	5.3	4.00	0.021
12	Water pressure	5.3	2.00	0.026
13	Regular replacement of faucet	5.3	2.00	0.035

Turbidity, defined as the cloudiness caused by suspended particles in water by Lehtola et al. (2004), was the most salient item (*S*=.389). While only three of the 19 respondents used the term, others listed it as "floating things" or "floaties," "cloudy color." These terms were present in the interviews and informal discussions about turbidity and why they did not drink water from their faucet.

Andy told me that the water was turbid, and the hazy color was because the particulates had not been filtered out correctly. Given the turbidity, some residents only used the water for

other purposes except drinking. "I buy my drinking water. I bathe with it, and that is it. As far as drinking it? No. When you go back home, take a glass of water and see all those things floating in there," a seemingly disgusted Joseph said. Like many others, who thought the water was not clean enough; he would buy bottled water and occasionally drink filtered water.

Their concern about suspended particles in their water and perception of the cleanliness of the water made filtering a vital aspect of drinking water. Moreover, the salience of filtering water was perhaps indicative of the lack of trust in the water treatment process. Filtering water was the second most salient concern about potable water (S=.250). While both women and men equally listed filtering water, 83 percent were renters. Marquis and Andy told me they filtered water for drinking. Marquis and his family had installed a filter on their water taps. "We have filters, so, just in case the plant can't process it or clean it well, you have to try it yourself. So far, the water is pretty good," he explained in an interview. Like Marquis, Andy and her boyfriend relied on the municipal supply. We drink water from the faucet. But we have an activated carbon filter on our sink that we drink from," she told me.

On the other hand, others told me they only used municipal water when they did not have bottled water. For instance, Beyoncé, a mother of five, stated that she bought bottled water for her household, but she would sometimes let her family drink water from the faucet, and they were used to it. Although she bought bottled water because it was convenient for her kids to carry around, she would normally fill a jar and put it in the refrigerator. On the contrary, Pendo, who did not have a filter, boiled the water because she did not trust the water system. But after getting custody of her grandchildren, she started buying bottled water.

Similarly, boiling water was an alternative strategy for Stacey. "What I do if I don't have water from the store is boil the tap water. Back in the days, my parents didn't have those systems like filters. You boil it, and you kill the germs like Bacteria. I do that occasionally and put a gallon there," she said. "My grandkids and my daughters will come to ask; do you have any water in the refrigerator? Okay, is that tap water? No, that's good water. I don't tell them I boiled it, but they drink it," she went on. However, Dani, a Hispanic woman who had lived in Sulphur Springs for over 20 years, resorted to buying drinking water because she was frustrated that filtering and boiling water was not effective in removing the impurities. "I used to have a filter, but the water so bad. It comes out muddy, and I would have to be changing the filter so many times. I just stop filtering it, and I opted to buy water. But the water here is nasty. If you boil it, you can tell that the residue is brown. It is dirty."

Some participants also told me that there was a particularly disturbing smell in the municipal water. Analysis of the freelist data showed that the smell was the third most salient item on the list of water concerns ($S =.172$). As expressed in the interviews, the water smelled like chlorine. "There are times of the day I go to the kitchen to get a cup of water, and it smells like pool water. That should not happen," said Batman in an interview. The "offensive smell," as Andy described it, had to do with the levels of chlorine in the water. This view was also echoed with Marquis, who, however, thought that as much as the water had a distinct chlorine smell, it made him confident that the water was being treated.

More importantly, participants linked the chlorination to the taste. "The chlorination coming through has a disagreeable taste, even though you know, in the back of your mind, it's potentially disinfecting the water," said one participant. "I think that the smell correlates with the taste. If it has an offensive smell and taste, then I don't want to drink it," the participant added.

However, some participants observed that the taste fluctuated. "There are some days you can come home, and the water tastes like bottled water. On other days you go home, and it tastes like you just jumped off into a swimming pool. It has too much chlorine in it," said Batman. Having been a plumber since teenagerhood had also come across similar concerns and he thought the taste of chlorine in the water was because the water department was "trying to beat down the contaminants in the water. Overall the freelist data indicate that the taste of water was among the fourth most salient concerns (S=.211).

Although a few others thought the smell and taste of chlorine in the water were negligible, the levels of chlorine seemed to raise an even bigger concern. The data revealed deep-lying anxiety over the types and quantities of chemicals and the safety of the water. The freelist data indicated that the concern over the chemicals in the water was the firth most salient item (S=.155). Chlorine, Fluorine, Calcium, and Lead were some of the chemical elements cited in the interviews. Batman's comment seemed to capture these elements:

> In the 12 years I have worked as a plumber, I would say the conditions here are getting worse as far as drinking water. When I first moved here, the water was better. Now is more chlorine. I'll guarantee if you go out to get you a cup of water, you can smell the chlorine in it. It wasn't like that when I moved here. And you got to remember not only is chlorine in it, but they also put in fluoride or something like that (something to do with your teeth). The concentration is not good because too much will deteriorate your teeth. It's not like we live in Flint, Michigan, where they got to deal with lead, amongst other things; in [Tampa], we have to deal with the fluoride, the chlorine, and others like calcium which you would see on your sink (Interview 18, 10/18/2019, Sulphur Springs Community).

As we sat on the dining table overlooking her newly renovated kitchen, Dani took me through her journey and experiences with the municipal water. When Dani moved to Sulphur Springs in 1999 from Puerto Rico, she had noticed a big difference in the water. "Before I went back home, I live in Pennsylvania, the outskirts of Philadelphia. In both places, I had never seen a

calcium buildup like what I have seen here. We never had water spots on our glasses or anything like that." She had observed the Calcium build-up was particularly high late in the evening, or early in the morning. To illustrate the problem, Dani led me to her kitchen to show me the Calcium build-up on her sink:

> If I don't dry my sink right now, it will leave a white powdery substance like this, and that destroys it. Let me tell you a story. I made the biggest mistake of my life. My sink was beautiful. I bought the bronze type of pewter faucets for my bathroom in my bedroom. And they are deteriorating because of the water. So, I'm like, oh my god, they were so much more expensive, so much prettier than the Chrome. I bought it less than a year ago, and now they are messed up (Interview 15, 9/14/2019, Sulphur Springs Community).

At first, Dani tried using water filters, which became expensive and ineffective. She got more concerned when she tried boiling the water. Dani would often see a brown residue, which, according to her, was from the rusty water pipes. Based on these experiences, she relied on bottled water. "I've read that tap water is probably just as clean as the bottled water. But I wouldn't dare use it. If I were to put my husband's white T-shirt and leave the water running, it would be brown," she added.

Although Dani and Pendo were among the few participants who spoke about the calcium build-up and a brown residue in the water, their concerns over the impact of the chemicals in the water on their families' health, especially Lead, seemed to reverberate across the neighborhood. "I don't use the water for drinking. I'm afraid to use it. I have to bless this home every day because God forbid something like that happens to us. We live in a city, so what happened in Flint could happen here in Tampa," Dani said. "Depending on the level of chemical like Lead in the water, there are illnesses that come with time. The illnesses do not reflect right away." Even though she had lived in Tampa for 20 years, Dani was grateful and relieved that her girls were healthy.

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Thinking about the lead contamination in Flint, Michigan, Pendo was also worried that the corrosion of the water pipes could have devastating impacts on the health of her grandchildren:

> I know that in Flint, Michigan, the authorities did not treat the water with anticorrosive. I hope that doesn't happen here. I do not worry much about it, but I buy my water, and I tell my grandbabies not to drink the water at school either. They instead wait till they come home. I look at the calcium build up on faucets too. That is messed up, and that ain't good (Interview 6, 8/21/2019, Sulphur Springs Community).

Beyoncé was similarly worried about the safety of the water. Although she did not filter it, she always remembered to change the tap aerator to avoid a buildup of germs and rust. "I change the water tap thing ((aerator)) every so often so that our drinking water is healthy. I know there are certain chemicals in our water, and I hope they make sure whatever they are putting in is balanced right, and no one's getting sick," she said.

However, their narratives presented above seemed to incongruent with one community leader I interviewed. In a conversation at one of the community centers, they told me that the residents felt the water from the city was safe. "We have city water, they feel safe that the city makes sure our water is safe, they trust our water department," the leader said confidently. People don't see brown stuff coming out of the taps." According to the community leader, people bought bottled water because the Hillsborough River was not clean.

Listening to participants' stories about water revealed a striking pattern about how people perceived water services. The salience of the freelist items in Table 4 suggested that there was a spectrum of water needs within which their concerns fell. On one end of the spectrum were what I would call sensory water experiences. The stories about how the water looked and color, how the water smelled, and how it tasted of the water spoke to their sense of sight, smell, and taste, respectively.

The finding that customers evaluated their experiences with water services primarily through their sensory interaction speaks to the idea of sensory perceptions in contemporary anthropology (Howes 1991; Pink 2010). The longstanding interest in sensory experiences has seen researchers engage in ethnographic work into how people use their senses to interact with the material culture, including art, food, the environment, and sports (Ingold 2000; Lee and Ingold 2006; Pink et al. 2010). Right after the sensory experiences, their main concern was whether the water was safe and affordable. At the end of the spectrum were environmental experiences. That is, concerns were more about aspects of water conservation (such as awareness on water use volumes, water resource protection, and adequate water supply).

A few weeks before the end of the fieldwork, I visited a senior manager at the water department. I had hoped to share preliminary results and further investigate the degree to which the customer perceptions agreed with the water service provider. After a brief tour of the David Tipping Treatment Plant, we ended up in a conference room at the facility, where I interviewed them and presented them insights I had drawn freelist results in Table 4. Tellingly, the sequence of the concerns seemed to be in congruence with what the senior manager had learned working as a water service provider. "If I had to make a list, after my 25 years in the business. It would look just like that," they told me. "People judge water first by; does it look good, does it smell good, and then does it taste good." To further explain this sequence, they told me that when water comes out of the tap, people look at it and then smell it in a glass. "Once the water passes these two tests, they drink it, and if it tastes good, then the only other real concern is, is it safe? In his view, the interaction with water through sight, smell, taste, and the perception of safety were the main components of water quality. "After water quality, their next concern is about whether they can

afford it, then how much does this cost, and how much water am I using? So, I think the list has covered all those areas," the senior manager concluded.

Interestingly, the results of the survey slightly differed from the sequence that had emerged from the freelist data and narratives. I asked respondents to rate the five most salient items in Table 4 on a scale of 1 to 5 (where 1 represents what they care most about least, and 5 for the most). The results in Table 5 suggest that the respondents were more concerned about the chemicals in their water (Mean rating=3.97). This was followed by turbidity, which many participants had talked about as floating particles, filtering water, the taste, and the smell.

Table 5: Descriptive Statistics of Water Concerns Rated on a Scale of 1 to 5.

#	Field	N	Mean	Std Dev	Variance
1	Chemicals in my water	97	3.97	1.42	2.01
2	No floating things in my water	100	3.72	1.39	1.92
3	Filtering my drinking water	97	3.59	1.46	2.12
4	Taste	98	3.33	1.58	2.49
5	Smell	99	3.27	1.66	2.74

Across the interviews, it was apparent that water quality was the biggest concern for most of the residents. Although many were comfortable with using potable water for cleaning, toilet flushing, and bathing, their sensory experiences and perceptions about water safety heavily influenced their decision to use for drinking. With exception to Andy, Bob (white and young male resident), and Marquis, who seemed comfortable using municipal water for all domestic purposes, including drinking, others like Beyoncé and Stacey only used it when they did not have bottled water. Considering the water quality concerns discussed, they all filtered or boiled it.

However, there were other participants like Dani, Joseph, and Pendo who used tap water for all other purposes except drinking. In the survey, I sought to understand how often participants drunk water from the faucet, filtered, boiled, and bought bottled water. As in Table 6, the results of the six-point Likert scale (where 1 =Never, and 5 =always) show that many of the respondents bought bottled water (Mean=4.46).

Table 6: Survey Results Showing Drinking Water Trend and Strategies.

How often do you	N	Mean	Std. Dev	Variance	Skewness	Kurtosis
Buy bottled water	101	4.46	1.109	1.230	-2.195	3.847
Filter water for drinking	102	2.70	1.640	2.689	0.255	-1.625
Drink water from the faucet	102	2.47	1.467	2.153	0.519	-1.186
Boil water for drinking	102	1.92	1.412	1.994	1.239	-0.039

Information, Trust and The Lemming Effect

Besides the concerns about the quality of municipal water, a few conversations suggest that the popularity of bottled water among residents of Sulphur Springs was perhaps indicative of the relations between the Water Department and its customers, but also a learned behavior. Addis, a young African female resident, who had fled persecution in her country, told me she did not drink water from the faucet because she lacked information about water quality and safety. "I don't drink water from the faucet. But if I must, I have to boil it. Because I like tea, most of the time, I would boil the water and add some tea. But drinking it straight? No. Sometimes for my tea, I would even use bottled water if I have it," she told me. "For me, if I have enough knowledge about something, I have the confidence to use it. But for the water, I don't know. Nobody has told me this water is like this or like that." However, her comfort with bottled water was short-lived. One day, she went on YouTube, and she was surprised to learn that bottled water was not as pure as she had imagined. "Oh my gosh! The water we buy sometimes has plastic inside and other toxins. That was scary. I listen to my body, which makes me very careful about what I eat. So, for me, information about water safety is important," she concluded, excused herself, and went into her house to get tea.

She emerged with two cups and handed me one. Her tone did not change. She then went on to reveal that her choice of bottled water was heavily influenced by what she had seen other people do. "I buy bottled water because I see everybody grabbing water in stores, I also don't care to use it," she said candidly. "Where I come from, I did not buy water. The water came from a spring in the ground. The taste is incredible. When I think about it, I can feel the taste of the water on my tongue. It is so tasty," the nostalgic woman said. Addis also told me that before she moved to Sulphur Springs, she lived with a black American lady in New Tampa. The lady used to filter the water from the tap. Although the water "felt heavy," she trusted it because the host knew about

how the water was treated. "Here it is different; everybody is buying water, why should I drink from the tap?"

Curious to know why and when bottled water had become a popular option. I asked Fred, a historian who had also worked with the city utilities. He told me that in the 1950s, they did not buy bottled water:

> There was no such thing as purchasing water; people would have laughed if you said I'm selling water. You are selling water? Water comes out of the tap, out of the faucet. So, we had water bottles, you know, we would fill up out of the tap and put them in a fridge rater and drink out of the water bottles. And nobody ever thought about you know, buying any water or having small bottles of water, anything like that that didn't exist. I don't remember anybody buying water until maybe the 1980s. Not every store carried it. You had to go to the big grocery stores to buy water. Between 22nd Street and 30th Street, there was a farmer's market there, and there was a big grocery store right next to that farmer's market. Then gradually, the "mom and pop" grocery stores in the neighborhood started stocking it (Interview 9, 9/13/2019, University of South Florida).

Even then, he recounts that bottled water was a preserve of a few. A lot of black people he knew, said they needed money for groceries rather than buying water. Throughout the early 70s, we still drew drinking water from the faucet. My grandfather had his own bottle and a water jar. He didn't drink from a glass; he had his own jag," he fondly remembers.

Unlike many other participants I interviewed, Fred did not think concerns over the water quality primarily drove the popularity of bottled water. "I think it was just a fad. A trend like everybody else is doing it. So, I might as well do it too." However, What Addis and Fred seemed to agree on was that the water used trends in Sulphur Springs and other parts of the city, mainly bottled water, was, to a certain degree, a product of learned behavior rather than the concern over the water quality and safety. That is what Andy, a white woman in her 30s, described as the "lemming effect." "I trust the water; I don't particularly get behind the bottled water school of

thought. So, it might be a misconception that bottled water is cleaner than actual tap water. Everybody is just buying water because others are."

Altogether, the preference of bottled water, filtering, and boiling are reflective of a lack of trust in the water quality but also a critic on the performance of the Water Department. That was contrary to the view of a few participants who said the residents fully trusted water from the department. In thinking of the anthropological perspective of the concept of culture—as learned and shared practices, meanings, beliefs, and knowledge; then buying and using bottled water was thus, an essential part of the WaSH culture constructed through sensory experiences with water services and learned behavior (Bernard and Gravlee 2014; Erickson and Murphy 2013; Murphy 2016; Spradley and Mann 2008),

In light of the concerns discussed in this section, I was keen to understand the different kinds of strategies the water department and community had in place to confront the water quality, safety, cost, and conservation challenges. Based on interactions with residents from different sections of the neighborhood, the conversation initiative by staff from the utility centers was perhaps the most visible water initiative. Working with the Sulphur Springs Resource Center, the Water Department was creating awareness of the need for residents to understand how much water they were using.

The initiative aimed to reduce the overall water demand while helping customers cut their water expenses. To that end, community engagement involved the distribution of educational materials and plumbing components meant to help residents monitor and reduce their water use (see Figure 7). Additionally, the department was working on launching an Advanced Metering Systems to detect water leaks and help customers monitor their water usage. The metering system

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was a new initiative necessitated by the water leaks that were causing unusual spikes in water bills. The manager explained:

> One of the things that break my heart is when we have a low-income family that has a leak into their house, and it could run for a month, maybe even a month and a half before it's realized. And now all of a sudden, they've got a $1,000 water bill. I'm restricted by the law. I can't give my water away for free. Because of that, we are working on an advanced metering infrastructure to measure water usage, even on an hourly basis. We can automate with data analytics if it sees an unusual spike in water usage; it sends an alert to the customer. We're also implementing a customer Assistance Program. And we can put them on a payment plan for a couple of years to help get them back on track (Interview 22, 11/25/2019, Water Department).

Besides addressing water demand issues, the accounts aptly illustrated an urgent need to address the concern over the lack of information about the quality of drinking water, and the perceived lack of trust in the water. Following the presentation, the manager indicated that he was encouraged to hear that the impact of the community engagement was being felt in the neighborhood. Consequently, he planned to hire more community workers and expand the conversation beyond water conservation.

To inspire trust about the safety of the water, the manager said that they were hoping to do tours through the water treatment plant. "That way, we can help build that trust, and people can meet the people who are making their drinking water." These sentiments from the utility manager are evidence of the value of applied anthropologists as translators and mediators between service providers and customers or users; and how our ethnographic work can help better service practices and improve WaSH experiences (McCabe 2018; McCabe and Denny 2019; Venkataramani and Avery 2012; Wasson 2000; Wasson et al. 2016).
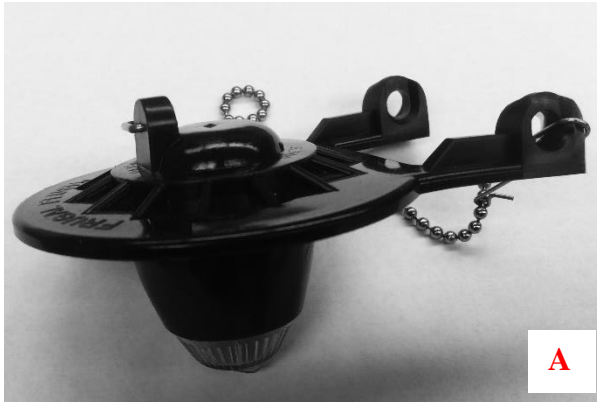
Figure 7: Water conservation devices and educational material provided by the Water Department's community engagement staff: (A) a Frugal Flush water saving retrofit for toilet tanks (B) water-saving sprinkler head (C) a tap aerator (D) shower timer (E) conservation book for kids (F) water-saving showerhead (Author).

Chapter Seven: Sewer

The Wastewater Department is the lead agency for sewer services. In the seamless transition of responsibility from the water department, it collects graywater after industrial and domestic uses (such as washing, bathing, cooking, and cleaning). The department also handles darkwater, which is wastewater in contact with human waste. The raw sewerage from the city's neighborhoods is then treated at the Howard F. Curren Advanced Wastewater Treatment Plant (AWTP) and discharged according to municipal and federal regulations.

But to do this, the Wastewater Department, through its collection Division maintains the vast sewer infrastructure that includes 1800 miles of sewer lines and 30,000 manholes. In another example of the neoliberal model of WaSH provision, the department maintained the sewer infrastructure just up to the property line (see Silver 2019; Strang 2016). Property owners are responsible for the installation and maintenance of plumbing in their properties. Although the billing of sewer services is via the Water Department, the Wastewater Department independently approves new connections and engages its customers on their concerns.

Asked to list of aspects of sewer services they were most concerned about, participant responses to the freelisting question yielded a total of 15 items in Table 7. Of the 16 respondents, 56 percent were women, and 44 percent were Men. The majority also self-identified as Black, African American, or African (50%), while Hispanics and White or Caucasians both represented 25% of the respondents. The age of the respondents ranged between 19 to 58 years (Mean age=40 years), they had also spent between two months to 47 years in Sulphur Springs (Mean =16 years).

Table 7: Sewer Concerns Listed by 16 Respondents Ranked by Salience.

	Item	Frequency (%)	Average Rank	Salience (Smith's S index)
1	Preventing sewer from contaminating drinking water	31.3	2.2	0.192
2	Old plumbing	25.0	1.8	0.177
3	Sewer back-up	25.0	1.0	0.250
4	Prompt repairs	18.8	1.7	0.146
5	Water recycling	18.8	2.7	0.117
6	Trees growing into pipes	12.5	1.5	0.094
7	Renewable treatment systems	6.3	2.0	0.050
8	Proper storage	6.3	1.0	0.063
9	The capacity to handle wastewater	6.3	1.0	0.063
10	Cost of repairing plumbing	6.3	2.0	0.031
11	Cost effective treatment systems	6.3	3.0	0.038
12	Interconnected plumbing	6.3	1.0	0.063
13	Cascading failures	6.3	2.0	0.031
14	No issues	6.3	1.0	0.063
15	Content of wastewater	6.3	1.0	0.063

Many of the respondents, whose mean income was $32,800, were renters (69%). Results from the freelist interviews revealed the most salient concerns related to a more significant problem that was sewer leaks (see Table 7). That included preventing sewer water from contaminating drinking water sources (S= .192), old plumbing (S = .177), and prompt repairs of plumbing issues (S = .250) in that order. However, wastewater recycling and the cost of repairs also emerged as prominent themes. The results of the freelists data also seemed to be consistent with the survey. I asked respondents to rate the top five items, where 5 indicated that they cared a lot about the issue (see Table 8).

Table 8: Descriptive Statistics of Sewer Concerns Rated on a Scale of 1 to 5.

	Field	N	Mean	Std Dev	Variance
1	Preventing sewer from contaminating drinking water	98	4.08	1.32	1.75
2	Not having sewer back-up	99	4.05	1.26	1.58
3	Old sewer pipes	99	3.55	1.31	1.72
4	Timely repairs for plumbing issues	98	3.53	1.43	2.04
5	Water recycling	98	3.07	1.55	2.39

Interestingly, the descriptive statistics suggest the concern over sewer backups, old sewer pipes, and timely repairs was as much as that of sewer contaminating drinking water. Summary independent sample Students t-test found no significant difference between the mean ratings ($t=.163$, $df=195$, $p>.05$). That was with exception to water recycling ($t=-4.991$, $df=194$, $p<000$).

Probed further, the participants expressed their deep-lying fear of the potential impact of sewer leaks to drinking water sources and supplies. Having seen frequent news bulletins about sewer leaks, backups, and boil notices from the Water Department, Ashely (a white young female resident) wondered whether the wastewater department was doing enough. "You hear on the news all the time about like, the sewage leaks and backing up and how they had to shut it down. They also tell you not to use tap water because they have to filter it. They tell you to boil your water," she said. "Another thing that gets me is why you all let stuff happen. I thought you had experts to keep that from happening. You have people whose only job is to make sure that doesn't happen. And yet you still let it happen?" asked the seemly frustrating middle-aged white woman. "You hear that all the time. You'd at least hear that like once or twice a month how in one of these

counties, they'd have sewer leakage into a county's water supply. So, the city has to make sure our drinking water doesn't mix with sewer," Ashley insisted.

Although Bob's most pressing concern was recycling water, he also felt proper sewer disposal was as noteworthy. "I think they should try to recycle as much as possible," he said. He told me that although he was not overly conscious about the environment and that he was not "a tree hugger," he did not see why 30 gallons of dirty water should go to waste when it could be recycled to 10 to 15 gallons of "good clean" drinkable water. "Secondly, are we disposing of sewer it properly. Proper disposal to me is making sure the sewer does not contaminate our drinking water," Bob added.

Andy, one of the most environmentally conscious participants I interviewed, passionately and lucidly, spoke about the importance of protecting surface and groundwater sources. In her opinion, increased water demand required the treatment system to have adequate capacity to handle the influx of sewerage. Besides adopting more renewable treatment technologies (e.g., biological systems), she thought to prevent untreated sewer from leaching into the Hillsborough River, and leaking into the aquifers was equally important. Overall, the narratives thus reveal the level of awareness among participants about the intimate connection between sewer and drinking water. As it emerged in conversations, sewer leaks and sewer backups were quite common in people's homes in Sulphur Springs. Although Tyron (an African American senior male resident) had never had sewer back up or leaks, he heard horror stories in the neighborhood. "In some of these rental houses, I hear people with water leaks and sewage back up in their houses." As this point, Tessie, a middle-aged black woman, and neighbor to Tyron found us sitting on his front porch, joins our conversation:

This lady ((points to a what looked like a newly renovated bungalow)) one time had a sewage back up. She would shower here, and the water comes back on the other end. She would wash hands or dishes over there, and the water comes back at the end. Do you remember? ((asks Tyron who acknowledges)) (Interview 2b, 8/16/2019, Sulphur Springs Community).

Tessie and Tyron were neighbors who lived in the formerly whites-only part of Sulphur Springs.

Farther south, a few streets from the Hillsborough River, I spoke to Marquis, who had also seen sewer backup problems. Having made it clear that sewer backups are what concerned him most, Marquis continued to tell me that as much as his family had not experienced severe sewer problems, sewer backups were quite frequent on his street. "There are sewer backups because of bad sewer infrastructure. Old pipes," he said. "Fortunately, my mom has not had such issues. I also haven't. Two years ago, two of our neighbors here had sewer backups. One of them was the [house] across which has just been bought. The buyer has probably taken it upon themselves to fix it." He then turned to show me one duplex next to his houses where tenants had moved out because of frequent sewer backups.

The problem was much similar farther north in Spring Hill, a section of Sulphur Springs that blacks had moved into when the Interstate 275 was built. This time, I was lucky to have met Stacey, who provided a firsthand account of sewer problems in her house. Weeks after we met at the Big Wash laundromat, we met for an interview at her home. That afternoon, her 26-year-old son, 29-year-old daughter, and her two grandchildren sat quietly in the living room, sharing a three-sitter couch with Stacey. The son and daughter quietly listened but also took turns to share their thoughts. Other than their concern over crime and drugs in the neighborhood, no other topic elicited more discussions than the sewer.

The horrors of the sewer back up earlier that year were still fresh in their memories. "I will let mum tell you about it the shit we went through. Oh my god!" said and exclaimed the daughter, who appeared to be the most outspoken. Stacey then went on speaking: "As she told you, that shit happened to us. We kept flushing the toilet, and it kept going up. The bathroom was flooded. We would shower, use the toilet or the kitchen, and everything was coming back." At this point, the daughter remembers that they had taken photographs. The conversation stopped, and the attention of the entire household shifted to finding the pictures on the phone, which they shared with me (see Figure 8). Luckily, Stacey knew Batman, a plumber, who lived on the same block and was interviewed during the study.

Figure 8: Pictures that were taken by Stacey and family during a sewer backup incident in May 2019 (Photo by the participant).

Old pipes, Trees, and Improper Uses, Poor Maintenance

The narratives suggest that the sewer back up and leaks resulted from a combination of at least four factors: Old sewer pipes, tree roots, disposal of solid waste, and a weak maintenance regime. Marquis alluded to the issue of old pipes when he discussed sewer backups. As discussed in the previous section Marquis pointed out that his neighbors who had sewer backups lived in old houses that had to be gutted. "Sewer backups because of bad sewer infrastructure. Old pipes," he had said. Marquis also hoped that the ongoing renewal of Sulphur Springs' housing would help cure the infrastructural problems in the neighborhood. For instance, it was explained to me that the duplex that had had sewer backups had been gutted and replaced with what Marquis described as "a nicer a two-bedroom and two-bath rental house."

Even worse, the aging sewer amenities became vulnerable to breaks and blockage because tree roots would often penetrate the pipes. That was what Batman came across when he was called upon by Stacey to help address the sewer leak and backups at her home. "We kept flushing the toilet, and it kept going up. I called my landlord, and he told me to get [Batman] to fix it. We agreed to deduct the amount from the rent," she said. "[The plumber] ended up taking the toilet out, and if he showed you the pictures, you would see that there were roots of a tree growing into the pipes. He removed the entire toilet and saw the roots". I later followed up with Batman, who sent me the pictures in Figure 9.

In the interview, Batman explained to me that the issues of tree roots growing into old pipes were quite common. "That's normal in the United States if you have a tree on along the side of the house. That's every house here in Sulphur Springs. Trees find water sources, and that's how they grow," he explained. "The strongest water source at the house is the sewage system because that's where most of the water flow. So, no matter what, a tree will detect a water source."

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Figure 9: Tree roots growing in sewer pipes at Stacey's house (Photo by the participant).

But was there something more to this phenomenon? Despite failing to access the Wastewater Department, the senior manager from the Water Department provided a clue as to why the sewer infrastructure was vulnerable to tree roots. "Sewer pipes were made from a different material compared to the water pipes. The sewer system is mostly made of vitrified clay pipes that are also old. So, the pipes will have roots [in growing them]." Although the manager's primary area of focus was water, they told me that they had many conversations with the wastewater department and fully understood the problem. The problem of roots causing leaks and backups was rather rare in water pipes. As it was explained to me, the water pipes were made of much harder materials. Since the water was pressurized for distribution, it was also tough for tree roots to go through water pipes. However, the manager told me the problem would only arise if the roots wrapped around pipes. "During hurricanes, for instance, the strong winds can blow the trees down, and that is when the roots can break the water pipes. "The last time we had high winds, we had two or three water main breaks. But it is not a widespread problem."

Inadequate Maintenance and Self-Eviction

As narratives show, the sewer infrastructure problems were further exacerbated by inadequate maintenance. Throughout the study, participants cited delayed repairs and patchy work as a cause of concern. The complaints had gotten the attention of community organizations, and the United Way Suncoast organized free lawyer time. Within the first weeks of the study, I met Tom (a white, middle-aged male attorney and leader of the initiative), who told me that the primary concern of residents who visited them at the Sulphur Springs Resource Center was plumbing repairs. "The landlord needs to do proper and prompt repairs. That could be plumbing repairs, you know, sewage backup, septic tank problems," he said. "But many [residents] will come to our office saying that the landlord is not resolving those issues. That's a lot of it." In addition to plumbing problems, particularly sewer backups, the attorney told me that a lot of people came to him with mold problems.

As one would expect, most of those who came to seek help to get landlords to do plumbing repairs were renters from low-income households. "The large majority of these plumbing issues are in the lower rent. Because when there's lower rent, the condition of the premises is obviously not as well kept. You're not going to get repairs done as fast." Tom explained. "If you're living in a high rent, corporate complex, they're going to repair things and not let there be leaks or sewage backups. They're going to do things the right way. So, the lower the rent generally the worst maintenance issues are going to be." These sentiments speak to the idea that WaSH insecurity is socially constructed, and they also provide evidence of the class dimension of service inequalities in Sulphur Springs (Brulle and Pellow 2006; Anad 2011, Anand 2015, Mohai, et al. 2009; Sze and London 2008).

As the conversation progressed, the attorney also explained that one of the leading causes of poorly maintained sewer amenities, particularly the delayed and sometimes minor repairs, was the cost of repairs. For most of the cases he had handled, the problem was that the landlords did not have adequate capital to fixing plumbing issues. "Sewer issues, leaking roofs, and air-conditioning are big-ticket items that are usually not going to get remedied. Landlords constantly do patch and repair," he told me. "When tree roots grow into the [sewer pipe] and burst them. That is a big-ticket item to repair because you got to get a backhoe, you got to dig up everything, you got to find where the leak is. So, landlords don't like to fix sewer or water leaks either." Under such circumstances, landlords used what he referred to as "a self-eviction strategy." This strategy involved delaying plumbing repairs to frustrate tenants and get them to move out; instead of paying for the high costs of plumbing.

The attorney's observations significantly corresponded with what Batman had learned in the 11 years he had worked as a plumber in Sulphur Springs. Batman stated that landlords were "so slow" when it comes to fixing plumbing issues, and even when they did, it was a quick fix. "They will do a quick fix because, on average, to dig up the pipes and the roots of the tree affecting the plumbing would probably be around $15000 to $20000," he said. What made the cost even higher was that fixing some plumbing issues required a permit from the city. For example, Batman explained to me that he had to seek city approval on cutting down the tree that had caused sewer backups and leaks at Stacey's house. Stacey paid the $300 permit to cut down the tree, which in her view was better than a "$1500 fine" if she would have gone ahead without the permit.

The narratives also revealed that property owners had devised cost-cutting strategies considering the high cost of plumbing. Some of those tactics had made sewer problems severe and much more frequent. In one example, Batman told me that because many of the tenants were

transient, it made sense for many landlords to pay plumbers for quick fixes. "You can request a permit today and be able to do [the repairs] tomorrow, but money is the problem," he said. "Why would I spend $300 to get a permit when I can spend it on my plumber over there with a snake machine, to snake it out for $50? The landlord might have to do it twice a year, but it makes economic sense in the short term." Probed further about why landlords preferred the quick fixes, he told me that only about 10 percent of the landlords he had worked with cared about long-term solutions to the sewer issues. "It's like a slumlord thing. It's not beneficial in the long run to do expensive repairs when I know you're going to move out of my house in a year or two." Shad and Ashley had made similar observations.

Having moved from Memphis, Tennessee, Shaq (a youthful African American female resident), her father, and her five children all below the age of 14 years settled just two streets south of Waters Avenue. As much as her family was enjoying visiting the many recreation spots in a new city, the quality of housing was something that worried them greatly. Living between two vacant houses with overgrown grass, she was worried about the safety of her family. "I don't know what kind of people come there at night and what will come out of the tall grasses." More significantly, Shaq felt that the landlords in Sulphur Springs did not care. "They are slumlords. I have never seen anything like this." Asked why she felt that way, she told me that things had changed for the worse when the landlord sold the house and never told them. At some point, she had a plumbing leak in the kitchen, and a hole in the ceiling and the maintenance work was not satisfactory. "The new landlord sent the general maintenance guy. He put up a board on the ceiling, but the was still a leak in the roof, and the kitchen leaks started again a week later."

Ashely's problems, however, seemed to emanate from the lack of access to the landlord and the quality of repairs. Having moved from Section 8 assistance housing, she had found it more

difficult to get repairs done properly because her new landlord lived out of state. "It is a complicated process to get them to do repairs. The problem is that the landlord is not here, so the property manager does everything," she said. "The property manager is the kind of person that likes to think that that duct tape fixes everything. If it's a major thing like if your water heater goes out, she will do it well. But for things like plumbing, she thinks she can just put a tape on it," she lamented.

From the narratives, I also got the sense that *Do It Yourself (DIY)* plumbing was the preferred approach for fixing sewer leaks and complex plumbing works in some cases. To keep the cost low, some landlords and managers relied on untrained family members for plumbing works. Ashely told me about a time when she had a toilet leak in her house only for the property manager to send a family member to fix it. "I had an issue with my toilet. It leaked. I had to wait like two weeks for her to get her brother out to fix it. And this is after she'd already collected the rent. I had the remind her that she had to get her brother out to fix it. The leaks got worse," she recounted. Perhaps reflective of the lack of trust in the landlords and agency of the residents, I also met tenants who told me they had learned how to fix the plumbing issues by themselves because the landlords were too slow to address the problems. "I used to wait for weeks for the landlords to fix the issues around here. I am now quite handy around the house. I just do it myself," said one participant.

To my surprise, some households had taken up even more complex DIY plumbing projects to cut on the costs of plumbing. Having met and build rapport with Maria at the laundromat, I got the opportunity to visit her home on several occasions. My first visit was to collect water samples for lead testing for the project I had collaborated with. That day, Maria (a middle-aged Hispanic woman and resident) introduced me to her husband, Manuela, who was cutting plumbing pipes

when I arrived. As she went to get the samples from the houses, Manuela (a middle-aged Hispanic male resident) told me they were constructing two extra bedrooms and a master bathroom on the house they had bought. As he took me around the house, he showed me the structural work they had done with the help of Maria's brother-in-law. At the back of the house, he stopped to show me a pit they had dug to connect the plumbing for the new master bathroom to the newly laid sewer pipes that connected to the city's sewer line (See Figure 10). Manuela and I ended up at the front porch. We sat on the stairs and continued chatting. Maria then came carrying the water samples for lead testing, and we all agreed to an interview a week later.

Figure 10: A Master bathroom sewer pipe connecting to the new-laid sewer pipes that carried sewerage to the city's main sewer line (Author).

One of the subjects we talked about during the interview was how the cost of construction, especially plumbing, had forced them to learn how to do repairs and lay plumbing pipes for the new bathroom they were constructing. "We have come a long way. We would google or watch YouTube videos, then do it." Maria added. However, the DIY project proved to be more complicated than they had imagined. Maria explains:

> ((Laughs)) What we did was a joke. Let me show you the pictures. We needed a special machine to pave the floor, and it was $300. We spent another $200 on the pipes. But then the inspector came and said the work was not good. We had to start all over again. We went to home depot and spent another $200 on pipes because we had already used what we bought. We did the work, and when he came back, he said oh! It is still not alright. We spend another $60, and when we did it, he said it was okay. For the pipes, you must always buy new ones. Once you put glue, you can't reuse them. ((She then shows me pictures of the initial and approved plumbing layouts for their bathroom in Figure 11)) (Interview 21a, 11/24/2019, Sulphur Springs Community).

Figure 11: Maria and Manuela's DIY plumbing project. The first layout (left) was not approved because the pipe bends for the toilet, shower, bathroom sink and kitchen were too close. Following advice from the inspectors, their refined layout (Right) was approved (Photos by the participant).

Even with the difficulties, the Hispanic couple found the DIY project rewarding. "We learned so much. The inspector gave us advice on what we needed to do, and we would write down everything. If we were to hire a contractor, it was going to be more money," Maria said. "If you want to do a master bedroom like this with the plumbing, a contractor will charge you $10000. You would rather do it yourself," added Manuela. More significantly, I was surprised by how Maria was deeply involved in the project. Although construction works such as plumbing constituted what I had grown up knowing was gendered work for men, Maria told me that he had to support her husband because they were not earning much money. She explains:

> Because it is only us and we got to make it happen, this is the way we do things. Not many women are keen on construction like I am, and that has turned out to be helpful for my husband. We used to live in Connecticut; we had a good job; we used to have everything. Over here, we are like starting over again. Sometimes inspectors come here and ask me questions, and because I am involved, I know what is happening. It is important to know because when you make the appointment, you don't know what time they are coming. I could be around the house or when he is out for work. You gotta to know because they are going to look at me like I'm stupid (Interview 21a, 11/24/2019, Sulphur Springs Community).

The couple's involvement in construction was indicative of the social construction of gender roles through the constant negotiation of beliefs, values, and practices traditionally associated with men or women (Adler et al. 1992; Jackson 2012; Lorber and Farrell 1991).

Accountability Strategies

Altogether, the narratives showed that as much as the residents faced similar infrastructural issues (such as aging infrastructures and sewer backups because of tree roots), the experiences were different for renters and homeowners. Faced with sewer leaks and backups, participants in rental dwellings had to content with landlords who were slow in fixing their problems. Sadly, there seemed to be very little the renters could do besides waiting, fixing the problems themselves, or moving out. In an interview with Tessie, I learned how a sense of hopelessness was fracturing

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through the neighborhood because landlords were not accountable for the quality of services they were providing. She told me that many tenants were reluctant to call the Code Enforcement Department, meant to ensure safe living conditions for the residents.

After my interview with Tessie, I spent the next three weeks trying to reach Code Enforcement. Luckily, the SSRWG, which Jacqueline and Pastor M were part of, worked closely with a Code Enforcement official of the department that had been renamed to Neighborhood Enhancement. Through Jacqueline, I was able to interview an inspector who had covered the Sulphur Springs Jurisdiction for more than two years. His work was to enforce municipal codes and respond to complaints on the structural issues for residential and commercial properties.

Sitting on a bench at Spring Hills Park, I presented some of my preliminary findings and talked about the reluctance of tenants to contact the Code Enforcement to the inspector. Sadly, the Code Enforcement expected the tenants to make official complaints on plumbing issues before they could hold landlords to account. "There's no way we would know about plumbing issues or help unless the tenant calls us to complain, and say, hey, the owner is ignoring me, they won't repair it. They let us in, and we inspect it," said the inspector. If plumbing issues were found during the inspection, the inspector would give the owner a code enforcement citation, requiring them to resolve the issues within a given deadline, failure to which would lead to legal action:

> To hold the landlords accountable, we would give them a deadline, we say, oh, okay, it needs to be done by this time. And if it's not done by that time, and normally I don't give any time extensions because someone's living there, unless they are actively trying to resolve the issue. If [repairs] are not done by that deadline, then we take them to court. While we do our inspections, we take photos so we can present it to the judge so they can see why it's in violation. If they're found guilty by the judge, they are given penalties (Interview 24, 12/7/2019, Sulphur Springs Community).

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In the years the inspector had worked in Sulphur Springs, he had some success in getting landlords to fix structural defects, especially plumbing. Many landlords complied with the instructions, and those who had been cited before were familiar with the code enforcement process and afraid of getting fined or losing their properties. However, the inspector admitted that there were cases where landlords failed to comply with the citations. In his experiences, the noncompliance was mostly because of rental disputes that were common in low-income and rental neighborhoods he had worked in. More often, he would cite landlords for failure to fix house issues only to find out that the tenants had not paid rent. "In such cases landlords are like, no, I'm not going to fix anything. You know what? I'm just going to evict you. And then tenants call us and want us to get in the middle of it." Since their job was to determine code violations, not civil leasing agreements, the inspector never wanted to be caught up in the rental disputes. "I've seen such civil cases of tenant and landlords fighting then using as a bullet to settle their scores; we have to be careful and fair to landlords too."

Setting aside the rental disputes, what really stuck out from our conversation with the inspector was their admission that residents preferred to move out the houses with plumbing issues instead of calling Code Enforcement. In what seemed like a damning evaluation of the legal process, the inspector told me that time between inspection and a judicial decision was too lengthy and ineffective in addressing urgent structural issues like plumbing. "We have a lot of people that will just say, you know what, I would move [out of the house]. I can kind of understand the mindset because if I were in a rental property like that, I would just move too. There's a long legal process." As the inspector explained, getting a landlord to fix house issues took about five weeks, "When we get involved, everything's legal. When tenants call us, we sometimes schedule them for an

inspection two weeks out. It's not the next day. After inspection, we would give [the landlord] another three weeks to fix the issues."

The process was even longer in cases where the landlords failed to meet the standard three weeks deadline. To punish tenants for reporting them to Code Enforcement, the inspector told me how some landlord would find reasons to evict them or wait until the deadline to resolve issues. Even after the three weeks, the code enforcement inspector told me the legal process took another five weeks within which they had to get a court date scheduled, a judge to sit, and another week for the judge to decide. Even so, the inspector had also seen cases where the judge gave further extensions. All these loopholes in the code enforcement process speak to the idea of structural violence where institutional processes and structures systematically disadvantaged tenants (Farmer et al. 2004; Farmer et al. 2006; Galtung 1969). In the case of Sulphur Springs, the lengthy legal procedures put the tenant in harm's way and made it challenging to hold landlords accountable for their failure to address the infrastructural problems.

At the time of the interview, the inspector was working with the SSRWG on non-legal strategies to help push for prompt repairs on housing issues in Sulphur Springs. Pastor M told me that initial conversations in the working group resulted in a partnership with Rebuilding Together Tampa Bay to do minor repairs in homes. Even with limited resources, the working group was working with volunteers to paint houses, clean the neighborhood but also help with minor sewer works. However, the group was wary that investing time and money on rental properties would instead end up benefiting "slum lords' who were already receiving rent. Thus, educating and encouraging tenants to advocate for better services from landlords seemed to be the only viable option. Even so, Jacqueline, another member of the working group, told me awareness creation

and advocacy to hold landlords accountable over repairs was challenging because Sulphur Springs was a transient neighborhood.

In addition to pushing landlords to resolve plumbing issues, Batman, a plumber and one of the most vocal advocates of community education on the use of sanitation and hygiene, felt residents were also responsible for some of the problems, so they had to be part of the solution. For example, he told me that some of the sewer backups in the neighborhood he had been called upon to resolve were because of poor disposal practices. "People don't understand how things work. You cannot flush a tampon down the toilet because it expands and clogs up the toilet. That's what they do. If you get several of them in there, it doesn't drain. But, if it is biodegradable, like real tissue paper, it will breakdown and water," the plumber explained. "I wish people understand how the system works. I'm a plumber. I've been a plumber for most of the houses on the street for basic things." Therefore, the narratives suggest that addressing sewer issues in Sulphur Springs require infrastructural, socioeconomic, political measures, but also a change in cultural practices among users.

Chapter Eight: Drainage

As discussed in chapters three and five, Sulphur Springs is sandwiched between two important water bodies in the Tampa Bay Area. The Hillsborough River and the natural spring in which the neighborhood got its name. Besides my interest in water, sewer, and laundry, I also became preoccupied with the question of how the geographic location, demographics, economics, social practices, and politics in the community influenced perceptions about drainage services. From the experiences of everyone I spoke to, I got the sense that drainage services were closely linked to the design and governance of solid waste and transport amenities.

When I asked participants to list aspects of drainage they were concerned about, the joint-most salient item was having enough storm drains. Many other participants said they had no issue (S=0.286). The results of the freelisting are shown in Table 9. In their view, other essential aspects of drainage were related to how the city and people handle solid waste. That is trash removal and disposal, cleaning of drains, and the need to understand how pollution of stormwater affects the quality of drinking water. Moreover, participants also mentioned the need to repair the roads.

The results of the survey were quite like the sequence that had emerged from the freelist data. I asked respondents to rate the five most salient items in Table 9 on a scale of 1 to 5. Based on the mean rating, participants still ranked having enough storm drains to be the most critical concern about drainage. As shown in Table 10, that was followed by proper disposal of trash, regular cleaning of drains, fixing roads, and the need to create awareness on the link between personal pollution and drinking water.

Table 9: Drainage Concerns Listed by 20 Respondents Ranked by Salience.

	Item	Frequency (%)	Average Rank	Salience (Smith's S index)
1	Enough storm drains	28.6	1	0.286
2	No issue	28.6	1	0.286
3	Trash removal and disposal	21.4	1.33	0.196
4	Regular cleaning of drains	14.3	1.5	0.107
5	Fix roads	14.3	1	0.143
6	Effects of personal pollution on drinking water	14.3	2.5	0.071
7	Reduction in sod area	7.1	4	0.018
8	Sidewalks	7.1	2	0.036

Table 10: Descriptive Statistics of Drainage Concerns Rated on a Scale of 1 to 5.

	Concern	N	Mean	Std Dev	Variance
1	Enough storm drains	98	3.79	1.32	1.74
2	Proper disposal of trash	99	3.73	1.38	1.92
4	Regular cleaning of drains	98	3.67	1.38	1.91
3	Fix roads	97	3.41	1.56	2.45
5	Effects of personal pollution on drinking water	98	3.31	1.55	2.4

The results suggest that, indeed, the drainage issues in Sulphur Springs are closely linked to the design and maintenance of the drainage, solid waste, and the road system. Moreover, the salience of the term "no issues" from the freelists revealed that some residents of Sulphur Springs

were disproportionately vulnerable to flooding because of their location. This finding supports the call by environmental justice scholars on the need to incorporate spatial methodologies when studying infrastructural and environmental problems (see Borden et al. 2007; Cutter et al. 2008; Leichenko and Solecki 2008; Mohai et al. 2009; Sze and London 2008).

Flood Vulnerability Assessment

As part of the preliminary assessment of factors that influenced the perceptions and experiences with the drainage system, I, therefore, used a GIS model to assess the flood vulnerability of Sulphur Springs relative to other parts of the city. I also evaluated how the flood vulnerability varied across different sections of the neighborhood. Using data from the National Flood Hazard Layer (NFHL) created and maintained by the US Department of Homeland Security (2016), I used the FEMA Flood zone classification to compute a Flood Vulnerability Index (FVI) as shown in Table 11.

Table 11: Vulnerability Scoring Based on FEMA Flood Zone Classification.

Type	Risk of flooding	Zones Labels	Vulnerability Score
100-year flood zones or Special Flood Hazard Areas	High	Zones A, AO, AH, A1-A30, AE, A99, AR, AR/AE, AR/AO, AR/A1-A30, AR/A, VE, and V1-V30	3
500-year flood zones	Moderate	Zone B or Zone X	2
Zone C	Minimal	Zone C	1

The results of the spatial analysis in Figure 12 show that Sulphur Springs is among the most vulnerable neighborhoods in the city when it comes to flooding. However, the data also indicated that two of the six census block groups in Sulphur Springs had a high risk of flooding. The two census block groups also bordered the Hillsborough River and the natural spring, perhaps confirming the earlier discussed view in a City of Tampa documentary (2016, Oct 11), that the construction of the Hillsborough River Dam made upstream communities like Sulphur Springs vulnerable to flooding.
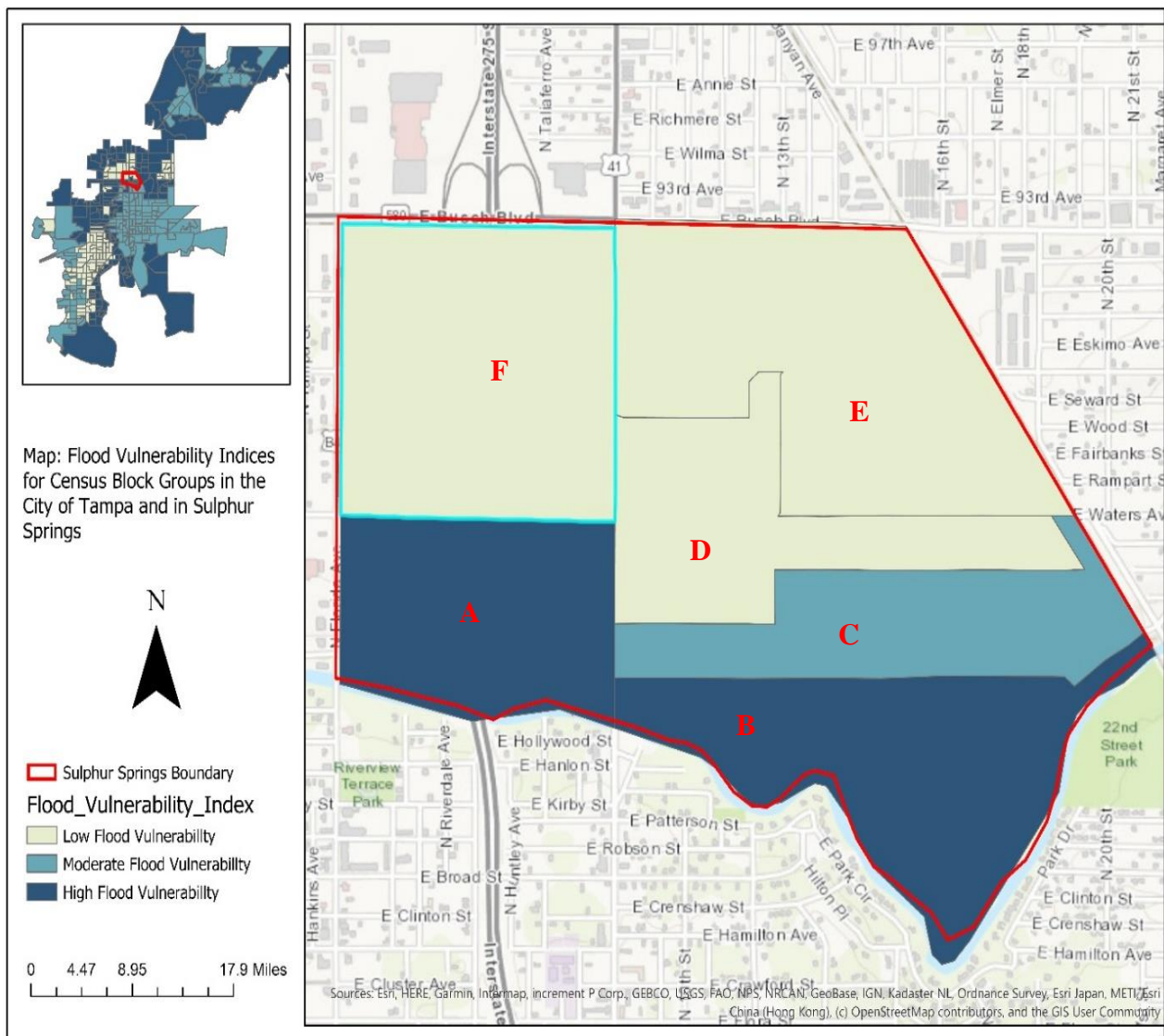
Figure 12: Map showing the spatial distribution of flood vulnerability across census block groups in Sulphur Springs (Author).

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As shown on the map, the most susceptible block groups (annotated A, B, C,) lay in the formerly white-only section of the neighborhood. However, Spring Hill (Blocks D and E) and the and what some called the Boot (F) had a low risk of flooding. The uneven spatial distribution of flood vulnerability perhaps explains why some said they had no drainage issues while others listed the other concerns.

With the GIS results in mind, I went off three ground-truthing trips across the neighborhood as part of my ethnographic observation. I sought to understand whether the GIS results shown in the map was an accurate depiction of the flood vulnerability across the community, but also talk to residents who lived in the high-risk zones. Interestingly, the start date for my study coincided with the fifth wettest years ever recorded since 1939. I remember watching a report on Channel 10 weather that by the end of Summer 2019, Tampa, had received more rainfall than it usually would in a year (Gilmore 2019). That turned out to be advantageous for my ground-truthing. With a printed google map, I drove around the entire neighborhood marking flooded sites, as shown in Figure 13.

For the most part, the findings from the ground-truthing were consistent with the GIS model. Of the six flood sites I came across, five were in the southern section of Sulphur Springs. The five are annotated 1, 2, 3, 4, and 5 in Figure 13. Surprisingly, the flooding problem also extended further north to Spring Hill, particularly on Nebraska avenue (see Site 6 in Figure 13)
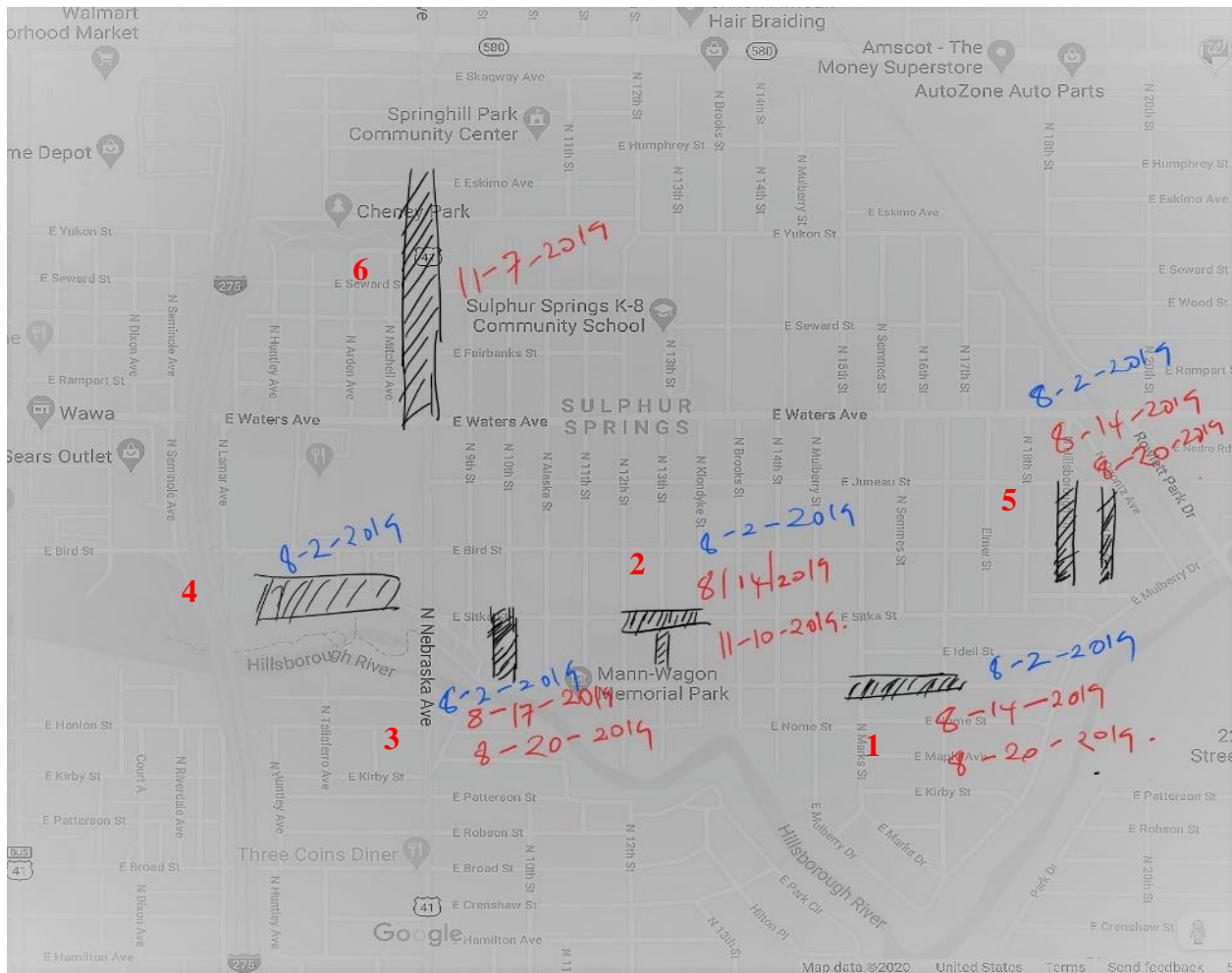
Figure 13: Google map showing flood sites marked during ground-truthing trips in Sulphur Springs (Author).

Interestingly, not all streets in the southern part of Sulphur Springs experienced flooding—suggesting that there could have been other causes other than the proximity to water bodies. In the first week of August, when I began the ground-truthing, I drove across the neighborhood and found flooded sites. The flooding was much worse at Site 1, which was six blocks north of the Hillsborough River. It had rained that morning, and I remember driving through a pool of water covering almost all driveways and entrances to houses on the block (see Figure 14). Even more concerning, the flooding had reached the doorsteps of three multifamily duplexes; homes built far from the streets were safer. The situation had not changed when a drove by two weeks later.

Figure 14: The flooded street at Site 1 taken on two separate ground-truthing trips on 14, and 20th August 2020 (Author).

A few days after the ground-truthing, I was lucky enough to meet Marquis and Pendo, who lived on the flooded street. Although the flooding spared Marquis's home, his mother's house was not. She lived in one multifamily duplex that got flooded. "She could not get out of the house that morning. I went there and put some crates for them to walk on to their cars; this street really gets flooded when it rains." Asked whether they had contacted the city, Marquis told me they had not because the city knew about it. They had seen a truck from the transportation and stormwater department pass by. In Marquis's view, the flooding problem was because of the trash on vacant lots, and the city had done its best in cleaning the street.

Pendo, who lived in another duplex affected by the flooding, however, seemed to disagree. In a separate interview, Pendo told me that the drainage system on their street needed cleaning, and the city had not done enough. "The city has a drainage system they need to clean. Have

somebody clean out every week, and it probably won't be that way. What are you paying people for?" she asked in frustration. "Look at this street. It is flooded. At the moment, I don't even see a drainage system right there. It should not be flooded in the middle like that. I don't even like driving my car through it". Having seen fallen tree branches and trash clog the drainage on the street, she was worried that the flooding would be even worse during the hurricane season that was just weeks away. Of the sites I had identified during the ground-truthing visits, Site 1 was perhaps the most affected. Nine blocks west of Site 1, at the intersection of East River Cove and N 10th Street (labeled Site 3 in Figure 13), there was across a large pool of water covering the entire width of the road. However, the pool was much smaller than what I had seen at Site 1. Fortunately, the flooding did not affect any of the dwellings on that block. At Site 3, the pool of water was at a sunken part of the street between two vacant plots on each side (see Figure 15). The situation had not changed on each of the three occasions I passed by the site.

Figure 15: A pool of water between empty plots at Site 3 (left) and small water pools at Site 2 (Right) (Author).

At the time of the study, the flooding at Site 2 was minor and patchy, as shown in Figure 15. However, a conversation with Kenda (a middle-aged white female resident) revealed that the problem at Site 2 had been worse than what I had seen. I met Kenda weeks after my ground-truthing when I was walking around the neighborhood administering the survey. The middle-aged white woman was playing with her son in front of her house. I stopped by the sidewalk and asked if she was willing to take the survey. She agreed. After answering the first questions quietly, the question about drainage seemed to have awakened her memory. Before she could answer, she went on to tell me about the flooding on her street earlier that summer (see Figure 16):

> I am happy you asked this question. Sometime last week, the flooding got out of hand. The entire street was flooded, and we could even get out of our house. On this street, we were standing on the front porches, wondering how we will leave our homes. At some point, I watched my immediate neighbor trying to get to his car with his pants rolled knee-high. I took a live video and posted it on my Facebook. The water almost got into my house, and you can see this side still has the floodwater (Conversation, 11/27/2019, Sulphur Springs Community).

Figure 16: A muddy ground close to Kenda's house with water runoff from a previous flood (Author).

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Asked whether they had contacted the city about the flooding, Kenda was skeptical that the situation would change. Like Marquis, Kenda felt the city administration knew about the problem, and she did not see the need to contact them. "No, we haven't [contacted the city]. They have known about the problem for a while now; I doubt anything will be done."

What was even more surprising, and perhaps contrary to the GIS model, was that the flooding problem extended much farther north to low-risk areas. At Site 6, the flooding mostly affected businesses on Nebraska Avenue, one of which was a mechanic shop run by a Hispanic man in his 70s. Like Kenda, he paused during the survey to talk about the drainage issues. Although he had been at the location for over 22 years, he told me that they started to see more frequent flooding on the street when the city expanded the sidewalks in the year 2007. "It floods all the time when it rains here. That began in 2012 when the contractors came here. There used to be a narrow sidewalk running down the river. They made it twice as wide," the businessman told me. "But they didn't put any stormwater drains for the entire stretch of four blocks." As a result, the stormwater would accumulate on the road anytime there was heavy rainfall.

What was even more concerning was that because Nebraska was a busy street, cars would push the water into business premises. "When the cars drive by, the create waves which bring the stormwater all the way to the red poles (shown in Figure 17)". I had to open a new entrance to the office," said the businessman. Like many other participants I had interviewed, the businessman told me he had not contacted the city about the issue. "I don't think they care. If they did, this wouldn't be happening." As I walked about three blocks south down the same street, I met another businessman who sold used furniture and home appliances. The middle-aged black man was particularly upset that the city took about three feet on his land when they expanded the sidewalk (see Figure 17). To make it worse, the expansion exposed him to flooding every time it rained, and

as he told me, that had profound consequences to his business. "After every rainy season, I have to do some structural repairs of this building because the water destroys it. When the water gets in, the furniture and the entire carpet is damaged."

The drainage issues around Nebraska illustrated the intimate relationship between drainage and transportation infrastructures. One participant who had worked with the stormwater department explained to me that the drainage and stormwater were interdependent. "Apart from the ground sinks, you will see on vacant plots in this neighborhood, and the roads help collect and direct the runoff into storm drains. Then again, without storm drains, the road would not last." Based on these accounts, it was not surprising that the drainage and stormwater services were under the same department. The city's Transportation and Stormwater Services Department was responsible for addressing the flooding problems, and any other environmental issues related to stormwater runoff. Besides maintaining stormwater pipes, ponds, and sidewalks, the city was responsible for protecting properties from flooding—something the businessmen on Nebraska Avenue had complained about.

Figure 17: A closed office entrance to a mechanic shop because of flooding on Nebraska (left), and a frequently flooded furniture store on the same street (right) (Author).

Even with the lack of adequate storm drains, Gladys, who had briefly worked with the Transportation and Stormwater department when she left college, told me Sulphur Springs was vulnerable to flooding because of inefficient infrastructures. "For the most part, this neighborhood has what we call bottomless inlets. These are giant circular pits that allow stormwater to percolate to the ground," Gladys explained to me. "But because the water table is high in some areas, they get filled quickly. We have fascinating geography and geology because we are close to the water bodies." Based on her experience inspecting the city's stormwater collection and treatment facilities, she understood how the city was struggling to address stormwater issues. According to her, the most significant challenge was poor solid waste management. Her view resonated with the freelisting results that cited proper disposal of trash, regular cleaning of drains, and the need to create awareness on the effects of personal pollution as salient drainage concerns.

Solid Waste and Illegal Dumping

Across the different sections of the community, participants insisted that solid waste practices were partly responsible for the drainage issues in the neighborhood. "If you're looking at water and sanitation services in Sulphur Springs, I think the more serious issue is probably solid waste. The trash blocking storm drains, causing water to stagnate," one participant who had been active in the SSRWG said. "People think Sulphur Springs is a dump. They just drive by and throw trash out the window. It ends up blocking the drainage, and then you see flooding," another participant told me. According to Gladys, the problem of solid waste made the delicate drainage system even more ineffective. She explains.

> The stormwater operation crew works to clean the drainage regularly. You will see them sweeping the street, removing debris from inlet, and trash on the road. But this is big here [in Sulphur Springs]. Like if you just go to this corner down here, there is a storm gate on each corner. And you'll notice there's a lot of debris on those

inlets. Because of the trash in the pits, the intersections can flood quickly during Summer (Interview 11, 9/9/2019, Sulphur Springs Community).

But understanding the solid waste problem first necessitated an inquiry into the different stakeholders and mechanisms of waste management in the city of Tampa. That began with desktop research on the administrative structure of the city and conversations with community leaders. Being within the municipal jurisdiction, the Department of Solid Waste & Environmental Program Management is responsible for the collection and disposal of all types of solid waste from residential and commercial properties.

The trash is then disposed of or recycled at three facilities operated by the city, namely the Garbage & Yard Waste – McKay Bay Refuse-to-Energy Facility, Refuse Diversion–South East County Landfill and Recycling–Waste Management Recycle America. Besides the regular garbage collection program, the city also has special collection services for large events, neighborhood cleaning, illegally dumped waste, and free pick up of big household times for residents within its jurisdiction.

Despite the existence of the collection services, the solid waste management problem was observable during the time I spend in the neighborhood: Figure 18 only shows a small vignette of the problem. Apart from litter such as plastic bottles and bags, I would come across large piles of household items and construction debris around the neighborhood. I remember seeing some trash piles for more than three weeks.

Figure 18: Litter build up on a storm inlet at one intersection in Spring Hill (top left) and piles of household items on the streets in the Sulphur Springs (Author).

The narratives revealed that the solid waste problem, linked to drainage issues in the neighborhood, was complex and multifaceted. And most of those I spoke to told me the transiency was the most significant cause of the solid waste problem. Being a transient and low-income neighborhood, some participants I spoke with said that a few of the residents, particularly low-income renters, left behind household items when they moved out. Having been in Sulphur Springs for over 30 years, Gladys had seen it all:

> Well, what I notice is that there's a lot of debris piled up. We drove past one right at the corner there. And it's, it's those duplexes, there is two in a row, wind up on Bird Street. And I think one more on 12ᵗʰ Street adjacent to those, at least one more. And so that's the transitional housing. People come in; people come out. And when

they go out, a lot of times, these are folks who can only walk out with maybe one carload of stuff. Or maybe they don't even have a car, that's not unusual for me to watch someone going down the street with a shopping cart, piled way high with stuff and, and maybe dragging a suitcase behind them (Interview 11, 9/9/2019, Sulphur Springs Community).

Gladys also told me that in many cases where tenants left the items behind, landlord hired contractors to clean the houses, but instead of taking the trash to the dumping facility, they left it on the street.

Dani was another longtime resident who had made similar observations. She told me how she had seen many of her neighbors leave their household items when they got evicted for nonpayment. "When the marshals come, they take out their stuff and just throw them on the street. Sometimes the pile will be there for like two weeks before the city will come and clean it up." Moreover, some residents left household items behind because they did not have a way to transport the trash to the dumping facility. Gladys was among the few I spoke to who had a pickup truck they could use to haul the garbage. Like many other residents within the municipality, she could drive to the McKay Bay dumpsite and dispose of the trash for free. She only needed to show her utility bill. Despite the lack of transportation, these participants thought many of the residents did not know that they could call the city's special collection services to collect their trash.

Surprisingly, many of those I spoke to also told me most of the garbage was brought in by non-residents. Pastor M said to me that because some contractors from other neighboring communities wanted to save money, they came to dump trash in Sulphur Springs every time they cleaned up apartments or business premises. "Nobody wants to pay money to go to the McKay Bay; they would rather pay someone $20 to come to leave the trash here," said another participant. According to Gladys, the illegal dumping by nonresidents was because of the stigmatization of the neighborhood. "People look down on Sulphur Springs because it is a low-income neighborhood.

They think it is okay to drive in and dump trash on our streets." Once again, this is an example of Michel Foucault's idea that negative discourse legitimizes injustices, exclusion, and oppression of those we speak about (Fassin 2011; Green 2011; McHoul and Grace 1997; Murphy 2016:653).

Nonetheless, the SSRWG was working closely with Code Enforcement to curb the problem of illegal dumping. For instance, the Code Enforcement inspector explained to me that they were actively tracing illegal trash to business and residential properties and prosecuting the perpetrators. "Whoever the owner of the property is, they're getting a notice violation from me. It could be a $450 fine or jail time, but it all depends if they are repeat offenders, obviously the fines and jail time are heavier." Additionally, the working group was lobbying the city council to make the collection of large trash items more regular. At the time of the study, the department had a limited number of trash pick-ups for each utility account.

However, the working group was particularly keen on a more severe approach to holding landlords accountable for the trash left on the street by contractors. It was explained that there were talks with the Code Enforcement, Solid Waste, and the Water Department to suspend utilities for habitual offenders. Besides enforcement, some participants saw the need for people to understand the impact of poor solid waste practices to drainage and water systems. "Making people understand that pointless personal pollution does so much damage is important. How is that plastic paper going to affect your drainage or water? We can never stop educating the public to take care of the environment," said Gladys. As the results in this chapter show, addressing the complex drainage issues in Sulphur Springs requires collective effort between all the institutions but also strategies that address the road infrastructure and solid waste challenges. It also requires awareness and education campaigns on solid waste management.

Chapter Seven: The Big Wash Laundromat

Although laundry in many households around the world is still done by hand, the industrial revolution brought washers and dryers into people's homes. That also led to the proliferation of commercial laundry facilities in public spaces such as dorms, apartment complexes, and neighborhoods, especially in Western countries. The Big Wash is one such commercial facility that has since the 1950s, provided essential sanitation services to Sulphur Springs. In this chapter, I explore the social, cultural, and economic and political dimensions of laundry services in Sulphur Springs. I hoped that studying the big wash laundromat would help uncover perceptions, practices embedded in commercial WaSH services, and how they impact sanitation security.

Convenience and "Doing More for Less"

The Big Wash laundromat lies between the intersection of East Waters Avenue and North 9th Street in Sulphur Springs. It is in what a consider to be the busiest commercial and social hub of Sulphur Springs. The half a mile hub hosts a variety of businesses all along Nebraska Avenue, such as restaurants, furniture stores, mechanic shops, and home appliances. Within the same area, there is the historic Sulphur Springs pool, the famous Arcade that was later turned into a Dog tracks, and Tampa Health Centers. Right next to the Big Wash, however, is the neighborhood's Family Dollar store where many residents come to buy their groceries and the I*glesia Casa De Adoracion Y Avivamiento,* a predominately Hispanic church.

As I drove into the facility's tarmacked parking lot via Waters avenue, I was welcomed the dramatic canopy of live oak under which a blue ping pong table sits inside a picket fence. The

structure that is the laundromat stands at the back of the property in different colors. A teal paint covers the outer wall of the site office with the word clean (written in large Italic fonts) and laundry project at the bottom. Gray fascia boards accentuate the metallic roof and a rusty white ceiling with water pipes running across. As I transition from the marked parking, I could not help but notice littered cigarette filters onto the stone flooring. There were four blue folding tables, and between every two, there four wooden benches with worn-out cantaloupe-pink paint spread across the entire shade. Figure 19 details the layout of the laundromat.
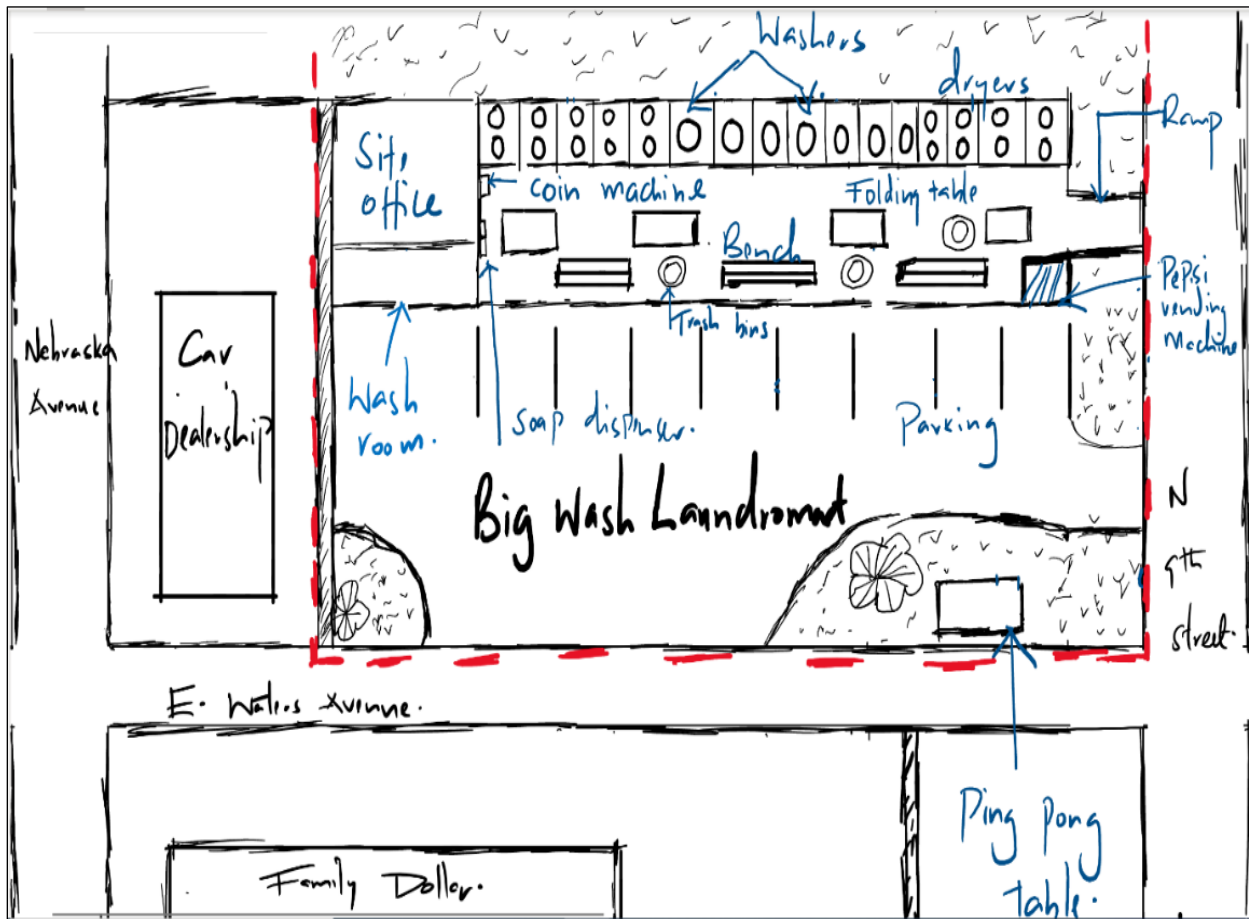
Figure 19: A hand-sketched map showing the location and layout of the Big Wash Laundromat that includes folding tables, benches, washers, dryers, and coin machines (Author).

Table 12: Types, Count, Capacity, and Costs for Machines at the Laundromat.

Type of Machine	Count	Capacity (Lbs.)	Cost per cycle ($)
Double Load Washer	7	20	1.50
Triple Load Washer	6	30	2.25
Maxi Load Washer	6	50	3.00
Mega Load Washer	2	60	4.50
Magnum Load Washer	2	80	5.50
Continental Dryer	24	30	0.25

On the opposite end of the site office is a Pepsi coin-operated vending machine facing the second exit onto 9th street. The laundromat had 23 multi-sized washers, and 24 dryers stuck on top of each other against the wall. The coin-operated appliances charged based on their capacities (see Table 12). For customers who needed coins, the facility was fitted with two-coin machines on a wall next to the site office door. Between the site office and toilet door, there was also a coin-operated soap dispenser. Considering the aforesaid infrastructural properties, pricing, and location of the facility, the Big Wash offered convenience and cost efficiency like no other facility.

This study revealed convenience was a big part of the laundromat experience. The Big Wash, located at the heart of Sulphur Springs, offered easy access to residents, particularly those without cars. Compared to others on Bush and North Florida Avenue, it was the most conveniently located public laundry facility in the neighborhood for Shaq, Tessie, and Tyron, who lived in the far flank corners of the community. Some residents preferred it because of its proximity to other critical facilities in the neighborhood. The Family Dollar Store, the Sulphur Springs Resource Center were within walking distance of the laundromat.

Figure 20: Ashley's neatly folded laundry and bags of items purchased from the nearby Family Dollar store (Author).

Ashley, a single mother with a disabled child, shed some light on the convenience of the laundromat and how it had made her hectic life more comfortable for the six years she had been in the neighborhood. Given the proximity of the laundromat to the Family Dollar store, Ashley could buy some groceries while doing her laundry. That afternoon, she had bought foodstuff, which could be seen beside her folded laundry in Figure 20. Being able to shop and do laundry meant that she had more time to do other household tasks, and attend to her disabled son:

> I have a 10-year-old that's in school down the street. So, I try to get my stuff done while he's in school. I like to try to be there when he is home, so I'll go out, get stuff done while he is in school, and then wait for a few hours before he gets home. I usually go shopping while the clothes are in the washer. I go to the Family Dollar, get what I need, come back, get the stuff, fold it up, put in in a cart, and go home. Depending on the machines, it gives me around 23 minutes to shop. That's enough time to go shopping for some water, pick up a gallon of milk, one little coffee, and sometimes a snack if I have time to eat it. I'll also get a big bag of cereal or whatever we need that day (Interview 7, 8/22/2019, Sulphur Springs Community).

To other participants, their perception of laundry services was more about cost efficiency than convenience. Across the conversations held during participant observation and interviews,

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some participants also expressed their preference for the laundromat for the large capacity machines that translated into cost savings on laundry. The mega washers could handle up to 60 pounds of laundry and charged $4.50 per wash cycle. The magnum washers had a capacity of 80 pounds and cost $5.50. Users from large households mostly preferred the appliances at the facility. Relative to other laundromats around Sulphur Springs, the facility offered high capacity machines and lower prices. In the course of the study, I also visited the Bush Laundromat, which lies on the northern border of Sulphur Springs. The indoor facility operated between 7 am to 8 pm and had machines as old as I had seen at Big Wash. Although the washers were of the same brand, they had lower capacities and cost more compared to those at the Big Wash.

Out of the 18 interviews, only Marquis and Pendo went to the Bush Laundromat. In explaining their choice, Marquis, a black man in his 40s, said, "Bro, the place has air conditioning, a TV and all that shit. On such hot days, I would rather be indoor." However, Pendo was quick to point out the differences between the two laundromats. "Yes, we like to go to the one on East Bush, but if we haven't done laundry for a while, we will go on Waters Avenue. Their machines are bigger, so the cost will be half as much".

Jasmine was a black woman in her 40s who also came to the Big Wash for the experience of cost-efficiency. Her family of eight moved to Temple Terrace after living in Sulphur Springs for over 20 years. For her large family and number of children in her household, she spent between $40 to $ 60 each time she visited the laundromat. "I spend up to $120 a month on laundry here. I have tried other laundromats where I live, and I ended up spending more. I like it here because I can do more with less. It makes sense to drive 15 minutes to save at least $30 of what I will spend elsewhere," She explained. Thus, cost efficiency on large laundry loads was particularly relevant to people with large households. However, a few other small and single-person families used large

machines for accumulated laundry. I also met Shirley, a 29-year-old black woman who had been coming to the Big wash for about four years because it was cheaper. Before she moved to Sulphur Springs, she used to drive from Tampa Heights, where she lived for three years to save on the cost of laundry:

> I have been coming to the [Big Wash] for about four years now, even before I moved to [Sulphur Springs] from Tampa heights because it is cheaper. You pay around 10-12 dollars for a big load of clothes. Because it's just me. But I don't wash every week, so the load collects as you can see. I work nights, so during day times, I can't do much. I do 12-hour shifts for four nights a week (Interview 8, 8/30/2019, Sulphur Springs Community).

From these observations, it is clear that many people, whether due to their household size or frequency of laundry, were satisfied with the cost efficiency the laundromat offered. Saving money by using large capacity machines for bulk laundry motivated people to drive from far flank areas of the city. The narratives show that the benefits of cost savings on laundry went beyond sanitation. Chatting about the impact of the cost savings on their day to day lives, one participant said, "I live five miles away [in the University Area Community], but I would rather come all the way here to do laundry. Since my brother introduced me [to the big wash laundromat], I have been able to save some money here and there. I put it into groceries. Today I have saved a few bucks, so tonight my kids are going to have steak ((and she laughs))." Thus, cost efficiency to her meant better nutrition for her family.

By choosing an open-air laundromat, among other options, Ashely, Shaq, Tessie, and Tyron made a rational choice to seek the experience of convenience. In design anthropology, convenience is an essential part of the human experience because it facilitates the effective utilization of time and effort (Brown and Swartz 1989; Yale and Venkatesh 1986). Others, like Jasmine and Shirley, exercised their rational choice by seeking cost efficiency regardless of alternatives or geographic constraints (McCabe and Denny 2019).

In making these choices, participants demonstrated agency which, according to Durkheim's (a leading figure in anthropology), is the thoughts, beliefs, values, actions of individuals or social groups independent of constraints (Gregory 2009; Rapport 2014:1-5). Further adding to this concept, Pierre Bourdieu observed that agency is meant to respond to particular human needs or situations (Bourdieu 1977; Bourdieu 2000). In seeking cost efficiency and convenience, the actions of these participants are particularly relevant to the idea that human agency in the neoliberal economy is somewhat rational and pragmatic towards maximizing value or benefits (Douglas 1986 :8-10; Gregory 2009; Ortner 1994:152). Besides the convenience and cost-efficiency, the stories seemed to assign cultural significance to the facility. To some participants, the facility was a meeting point and an essential part of their history.

Social Relations and Heritage

When I first set out for this study, it did not occur to me that a laundry facility would be a rich ethnographic site. My initial focus was mainly on water, sewer, and drainage services. That changed within the first days of my fieldwork when I learned that the facility was not just a laundromat like any other I had come across. The Big Wash was as integral to the social and cultural life of Sulphur Springs residents as it was for its sanitation. It was an important site where community members build social relations, but in their performance of laundry, the facility also enabled them to express their heritage.

The role of the laundromat in making social connections became apparent during my early days at the facility. Simon and Arturo were among a group of six men that I found at the laundromat when I arrived for my first hangout at the laundromat. Much later, I approached Simon as he returned from the Family Dollar across the street, where he had gone to get a six-pack of beer. I introduced myself as a student interested in understanding people's concerns about laundry, water,

drainage, and sewer issues in Sulphur Springs and asked if I could hang out with them. "Come. Let's me see how I can help you with that", he said as led me to the group. He handed each of them a beer, then introduced me to his friends. After a brief explanation of the study, we mostly talked about what it meant to be an African in the US, and what African Americans would expect on their visit to Africa, particularly Kenya. After the initial conversations, I stayed quiet and only talked when prompted. I learned that Simon, a 60-year old black man who had lived in Sulphur Springs for more than ten years, came to the facility to meet and make friends rather than do laundry:

> I have no laundry. I do mine at home. I have a washer and dryer at home. I am here to hang out with my friends. I came here and found my man [Arturo]. We struck a conversation, and then my friends joined in, and I have been here for over 3 hours now (Conversation, 7/26/2019, Sulphur Springs Community).

During the conversation, Arturo, a Hispanic man, in his late 30s, was cleaning his red sneakers and had a green backpack containing a handful of clothes he had come to wash. "It is funny because I have heard so many interesting stories about this tree guy [Simon]. I had never met him before, but today I came here and met him ((and he laughs loudly))". Two other participants then talked about how the laundromat was where they met most of their friends when they moved into the neighborhood. "I didn't know anyone here when I moved from Miami. I came here to do laundry then met Simon, and now we are best friends," said another participant. He went on to talk about how one of the relationships he had built at the facility helped him find a job. I also observed these connections among women.

Many of the women I spoke to told me how the friends they had met while doing laundry had become essential and reliable sources of information on community events and initiatives. Imelda illustrates in a conversation during a free laundry day:

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A friend of mine told me about the [laundry project]. I wasn't planning to do laundry today, but I thought, why not save some money. I brought my duvets and a few clothes. That is the advantage of the friendships you make here. They also tell me about the food pantries. I made two new friends today when they helped me get my clothes from the car. One of them has gone home to get some work done because the [waiting list] is long. She gave me her number, so I will call her when you get to them (Conversation, 8/24/2019, Sulphur Springs Community).

Therefore, the significance of the laundromat as a site for social interactions in Sulphur Springs cannot be overstated. The social relations build in the performance of laundry facilitate knowledge sharing and the co-construction of social practices. In a practical sense, however, these relations also translated into social support—a form of social resource with which low-income or marginalized communities use to respond to their day-to-day challenges.

Imelda's comment, and those made by Simon's friends, illustrated how social interactions produced social networks, social capital, and exchange of favors among laundry actors (Francisconi ; Smart 2008:409). The exchange of favors, speaks to the idea of reciprocity that dominated early economic anthropology scholarship. Inspired by the work of Branislav Malinowski, anthropologists like Mauss (2002), Polanyi (1944), Levi-Strauss (1949), and Sahlins (2017) went on to illustrate the different kinds of reciprocity based on the levels of kinship. In this study, the narratives presented above show how friendships at the laundromat constituted a form of generalized reciprocity in which social actors exchanged favors with little expectations (also see Hann 2006).

Moreover, the narratives demonstrated that the laundromat was also a big part of the heritage of some participants. In other words, it was a reservoir of memories and a place where laundry practices were passed down through the years, from one generation to another. For instance, Nafula, a middle-aged African American, female, and a mother of two teenagers, had been coming to the laundromat for years. "This [laundromat] carries a lot of my childhood

memories. I used to come here with my late grandmother at least once every two weeks. She raised me and taught me everything I know about laundry," said the 40-year old woman. "She always went to great detail about how I should sort the clothes, and the amount of soap I should use. She taught me how to fold the laundry." These lessons were Nafula wanted to pass along to her two daughters. "I want them to be as meticulous; that is why I come with them here," she said.

In an interview with the ownership, I also learned that even with the challenges the laundromat was having, there were people who had used the laundromat for a lifetime. "Because they used to come here with their mothers, fathers, or even grandmothers, they still come back even when they moved from out of Sulphur Springs." Although Jasmine and her mother had moved to Temple Terrace, a community about five miles from the laundromat, her family still went to the facility for the cost efficiency, but also for the memories they had built since the 1980s. These narratives suggest that the laundromat constituted an essential part of Sulphur Spring's material culture. In other words, physical and architectural aspects of the facility and their usage represented an expression of the norms, rituals, and identities of the participants (see Ferguson 1977; Spillane 2007; Tilley 2001).

Despite the significance of the laundromat in social life and the sanitation well-being of the community, there were underlying issues that got in the way of how people experienced laundry. When asked, "Please list all aspects of laundry services you are most concerned about," the 21 responses to the freelist question yielded 37 items. Once recoded, I uncovered 14 distinct issues. Table 13 shows the salience laundry concerns that were also visible in my participant observation, informal conversations, and interviews.

Table 13: Laundry Concerns Listed by 21 Respondents Ranked by Salience.

	Item	Freq. (%)	Avg. Rank	Salience (Smith's S index)
1	Broken machines	57.1	2.2	0.417
2	Dirty machines and surfaces	42.9	2.8	0.243
3	High cost of laundry	33.3	2.1	0.211
4	Insecurity	28.6	2.8	0.131
5	No bathroom	19.0	2.3	0.144
6	Nobody onsite to help	19.0	2.3	0.135
7	No air conditioning	9.5	1.5	0.071
8	People breaking machines	4.8	2.0	0.024
9	People smoking and drinking	4.8	4.0	0.012
10	People using machines for inappropriate materials	4.8	3.0	0.024
11	Washers and dryers not enough	4.8	2.0	0.024
12	Delayed response to complaints	4.8	5.0	0.016
13	No laundry baskets	4.8	2.0	0.024
14	Many homeless people	4.8	2.0	0.036

Playing Russian Roulette with Machines

The research participants spoke about laundry at the facility as a constant struggle with broken amenities and management that did not respond to their needs. Many of the participants said the appliances broke down quite too often, making their laundry experience unbearable. Further adding to their frustration, the facility did not have on-site staff to respond to the issues. These struggles and impacts of the unfortunate infrastructure conditions became apparent as a settled at the laundromat as a participant-observer within the first weeks of Summer 2019.

 I would often come across appliances with sealed coin drop holes with masking tape or paper in other instances. I later learned that sealing the coin drop holes was a common courtesy practice meant to prevent others from using faulty machines. As one participant explained, "When

you come here, you have to look out for the faulty ones. If a washer or dryer is not working, I will close it with a tape I carry in my car. I have lost a lot of money here, so it only makes sense to warn others".

As days went by, I interacted with participants who expressed concern over the reliability of the machines at the laundromat. Many talked about their frustrating experiences occasioned by a constant loss or worry of losing their money to faulty appliances and hours they spent doing laundry. One participant described doing laundry as "playing Russian Roulette with the machines" because they were not sure whether machines would work or take their money. Upset with the uncertainty caused by the faulty appliances, Shaq, a mother of five, said, "I am always worried about if I put my money in (the machines] are going take my money." "I hope this one works. If it takes my money, how will I dry my clothes? I have no extra money left", another participant said in frustration. Having had similar problems, Marquis believed this state of the amenities at the laundromat reflected the kind of services the low-income neighborhoods received:

> When I want to wash big loads, I would instead go to the one on Waters Avenue, but [the machines] are broken most of the time. They need to fix things there. I was there three days ago; when I put in clothes to run in the washer, there was no water. That was more than a dollar gone—six quarters down the drain. You put a coin in, and you are not sure if it is working on not. A friend of mine who moved out of here but still comes to use the facility because he was born and raised in this neighborhood. He was complaining about the washer taking his money. It's the norm. This is my neighborhood. This is what goes on. I was born here. Unfortunately ((then takes a deep sigh)) (Interview 5, 8/21/2019, Sulphur Springs Community).

James, a 45-year-old African American male resident, who had lost money to a faulty detergent dispenser, had similar sentiments. "I have just lost my money to the soap dispenser. This is not the first time this has happened. I come here most days to wash my work uniforms, and this happens". He said as he wrote a note to the soap dispenser (see Figure 21).
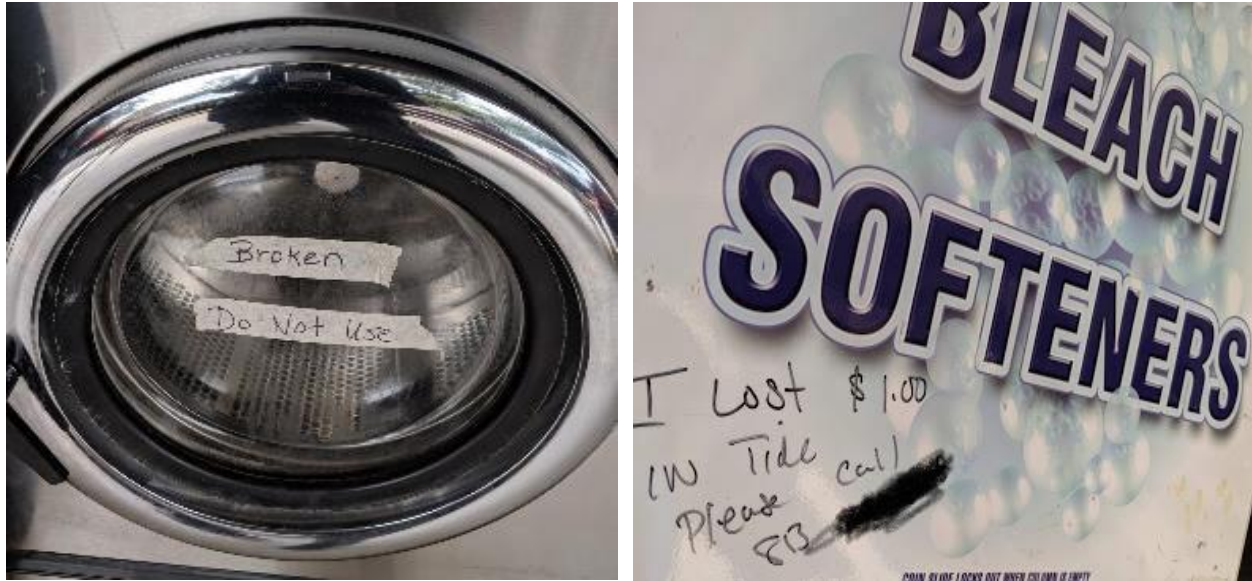
Figure 21: Example of warning stickers on a faulty washer (left) and James' request to be contacted after he lost money to a detergent dispenser (right) (Author).

The scale of the infrastructure problem became more evident when I participated in another free laundry day. A few days after Veterans' Day of 2019, I joined other volunteers, many of who were from Vistra, a consulting company in Tampa. Learning that I had been part of previous laundry projects at the Big Wash, Brian Butler, the CEO, wanted me to help with operating the machines. Everything had gone well for the first two hours of the project until the washers and dryers started breaking down.

As the number of machines written "broken do not use" grew (such as that shown in Figure 21), we continued to lose money we could have used to serve the residents. Unlike the previous laundry project, there was no one to repair the appliances. The waiting list had grown even longer because there were not enough machines. We were quickly running out of quarters to operate the machines after losing over $60 in the two hours. Consequently, the CEO had no choice but to close the registration prematurely to allow us to serve those who were already on our list. My experience

that day helped me understand why the cost of laundry and inadequate washers and dryers were among the 14 most salient items (see Table 13 on page 146).

Amidst these struggles with broken infrastructures was the noticeable absence of the laundromat owner or staff. For the months spent hanging out at the laundromat, I only saw owner, on a few occasions; the son came by more often. Once a week, I would meet and chat with the son as he went around repairing the machines taking time to speak to the customers whenever they came to him. Occasionally, a customer would call him to fix a faulty machine. In the absence of the owners, the site office was always closed, and there was no immediate solution for those who encountered problems with the machines. As a result, most of the participants I interacted with had no other choice but to pay the full cost of another machine on top of what they had lost. What they did after paying extra for another washer, dryer, or bag of soap was nevertheless different.

While some would let it go, others like James would write notes to the management (such as that shown in Figure 21). The owners would find these notes slid under the door of the site office. A day before the Summer Back to School Free Laundry Day, I arrived at the laundromat and found the son repairing the door of one dryer. We were interrupted by a middle-aged black woman who had been hoping to see the owners for days over a previous incident. "I had come to the Family Dollar, then I saw you. I lost my money to that washer last week. I slipped a note under your door." The woman said to the owner. In what seemed to be a familiar practice, the owner went into the site office and came back with coins and gave the woman a refund.

Even though the users would get a refund, many participants were not satisfied. They were frustrated by the lack of personnel to address their problems as soon as they came up. Shaq, like many others, wanted an urgent response." Unlike the [Big Wash], [the Bush laundromat] has onsite

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maintenance. Like if something happened to my clothes or my money? I could talk to somebody right away", she said in an interview. "What is the use of leaving a note if I need my laundry done now?" One participant expressed her frustration. "Marquis was particularly livid about the lack of personnel on-site and contacts with which users would make complaints:

> I was there three days ago, and when I put in clothes to run in their thing, there was no water. A man was cleaning up the place. I asked him, your machine is not working. He said I just work here, and I don't have the owner's number. So, I just let that go. When something like that happens, who do you contact? If I go there and put $10 in the coin machines and it gives me four quarters, there is nobody to call and speak to (Interview 5, 8/21/2019, Sulphur Springs Community).

Having been to the facility at least every other day after the Veterans' Day laundry project, I noticed the "broken do not use" stickers had not been removed, and that meant repairs had not been done. About10 days after the project, my attention was drawn to Lulu, a middle-aged Hispanic woman who thought I worked for the laundromat because she had seen me during one of the free laundry days. "Do you work here? The door for my washer is jammed. I need your help?" She said as she pointed to the washers on the eastern end of the facility. Having already paid $4.50 to a washer that was not working, she wanted to move her laundry to another washing machine by she could not open the door.

I explained to her that I was a student doing research and only volunteered for the laundry project but offered to help. After many failed attempts, two other men joined me, but we never succeeded in opening the door (see Figure 22). "I don't care much about the money now. If I could get the clothes back, I will probably be relieved. I wish there was someone to help. You guys have tried enough", she said in frustration. Seeing no signs of getting her laundry out, she then walked to the site office as we continued with our attempts to unlock the door. She came back within a

minute. "I tried calling for help, but the call went to a security company. I can't find the contacts of the owner."

At this moment, she had reconciled with the fact that she was not going to get her laundry back. Upon request, I handed her a pen and piece of paper from my field notebook, and she wrote, "My clothes are stuck in the 21st washer. Please sort it. Call me on 813*******,". I was surprised to find Lulu's laundry in the washing machines three days after the incident. The door was still jammed when I tried to open it.

Figure 22: Two men I worked with to help open the door of a washing machine (Author).

These accounts provide a glimpse into the desperate and painful experiences users go through. They reveal how a seemingly "hands-off management" approach of the facility denied help to users. The delayed response to user concerns issues and the lack of an avenue to complain (either through telephone contact or onsite personnel) further exacerbated the infrastructural problems at the laundromat. The failure to provide space for disenfranchised groups (in this case, laundry customers) to air their grievances is what activists and advocacy anthropologists refer to as silencing (Domingue 2015; Weisenberger 2018: 61). As the accounts show, one of the factors that contributed to these problems was the struggle to balance business and user interest.

Many of the participants interviewed talked about the need to replace the appliances as a solution to the longstanding problems at the facility. However, conversations with the ownership revealed that getting new appliances was not a viable option. Indicative of the influence of market forces in WaSH service provision, the owner preferred austerity measures to ensure he kept the cost of laundry low and still make a profit. "I am definitely in here for the money, as any another business, but we also want to be part of this underserved community," said the owner in an interview. To do that, he had to keep the operation costs and the prices low. He went on to tell me that the laundromat business was his retirement plan, but also a hobby that he enjoyed because it allowed him to interact with people from all walks of life.

Ironically, in trying to achieve the delicate balance between low-cost laundry for a low-income community and profit, the approach had led to pervasive infrastructural and customer service problems at the laundromat. For example, the inadequate investment in new appliances had left users with old and unreliable machines. That was revealed in another conversation with the son:

The facility has been here since the 1950s. My parents acquired it and made some small improvements to it. I have tried to push them to buy new machines, but you know, they don't seem interested because it will mean increasing the prices. Here it costs between $1 to $1.50 to do laundry. As you have seen the population, you have to keep the prices as low as possible while making a small profit. This has meant no upgrades on the machines. Most of them have been here for the past 20 years (Conversation, 7/26/2019, Sulphur Springs Community).

When I sat down with the owner in the last months of the study to share my preliminary findings, a discussion about the salient issues at the laundromat ensued. He explained why he had not invested in new machines and amenities such as air conditioning. He said, "you know we must keep the cost low. The moment we put any AC equipment or laundry baskets, the costs will skyrocket, then we would have to pass that down to our customers". Even though the owner seemed to agree with sentiments that the machines were old, he insisted that the appliances were efficient in washing big loads and cheaper to repair. "[The machines] are easy for my son and me to work on, so it saves us tones of money. The spare parts are readily available compared to the newer models you will find out there", he added.

Cutting costs also seemed like the preferred approach in dealing with customer service. Instead of hiring on-site personnel, the ownership preferred to address the customer concerns when they came to the laundromat:

Most times, when my son or myself come here, I pay for some of [our customers'] laundry, buy sodas— just that today we have no sodas left. Apart from addressing issues here and there, I also take time to interact with people. It is in these conversations that I can know what is working and what is broken (Conversation, 8/18/2019, Sulphur Springs Community).

Much later, I got a chance to also share my findings with Papa, a white male investor in his 40s, who had bought the laundromat. In response to the lack of on-site staff, Papa explained that it was not feasible to hire a full-time employee because the revenue was inadequate. Having studied the income and operations of the facility before he took over, he thought it was extremely costly to

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pay someone to be at the laundromat for eight hours a day. It would have meant increasing prices, and that was something he was not going to do.

Vandalism and Insecurity

Each of these accounts presented provides a vignette of the air of uncertainty and distress at the laundromat caused by the constant struggle with faulty machines and the lack of access to essential amenities. They show that the delayed response to user issues—mainly due to the hands-off management approach and the failure to provide space for users to voice their concerns exacerbated the infrastructural problems even further. However, further analysis of the factors into the underlying issues found that besides the intricate and delicate intersection of business and user interests, there were broader social forces at play.

Some of the concerns over vandalism (i.e., people breaking machines), and drug abuse, smoking, and drinking were microcosms of the impact of insecurity in the neighborhood to how people interacted and experienced laundry services. According to participants, vandalism had significantly contributed to the infrastructural problems at the facility. In talking about the operational challenges, the owner attributed the problem of vandalism to the transient population. "I would say we have not had any problems providing services in the community. The people [in Sulphur Springs] are nice. The problem is the transient people. They are the one percent. The 99 percent use this facility like their own", he said. To support his point, he quoted a woman he found reprimanding a young man who was breaking a washer: "you can't come to this place and destroy it. It is our laundromat. It is our only laundromat in the community". In one interview, Ashley explained the importance of the laundromat and why she had to call out those who try to destroy the facility:

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Some people come up here and just don't care. I guess they say [the laundromat] is not mine. Why should I care how well the place is taken care of? But for people like me, I have to walk or take the bus so, I'm not going to damage something that's not mine knowing I come up here for the convenience. I would like to keep coming here. So, I'm not interested in damaging anything because I would like to keep coming back. Some of the people that come up here just really don't take care of the machines or anything. It's not their property. The [owner] tries hard to take care of the property and maintain the machines. But it just doesn't work out that well for him (Interview 7, 8/30/2019, Sulphur Springs Community).

The owner also attributed the caring attitude towards the laundromat to the relationship they had built with the community. According to him, it was all about being kind and interacting with his customers.

Other than vandalism, the negative influence of smoking, alcohol consumption, and drug abuse around the laundromat on the quality of laundry services was observable. Although the facility was a place to build social relations for people like Simon and his group of friends, many participants (especially women) did not feel safe because of smoking and drinking. "I don't even feel safe coming here alone because some of the people that hang out here are just suspect," she said. "As you can see, the place is disgusting because it is littered with cigarettes and beer cans. Only God knows what else they are using", said she added. According to the owner, the drug issue was not unique to Sulphur Springs; it was prevalent in many low-income neighborhoods in the city and was a cause of concern for his customers. "There are times you find people here drinking beer and blasting their music on big speakers. No grandmother or mother wants to come here with their child to do laundry and find such activities here."

James, a middle-aged professional chef at a high-end restaurant living in Sulphur Springs, revealed how the insecurity affected how he did laundry. Our conversation began with an incident in news headlines where a passenger had attacked a bus driver at a nearby bus stop. James did not feel safe doing laundry after his shift that ended at midnight. For the nature of his work, he came

home from work past midnight and alighted the bus at the Family Dollar that was right across the laundromat. The news about the attack on the bus driver made him worried about his safety. Although he preferred washing his work clothes at night, he had been forced to come during the day. As a result, the 40-year old single man did not have enough to sleep or do other household chores.

Additionally, drugs, crime, and vandalism significantly contributed to the lack of key amenities at the facility (such as a bathroom). Although the facility had a bathroom, it had not been opened for over five years. When I inquired about why it had been closed, the owner said, "we had to close it. It had become a place for people to use drugs. I was called by a senior police officer and told to close it. Someone OD'd in there". However, the implications of this decision became visible when I spoke to Addis:

> You go to do laundry and spend an hour or even 2 hours. What happens if you need a bathroom break? Some people come there with their kids. One day I saw a kid who had to pee outside because there are no bathrooms there. The place ends up stinking. I can't stand that. How can you wash clothes there? Because of the poor hygiene, I sometimes put my clothes in the washer then go home then come back to put them in a dryer. I cannot stand there. It is so disgusting. A bathroom is important when people have to stay for more than one hour. The laundromat has a lot of people coming in with big loads. Apart from having a bathroom to pee, you also need to wash your hands. Sometimes when you pour soap, your hands get dirty. I must go home to rinse my hands (Interview 10, 9/3/2019, Sulphur Springs Community).

In part, her words reveal how the lack of a bathroom had worsened the sanitation conditions of a facility that some users had described as a "laundromat with dirty machines and surfaces." Users lacked access to amenities for proper disposal of human waste, but also a place to wash their hands. The danger, however, was that the lack of a bathroom created situations where users did what would otherwise be considered taboo, unethical, or even illegal. Besides public urination, the lack of a bathroom denied users a private place to change their clothes. These incidents do provide a

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link between the subject of sanitation, which is at the core of this study. Therefore, the laundromat offers insight into the community's perceptions about WaSH. With these incidents, we learn that cleanliness and access to subsidiary amenities such as bathrooms are as important in the broader conversation about WaSH.

On the day I met Arturo, he was looking for a new place to stay because the vacant home he stayed at had been demolished. Arturo wanted to change into clean clothes after washing most of his laundry he had carried in his backpack, but there was no place to change. He then removed the black denim shorts he was wearing and put it next to his backpack on the folding table. Left with a baggy grey t-shirt covering him down to the hip, he took out another pair of dark blue denim shorts from his bag and put them on. All this time, Arturo didn't seem bothered by the ten other people at the facility or what they thought. His case is illustrative of the challenges users, especially the homeless, faced at the laundromat because of the lack of a bathroom.

In dealing with the insecurity issues at the laundromat, the ownership seemed somewhat reliant on increasing police presence. "When gets out of hand, I use my contacts with the police. Sending a police officer to walk around makes the problem go away for a while". James, Addis and other participants seemed to agree with the call for increased police presence. One participant thought the insecurity should not deny her family access to a bathroom:

> Insecurity has nothing to do with not having a bathroom. That is what the police are for—security. They could even have a security guard there for $25 or $50 a day. Tell them to knock it off. There is no excuse; people need a bathroom. It doesn't matter if someone died in there. They knew what they were doing when they were taking drugs. What happened to them cannot deny me a bathroom (Conversation, 8/29/2019, Sulphur Springs Community).

Gender, Social Class and a Disposable Group

The study revealed that the brokenness of the laundry system and the widespread insecurity significantly affected the poorest and most marginalized segments of the society. Although most of the participants I spoke to did not view laundry as feminine work, the majority of those who came to the laundromat were women. That speaks to the idea that laundry as part of unpaid household work is a source for gender oppression (McCabe 2018; McCabe and Denny 2019). For instance, when I got an opportunity to interview Maria and Manuela in their house, the Hispanic couple told me their roles in the household had become flexible in the fifteen years they had been married. "We come from a traditional culture with defined roles too, but the generations are changing so are the roles," Maria said in our discussion on different perceptions about household work. "My grandfather's generation is completely different, and my [kids] are going to be another generation." Maria did most of the laundry because her work schedule was flexible, and that was how it had been for the time they been together. However, the husband occasionally helped when she was busy with other household tasks.

For instance, the narratives in the previous sections illustrate the extent to which the customers (especially women and children) must go through to access critical sanitation and hygiene amenities. Given the state of insecurity and a seemingly hands-off management approach, women like Addis and Pendo did not have access to a bathroom. While Addis could walk back home whenever she needed a bathroom break, Pendo illustrated how the lack of critical amenities disproportionally affected her family. When Pendo raised concern about the lack of a bathroom in an interview, I sought to hear her thoughts about the events leading to the closure of the bathroom, and she said:

Someone OD'ing in there should not deny us a bathroom. One day, my grandbabies had to pee while I'm up there [at the laundry]. Two boys and a girl. The boys can go by the trees, but I am not going to let the girl do that. So, we need a bathroom. Who cares if somebody Od'd? So what? The bathroom needs to be open for the next person to use it. He is making excuses for why he doesn't want to have a bathroom there (Interview 6, 8/21/2019, Sulphur Springs Community).

The burden of laundry, however, was even more substantial for women with large households, especially those with children. Some participants said they had to do laundry quite often because they had a big family, and children's clothes needed cleaning. These household characteristics meant that some women were more exposed to the problems at the facility when they went to do laundry.

Shaq and Jasmine's experiences provide examples of how some women were predisposed to feel the impacts of a broken laundry system. Since Shaq, her five children, and father, moved to Sulphur Springs from Memphis, Tennessee, the laundromat had been a critical facility to her family's hygiene needs. With her family size and composition of mostly kids, laundry was an everyday household routine:

I try to wash at least once a week. Mostly on Fridays. But I'll typically wash every day when the kids come home, and they take the uniform off. I have a small washer and dryer, which I used for those uniforms. But when it comes to doing regular clothes, like big loads of clothes, I wash that probably like twice a month at the laundromat on waters avenue. I would spend about $50 every time I go there. Laundry is among the highest expenses in this household, more than $100 a month (Interview 9, 9/2/2019, Sulphur Springs Community).

In a group of users with large family sizes and kids, Shaq was not alone. Jasmine used to live in Sulphur Springs but moved to Temple Terrace, where her family of eight lived. "My husband and I have five kids, but we also live with my grandmother," she said. "Because of the kids, you gotta clean their beddings and clothes because they play a lot at their age." Jasmine drove for at least 15 minutes to come to a laundromat she had used for the 20 years when she lived in

Sulphur Springs. Spending between $40 to $60 every two weeks on laundry, it made sense for her;

and many others from other neighborhoods to come to the big wash because the machines took

big loads.

It is clear that household demographics, particularly the composition and size, influenced

laundry needs but also made them vulnerable to the infrastructure and managerial problems.

However, this is not to say their needs and experiences were similar. Whereas jasmine seemed to

have social support in her grandmother and husband, who would accompany her to the laundromat,

Shaq was struggling alone. She was a single mother living on social assistance. On two occasions,

I helped her cross the street with her five kids when she came to the laundromat carrying a bag of

laundry on the shoulder and pushing her two-year-old daughter on a stroller with another arm. Her

two eldest kids (between seven and 13 years) were pushing bags of laundry on other hand carts.

Shaq and Jasmines also represented a group of people who are interested in affordable

laundry services because of their household needs. Large and low-income households felt the

impacts of the socioeconomic losses associated with unreliable infrastructures. To explain the

socioeconomic implications of these infrastructural problems, James said,

> I have just lost my money to the soap dispenser. This is not the first time this has
> happened. I come here most days to wash my work uniforms, and this happens. I
> have spent $10 today, and I have lost one dollar. It may not be much, but if that
> happens so often to such a low-income community, it affects families
> (Conversation, 11/22/2019, Sulphur Springs Community).

Thus, the loss of money significantly affected low-income households. While these households

had to make do with a broken laundry system, wealthier ones had access to better laundry services

because they had appliances.

For instance, James was a professional chef who did not earn much. He had come to the facility pushing two bin bags of laundry on a Walmart shopping cart. He could not afford to buy a washer and dryer or a car. Since he had to keep his work clothes clean, he used to come to the laundromat at night after work, but the insecurity had forced him to wash his clothes during the day. As a result, he had little time to sleep or do other household chores before his next shift. He was hoping to get a raise to buy laundry machines and a car. That way, he would spend less time doing laundry and commuting.

> I could have used the 45 minutes I have been [at this laundromat] to catch some rest because I work most days of the week. Waking up to come to the laundromat is not the best thing. If I had my laundry machine sat home, my clothes will be running as I clean, cook, or sleep. Coming here is just a waste of my valuable time (Conversation, 11/22/2019, Sulphur Springs Community).

Unlike James and other participants from low-income households, Maria and Manuela had just managed to buy a used washer and dryer at $250 at Habitat for Humanity. The local organization received home appliances as donations. The organization restored the appliances and sold them at discounted prices. In an interview, Maria explained how having laundry appliances saved her time and allowed her to do other work:

> I go [to the laundromat], stay quiet, and do what I need to do. I don't like it because I think it takes so much of my time away. So, like, right now, I have my own washer and dryer, I can be cleaning the house, doing laundry, cooking, and doing other things at the same time. Right now, I drive an Uber. I must take time off driving Uber to wash clothes, take my daughter to and from school, and cook. So not being able to do laundry while doing other households takes a lot of my time from my work (Interview 21a, 11/24/2019, Sulphur Springs Community).

During another interview with Beyoncé, a black woman, and mother of three children, she shared her experiences at the Big Wash and why she had to seek other laundry alternatives. "I went to the [big wash], and the machines took some of my change. I would insert coins, and then the water does not fill up like it's supposed to." Like many others, she thought the machines needed to

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be adequately maintained, and she was concerned that there was no bathroom. She remembered a time when she lost money and never got help because there was no one to help at the facility. "I was like on my last couple of bucks for that pay week, and we needed to clean our spreads, blankets, and comforters. I went to the [Big Wash] and the machine took my money", she remembered. Since there was no one to refund her money, the only option she had was to leave a note below the office door. After these experiences, she stopped going to the Big Wash. Beyoncé and her husband bought their own washer and dryer, and she did most of the laundry at home. She occasionally went to the Bush laundromat or three others in neighboring communities.

Like Maria and Beyoncé, Dani was able to avoid the "unsanitary and nasty habits" at the laundromat because she could afford to have a washer and dryer at home. "I do not like to go to the public laundromat because people do not put soap to their laundry. It smells, and it is not clean," she said. "You know, there are people who would just throw in their rugs, what their dog slept on in the machines. I am not going to wash my undergarment in the same machines or a rug next to someone washing kids' clothes. That is disgusting."

I also saw the role of socioeconomic status at play when it came to who should use the laundromat. The freelist data and interviews revealed that some people were concerned that there were many homeless people at the laundromat (see Table 13). In one interview, one of the owners said they had had an issue with the homeless people after numerous complaints. Many of the complaints had linked homeless people to poor sanitary conditions because they brought "dirty" clothes to the facility. The prices at the facility were the result of an increase to keep out homeless people. Thus, the laundromat had become a site of struggle between the socioeconomic classes over who should use the facilities. In the end, these class struggles seem to alienate and create disposable groups of users in extreme poverty.

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The Rebirth of the Big Wash.

The opportunity to contribute to the enhancement of the laundry services came at a time of transition. Two months before the end of the study, the family that had run the facility for decades sold it to Papa. I had met the investor at the laundromat on several occasions before the sale, and he was keen on making improvements. Seeing the newfound vigor brought by the transition, I took the opportunity to discuss my findings with Papa within the first week of the takeover.

During our first meeting, Papa spoke about the changes he wanted to make. Initially, he had thought of getting new dryers, but a set of which is 12 dyers cost $46000. New washer and dyers were a mid-term project. In a move to address the dire situation, he was going to buy new parts for all the machines so that they could work properly at the cost of $12000. To make the place more comfortable, he was also going to put four large fans. He hoped that with a timer, customers could turn the fans on during the hot days. He also planned to provide "pushable" laundry baskets for the users.

The planned investment in new laundry appliances was in line with the ongoing transformations at the laundromat that had brought an air of rebirth. Two weeks after our conversation, Papa began the changes by recarpeting and marking the parking lot. It cost him around $6000. But in response to the complaints about the lack of a bathroom, he had spent another $8000 fixing the bathroom, which required a new sink, toilet seat, and new tiles (see Figure 23).

To ensure the bathroom was not misused or vandalized, he planned to have the cleaner keep it open whenever he was away. Nonetheless, Papa was hopeful that the renewal of the laundromat would inspire greater responsibility and care among residents. At the end of the study, a freshly painted facility stood out from the neighboring streets. Driving by, one will not miss

seeing the well-coordinated shades of cyan on the walls, roof, and fascia boards. The once rustic and dusty folding tables and wooden benches had been repaired and repainted in blue and aquamarine colors.

Figure 23: Laundromat renovations at the time of the study. Bathroom under renovation (first row). The rest are before and after pictures showing renovated benches, and part of a newly paved parking lot (Author).

Chapter Ten: Discussion and Conclusions

In answering the question— *how and under what conditions do people interact with water, sanitation, and hygiene (WaSH) services and governance in the Sulphur Springs, Tampa?*—the study revealed that it is simply impossible to understand the condition and experiences of the residents without considering the neighborhood's demographic, socioeconomic and political history. As the results in chapter five show, Sulphur Springs is not what it used to be in the early 1900s when it was established.

The narratives also suggest that besides the loss of businesses, significant economic hardships that befell it between the 1970s and late 1980s, the introduction of Section 8 housing and mass relocation of people from HOPE VI housing projects had a devastating effect on the neighborhood. In doing so, the federal and local housing authorities turned Sulphur Springs into a low-income and transient community. Instead of helping uplift livelihoods, these programs help create what many participants called an inner-city neighborhood. Additionally, the in-migration created a high demand for rental houses that saw Sulphur Springs become a primarily rental neighborhood.

What happened to Sulphur Springs to make it a vulnerable neighborhood, particularly the confluence of low-income and rental population, and the effects of WaSH can be better understood when we consider the idea of poverty concentration. William Julius Wilson' (1987), in his classic text *"The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy,"* talked about how migration patterns among African Americans had created vulnerable communities with low

rates of employment and poverty. In this introductory text, Wilson observed that poverty concentration in some urban communities in the US began as early as the 1970s as a result of the surge of unemployment in minority communities and the departure of the middle class in perceived low-income neighborhoods (also see Curley 2005). Wilson's observations speak to what had happened in Sulphur Springs and a few other neighborhoods in the Tampa Bay (see Greenbaum et al. 2008).

As the narratives indicate, the poverty concentration was also driven by the massive loss of jobs (especially when the businesses closed), the departure of middle-class residents, and entry of more low-income families looking for affordable housing. Those I spoke to told me that as the white middle-class families moved out of the formerly "whites only" section of the neighborhood in the late 1980s, Sulphur Springs became a low-income community with a majorly black population. The concentration of poverty in Sulphur Springs because of its history of segregation and the departure of the white middle-class is what Massey and Denton (1993) describe as "American Apartheid": the concentration of high-poverty racial groups separated from low-poverty racial groups. More importantly, the deliberate flight of whites from black communities such as Sulphur Springs was in itself a racialized process. As Jackson 2020 writes, the exodus of whites and a street delineating white and black spaces constituted "white spatial imaginaries." That is a deliberate process of racial isolation meant to minimize contact between black and white people. Additionally, Curley (2005); Ellen et al. (2016) and other critics of housing programs also argue that by moving more people on house assistance programs into neighborhoods like Sulphur Springs, the HOPE VI and Section 8 programs exacerbated social and environmental problems in the community (Greenbaum et al. 2008). And therefore, it is within this context that the answers to my research questions emerged.

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Research question #1: How do people's interactions with water, sanitation, and hygiene (WaSH) services and governance inform their social and behavioral perceptions in Sulphur Springs?

As the results showed, Sulphur Springs's history, socioeconomic, demographic, and housing changes significantly influenced the interaction and conditions of WaSH services in at least two ways. First, the concentration of low-income and renter households created unique WaSH problems. The study found that as more renters moved into the neighborhood, there was an unprecedented increase in the demand for rental housing. That negatively influenced the quality of WaSH services. As a result of the mismatch between the demand and supply of rental units, participants complained that there was very little impetus for landlords to renovate houses or do plumbing repairs.

As tenants fought for scarce rental units, competition for access to limited housing resources created a sense of powerlessness among residents. They no longer saw the need to advocate for better housing amenities, particularly water and sewer. As the narratives revealed, residents further lost the power to hold landlords accountable following the collapse of the housing market. The period after the crisis saw an increase in absentee landlords and people from all over the state and country streamed to Sulphur Springs to buy cheap properties they could rent out. That also made it difficult for tenants to get plumbing repairs done because some landlords did not live in Sulphur Springs. Despite the argument by landlords and laundromat owners that the high cost of repairs was the challenge, there was a connection between the frequent breakdown and delayed response to problems. Additionally, the study revealed that there was an underlying capitalist imperative characterized by a constant cost-cutting at the expense of the quality of services. For water, sewer, and laundry services, many participants pointed out the frequent service breakdowns were because of the stop-gap measures and the failure of landlord and laundromat owners to upgrade amenities.

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This study thus locates last-mile services an important site of infrastructural violence in Sulphur Springs. The violence was embedded in the relationship between the tenants, the landlords, and laundromat owners. In doing so, this study decenters the politics of service provision from the municipal level, as demonstrated by examples in literature. In their discussion of how power and politics influence the design and management of infrastructural services, Anand (2011); Anand (2012); and Anand (2015); for instance, linked citizenship and party affiliation to the poor quality of water services in Mumbai, India. In their discussion of how infrastructure services can cause harm, others like Coleman (2014) and Larkin (2013) observed that in some developing nations, infrastructures are deliberately used to consolidate power or as tools of organizing society. But, in Sulphur Springs, the dynamics were different.

In locating infrastructure violence within the last-mile services, the narratives lay bare the implications of the neoliberalization of WaSH services. In Sulphur Springs, neoliberal practices are evident in the noninterference of the state in service provision in private properties. WaSH problems beyond the meter and the property line were not the responsibility of the municipal agencies. Consequently, the laissez-faire approach had left tenants and laundromat users in the hands of the private sectors who were acting within the market forces, such as the demand for housing and quest for profit (Cramer and Katsarova 2015; Silver 2019; Strang 2016). The narratives suggest that an environment of high demand for rental units and constant cost-cutting were at the center of the struggle between local service providers and residents on the quality of WaSH services. Besides the neoliberal thinking and practices behind WaSH, there were other broader structural forces behind the WaSH insecurity in Sulphur Springs.

Given the history of slavery and race in the US, structural racism is a significant factor that determines the conditions and experiences of minorities with WaSH. In talking about

structural racism, I refer to the segregation, exclusion, and discriminatory practices within governance and social systems and their role in shaping the lived experiences of African Americans and other people of color in Sulphur Springs (see Jackson 2020). As discussed earlier, historical racial separation and exodus of whites were part and parcel of the racialization process in the neighborhood. However, the making of a renter and low-income neighborhood and WaSH insecurity is embedded in the history of racial exclusion and discrimination in the housing sector across the US.

In exploring the root causes of lead poisoning in Flint, Michigan, Ranganathan (2016) found that discriminatory housing policies and practices played a critical role in making African American neighborhoods vulnerable to infrastructure problems. Using the concept of infrastructural racism, Ranganathan outlines how African Americans were systematically excluded from homeownership. For example, after the 1930 great depression, homeowner loans were mostly given to white suburbs, and the Federal Housing Administration guaranteed contractors that excluded African American neighborhoods. The framing of minority areas as "slums" and redlining practices that zoned black and mixed-race areas as high risk further justified the insidious plans to deny minorities mortgages and subsidies. In many parts of the US, including Tampa, these racialized zoning practices caused property depreciation and the disinvestment in black neighborhoods when it comes to critical infrastructures (Light 2010; Massey and Denton 1993). Thus, structural racism played a vital role in the lead disaster in Flint.

In Tampa, Sulphur Springs, Ybor City, Tampa Heights, Macfarlane Park, and Hyde Park, in West Tampa were redlined neighborhoods. Between the 1930 and late 1940s, Macfarlane Park and Ybor City were considered extremely high-risk zones. They were marked red because they had a large African American and Latino population (Locke et al. 2020; Nelson et al. n.d). On the

other hand, Sulphur Springs, Tampa heights, and Hyde park were marked green— signifying neighborhoods in decline (Nelson et al. n.d). Since the red and green zones were undesirable for mortgages, racial minorities in these communities were denied opportunities for homeownership and wealth creation. In Sulphur Springs, African Americans were blocked from buying homes in the "whites-only" section of the neighborhood (see Jackson 2020). Furthermore, the outmigration of whites in Sulphur Springs facilitated the reclassification of neighborhoods like Sulphur Springs as high-risk zones. As a result, black residents were either denied mortgages or given loans with high-interest rates (see Massey and Denton 1993; Ranganathan 2016). The high poverty and low rates of homeownership in Sulphur Springs are social outcomes of historical racial discrimination and drivers of WaSH insecurity. With this in mind, the role of structural racism becomes clearer when we think of the renter-landlord relations as a site of infrastructural violence.

Secondly, participants also felt that the negative perception of Sulphur Springs influenced the quality of services they received. According to those I spoke to in oral history interviews, the stigma began when the community lost its tourist draw between 1976-85. As discussed in chapter five, the economic downturn that followed produced a wave of crime, drugs, and prostitution, which many of the participants talked about. Despite the positive transformations, the effects of the idiosyncratic stigmatization were visible. Setting aside the denigrating comments cited by participants, there was a strong belief the standards of sewer, drainage, and laundry services were low because Sulphur Springs was a low-income neighborhood. For example, some participants attributed the illegal dumping by "outsiders," broken laundry machines, and delayed repairs to the negative discourse about Sulphur Springs.

Indeed, these perceptions still point us toward the idea of poverty concentration and how it results in social problems such as the increase in crime, low educational attainment, and

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unemployment. But more significantly, some studies have linked the concentration of minority groups to the stigmatization of neighborhoods based on public stereotypes such as crime, race, or class. The place-based stigma often affects how residents are treated, reduces opportunities, and quality of amenities they receive (Curley 2005; Hastings and Dean 2003; Power 1997; Wilson 1987). The perceived influence of the stigma on services in Sulphur Springs, in part, supports Morales (2016) and Morales, et al. (2014) arguments that for a long time, WaSH services have been used as powerful tools to mark social classes and perpetuate racial or colonial agendas. As Ranganathan (2016) observed, place stigmatization allows mistreatment by private and public enterprise and further exacerbates WaSH problems in the community.

Research Question #2: How are these social and behavioral perceptions on water, sanitation, and hygiene (WaSH) services and governance shared or contested among users and service providers?

The shared concern over the poor conditions and management was indicative of how the social-economic, demographic, and housing changes had influenced the infrastructural conditions and administrative processes of WaSH Services. Sulphur Springs residents find that the age of the infrastructures, how, and when they were repaired as having profoundly contributed to their bad experiences with WaSH services. One of the most salient themes across the WaSH services researched was that amenities frequently broke down and that they were inadequate for their needs. Besides the plumbing issues which participants attributed to the old water and sewer pipes, it was evident from the narratives that the laundry amenities needed upgrading. Further adding to the sense of precarity, residents felt that even though landlords and laundromat owners were aware of the infrastructural deficiencies, they preferred stop-gap measures and often delayed maintenance.

These infrastructural and administrative deficiencies are in tandem with earlier work that suggested that infrastructural violence is embedded in technological and operational processes that

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maintain infrastructures. Alda-Vidal et al. (2018); Anand (2012); Anand (2015); Campbell et al. (2016); Gostin (2016) are some of the notable examples that show how technical deficiencies such as the design of infrastructures, age of components, operational processes (such as water pumping schedules and maintenance), and administrative arrangements like staffing results to unpleasant experiences and inequities in infrastructural services.

Setting aside the issue of water leaks that seemed to tie into the sociotechnical dynamics discussed above, conversations with residents in Sulphur Springs foregrounded water quality issues. In what in called a "spectrum of water needs," residents and the Water Department, almost unanimously, agreed that sensory experiences (such as how the water looked, smelled, and tasted), and water safety took precedence over infrastructure issues an even cost. Bhandari and Grant (2007); Haider et al. (2013); Han et al. (2015); Lou et al. (2007) are just a small sample of water studies that show the significance of water quality (such as smell, taste, softness or hardness) in the satisfaction with WaSH services. However, other studies (such as Alda-Vidal et al. 2018 in Lilongwe, Malawi; Anand 2011; Anand 2012 in Mumbai), found that access, affordability, water safety, water pressure, the reliability of water supply, and customer service were the most significant concerns for communities they researched. An thus, the salience of sensory experiences is perhaps indicative of the different water needs across the world, but also a scorecard on the progress the Water Department had made towards addressing basic water problems such as access.

Considering the history, socioeconomic, demographic, and housing changes that had occurred in the neighborhood (discussed in Chapters 3 and 5), Sulphur Springs had become a largely low-income and transient neighborhood but somewhat heterogeneous when it comes to ethnicity and housing. Although most whites had left the neighborhood, Sulphur Springs had also seen an influx of other ethnicities, including Hispanics and Africans, adding to a majority African

American population. However, what was clear was that the socio-economic, demographic, and housing dynamics created at least three housing categories, which the perceptions varied across: renters, Section 8 renters, and homeowners.

For house-related services like water and sewer, the study revealed that the infrastructure and administrative deficiencies disproportionately affected rental households. As a result of the high demand for rental units, most had moved into housing units without renovations. Under the climate of competition for rental units, participants pointed out that renters were at the mercy of landlords. The "slumlords" and "absentee landlords" were interested in profit and less inclined to addressing plumbing issues. The common concern for renters was delayed repairs. The situation was, however, different for renters on Section 8 assistance. Residents and community leaders felt Section 8 renters were less affected because the Section 8 Program had mechanisms to hold landlords accountable. As one would expect, homeowners had control over how they address their plumbing issues. Since most renters (including those on housing assistance) lived in houses without a washer and dryer, they were also disproportionately affected compared to homeowners when it came to laundry services. However, the drainage problems cut across the housing categories and particularly affected residents in the lower parts of the community. Overall, this study finds that the agency of renters in Sulphur Springs is bounded, and their relationship with WaSH services is mediated by other actors—in this case, landlords, property managers, and laundromat owners. With that in mind, tenancy becomes an essential but rarely considered social axis in the anthropology of infrastructures and infrastructure violence.

At the more granular level, the narratives across the WaSH elements researched provided enough evidence to suggest that women in Sulphur Springs bore the greatest burden of water, sanitation, and hygiene in their households. And as a result, they were the ones who had to bear

the brunt of the infrastructure and administrative deficiencies. For instance, many women were losing much of their productive and leisure time coming to the laundromat. Some drove from distant communities to save money, and others left their work early to do laundry. Under these circumstances, the women I spoke to felt that their life would have been comfortable if they had laundry machines in their houses: they could wash clothes, cook, clean, and spend more time with their children.

Significantly, the narratives also brought to bear psychological and physical stress women suffered. As managers at the household level in charge of critical WaSH related tasks (such as laundry and cooking), the regular break down of services usually took a heavier toll on women than men. The women I spoke to were stressed that machines at the laundromat were taking money they budgeted for other tasks. For water services, they were worried about the health of their children; that is why many went to the extent of filtering or boiling water. Besides the psychological stress, the stories also showed how women underwent physical stress to access laundry services. I met and spoke with women who walked several miles, in the hot summer weather, carrying laundry baskets in their hands or sometimes pushing shopping carts. But even more worryingly, the insecurity in the neighborhood had left women (especially those with that worked day shifts) vulnerable to crime and gender-based violence as they walked in the faintly lit streets to the 24-hour laundromat.

Perhaps indicative of their great interest in the quality of WaSH services, women made up more than 68 percent of participants of this study. But the high interest and concern of women with WaSH, does not mean men didn't participate or suffer the consequences. Most of the men I spoke with had come to the laundromat. They complained about the quality of services; others were actively involved in addressing water, sewer problems in their households. Even though there

was a gender divide in how residents interacted and experienced WaSH services (especially laundry, water, and sewer), there was a shared concern that things needed to change.

As much as Sulphur Springs is a predominantly low-income and transient neighborhood, the poorest residents felt the extreme effects of the service failures. The poorest of the residents did not have access to their own washer and dryers, and thus, they had to rely on public laundry services. Since they could not afford cars, they are the ones who walked for miles to the laundromat. To make it worse, the laundry machines left even bigger holes in the pockets of those who were unemployed. Some told me the machines had taken their "last money." For water, sewer, the poorest of the residents bore the brunt of delayed repairs because they lacked the resources to move out of houses in poor conditions or hold the landlords accountable.

Research Question 3: How and under what conditions do peoples' social and behavioral perceptions influence the governance of WaSH services and the experiences of underserved groups in Sulphur Springs?

As discussed above, the historical changes in the demographic, socioeconomic, and housing characteristics of Sulphur Springs' collectively created inferior infrastructural service conditions and inequalities among residents. But as the narratives show, these changes significantly limited the ability of residents to participate in WaSH governance in three ways. First, the study finds that while the increase in the demand for rental units in Sulphur Springs contributed to the abject infrastructural services, residents and community leaders were troubled that competition for rental units meant that tenants were afraid to move out. Participants pointed out that some residents had no option but to live in houses with broken services because someone else would move in. Even worse, those who wanted to move out were not sure if the situation would be better in the houses they were to move to.

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Besides the role of demand and supply forces in disempowering tenants, the study found a worrying pattern where service providers had failed to provide a platform for residents to voice their concerns. Participants I spoke with pointed out that because of *absentee landlordism*, service providers were unavailable and unresponsive when tenants needed repairs done. They would collect rent, but tenants did not have access to the landlords. The situation was not any different at the laundromat. Despite being one of the most popular facilities in the neighborhood, the laundromat lacked on-site staff and a clear mechanism to connect its customers and ownership. Regardless of the urgency of their problems, users had to either leave handwritten notes with their phone numbers to be contacted later.

The failure to provide a platform for residents to air concerns and the disempowering effect of the competition of housing speak to the notion of *silencing*. The term silencing as used in advocacy refers to institutional or peoples' practices that knowingly or unknowingly deny or fail to create space for disenfranchised groups or communities to be heard and advocate for themselves (Domingue 2015; Weisenberger 2018: 61). Even more concerning, there was a palpable feeling that some service providers, particularly landlords, had devised more aggressive mechanisms to silence dissenting resident voices: one such was eviction. Some participants I spoke with told me that after leaving in housing with broken plumbing for months, they tried withholding rent, instead of fixing the problems, the landlords handed them eviction letters. In other cases, landlords would shut down water and sewer services to evict the tenants.

By considering the shared concern over the deficiencies of the infrastructure services and the silencing of residents in Sulphur Springs, one would have expected residents to leverage collective voice to advocate for the improvements of amenities. As much as community leaders— through organizations such as the SSRWG, and United Way Suncoast, were working to bring

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together residents to hold service providers accountable, they felt that that the residents lacked interest. On the contrary, many residents I spoke with cited the lack of information about community initiative as a reason for their limited participation. But what community leaders and residents seemed to agree about was that the lack of social cohesion was the biggest obstacle to them finding a collective voice to demand better services.

One of the factors that contributed to the lack of cohesion was transiency. Community leaders I spoke to told me that because Sulphur Springs had become a transient neighborhood, it was increasingly difficult to get information to residents. Before, the information would flow across established social networks in the community. Moreover, the study finds that some residents, who saw Sulphur Springs as a temporary place to stay, did not participate in block or community initiatives nor build relationships with neighbors because they did not plan to stay in the neighborhood for long.

Further adding to the problem of transiency, it was clear that the legacy of racial segregation was very much alive in Sulphur Springs. Although Sulphur Springs had become somewhat a multiethnic, a perpetual and invisible divide still existed between the Spring Hill and the "formerly whites only" section of the neighborhood (also see Brown 2004; Jackson 2020:62-66). The high turnover of residents (which participants estimated to be about two years) and the indiscernible but everlasting boundary did not just limit information sharing among residents; it also continued to threaten the social cohesion of the neighborhood. Consequently, they reduced the power of the collective voice of residents in the governance of WaSH.

Amidst all the historical, economic, socio-cultural, and political climate that produce struggles with infrastructure services in Sulphur Springs, the hope of better WaSH services

remains. Residents, community leaders, and organizations were coming together to offer hope in a seemingly complex and difficult situation. As a starting point, the SSRWG was working together with organizations to change how people talked about Sulphur Springs through arts, music, and educational workshops. These organizations included the Sulphur Springs Neighborhood of Promise (SSNOP), United Way Suncoast, the Sulphur Springs Resource Center, the Sulphur Springs Museum & Heritage Center and the Community Steppingstone.

Practically, these stakeholders were working on legal strategies to hold parties accountable for delayed repairs and illegal dumping. In partnership with Rebuilding Together Tampa Bay, they were also doing minor home repairs and improvements such as painting houses, cleaning the neighborhood, and minor plumbing works. Regarding laundry, the Current Initiative continues to spread hope through its Free Laundry Project. With support from local organizations in Tampa, the project was helping alleviate the economic burden of the most marginalized and underserved residents. More importantly, the stakeholders were investing more time in understanding the needs of the residents but also educating and encouraging tenants to advocate for better services.

Limitations and Future Research

Perhaps the most limiting factor of this research was the relatively small number of participants who were willing to be interviewed. Although my initial plan was to conduct more than 30 interviews, the reality was that many of those I approached felt they did not have much to talk about. Consequently, most of those who participated were older residents and women, perhaps limiting the insights about the WaSH perception across generations and gender. Some of the leaders were worried that water, sewer, and drainage were too mundane to elicit conversations. That was expected, as many other infrastructure service researchers had observed —infrastructures (such as pipes, valves, and plugs) are mundane material arrangements that are too boring (Larkin

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2013; Star 1999; Star 2002)**.** Nonetheless, my participation in community initiatives, events, and the relationships I build with community leaders, made me a familiar figure in the neighborhood, and that opened more opportunities to speak to more residents. Even with these limitations, the sample remains representative as women, and older residents bear both the responsibility and the blunt associated to the infrastructure service problems.

Relatedly, the study was limited to the low number of technocrats who agreed to participate in the study. Initially, I had planned to use an internship position at the Utilities Center as an ethnographic point of entry into the often-inaccessible population of technocrats at WaSH departments (see Gusterson 1997). Despite the strong relationships I had established over the years during my work on the University of South Florida CRISP project funded by the National Science Foundation, efforts to get the internship did not bear fruits because the city was going through a transition after an election. In the end, I only managed to interview officials from the Water Department and Code Enforcement. Since most of the infrastructure service concerns were linked to landlords and laundromat owners, that did not have profound impacts on the study. However, the study could have benefited from insights from the Transportation and Stormwater Department and the Solid Waste Department. A larger sample size of technocrats would have allowed further analysis into the degree of consensus among residents and service providers on WaSH issues as well as the power structures at the municipal level.

Being an exploratory study, there are still many loose ends left to be tied. Having located infrastructure violence within last-mile services, there is an opportunity to further investigate how race segregation, exclusion, and discriminatory practices produce infrastructural violence in Sulphur Springs. Earlier in this chapter, I discussed how race in the US was an important factor in curtailing homeownership and infrastructural investment in communities of color. Given the

history of racial segregation in Sulphur Springs, one crucial question for a follow-up study would be: what is the role of racial exclusion practices in the current conditions and lived experiences with WaSH in Sulphur Springs? Understanding structural racism in WaSH in Sulphur Springs demands a critical race lens and a larger sample of oral history interviews. These could not be achieved in this study because it was difficult to find older members of the community for oral history interviews. Key informants with historical knowledge of the City and the Sulphur Springs community would have provided a broader historical context of the forces that had shaped the interaction and lived experiences of the residents with WaSH amenities, particularly race, racism, and segregation. However, most of the older residents in Sulphur Springs had either passed on or moved to other neighborhoods. Tracing them required more time. All in all, I was fortunate enough to interview a few longtime residents and City historians, who all had a good grasp of the history and WaSH dynamics in Sulphur Springs. Since women in many households bear both the responsibility and the blunt associated with WaSH problems, a critical feminist lens would shed more light on infrastructure violence from a gender perspective. Earlier in this chapter, I discussed how women were responsible for water and sanitation work in households. With regard to laundry, women lost much of their productive and leisure time coming to the laundromat and suffered psychological and physical stress when the machines broke down. Consequently, an important question for a follow-up study would be how gender intersects with social class, race, and WaSH conditions in Sulphur Springs to produce infrastructure violence. To that end, a critical race and feminist inquiry of WaSH in Sulphur Springs would make a great case study.

Conclusions and Recommendations

Sulphur Springs had a lot working against it, and residents feel that the current infrastructural struggles are rooted in the racial segregation, successive economic downturns and

political decisions (such as the construction of the highways through the neighborhood and adverse housing policies). Despite the socio-economic and infrastructure challenges, Sulphur Springs has begun to turn the corner. Although the tourism draw that had made it popular was long gone, residents feel that the community was becoming more vibrant. That was evident from the opening storefronts, the renovation of old houses, and the construction of new ones. Even though there is unease about the ongoing house developments, many share an optimism that the rebirth of the housing landscapes will help address the infrastructure issues, but also bring a sense of permanency among residents. Community leaders are working to put pressure on state and non-state actors for better infrastructure services.

It is in keeping with the applied approach of this study that I plan to continue sharing the insights gathered to enable stakeholders to understand the pain points and effective strategies that could address the WaSH challenges. Even before the study had been complete, the impacts were already observable. Following meetings with the laundromat ownership, many infrastructures and administrative changes had been instituted. There were even plans to invest in new laundry machines to address the concern about broken machines once for all. However, concerns related to security, cost of services, or repairs are embedded within the larger neoliberal climate, and thus, they require broader interventions.

In leveraging a user experience approach that foregrounds the grounded experiences of residents, this study was able to locate, contextualize, and highlight how people negotiate infrastructural violence in Sulphur Springs. This ethnography locates last-mile services as an important site of infrastructural violence. Therefore, most of the sociotechnical issues could be addressed through a change in practices of last-mile service providers such as landlords and laundromat owners. In Sulphur Springs, the study reveals that residents navigate the infrastructural

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challenges by improvisation and DIY projects. However, these findings are also a critic of the performance of municipal utilities, particularly their non-involvement in the services beyond the meter and the property line.

From an academic standpoint, researching people's interaction and perceptions about water, sewer, and drainage infrastructure services revealed the infrastructural violence in the context of a neoliberal model of service provision. This perspective was lacking as existing literature primarily focused on infrastructural violence at the municipal level (e.g., Alda-Vidal et al. 2018; Anand 2011; Anand 2012; Anand 2015; Morales 2016; Morales et al. 2014; Nagle 2017; Strang 2016; von Schnitzler 2008). By revealing the workings and experiences with WaSH infrastructure services in a business climate, this study reminds us to think about the role of privatization and free-market forces in producing WaSH insecurity. In reading infrastructure violence in a neoliberal environment, the critical question moving forward is how do just WaSH services look like in a neoliberal world? Even though there is a new awakening among businesses on their purpose in addressing societal issues, the ultimate responsibility of WaSH should be with the state. Consequently, municipal agencies should take the lead in holding service providers accountable. In addition to shortening the legal processes, the WaSH department should work closely with the code enforcement department to hold last-mile providers accountable.

Perhaps the most significant theoretical contribution of this study to anthropology is contextualizing the idea of infrastructural violence in western society. In their introductory text, Rodgers and O'neill's (2012), the fundamental question was: under what conditions, how does infrastructural violence occur, and to whom. In the context of Sulphur Springs, I argue that infrastructural violence is embedded in the historical and present social, economic, political, and social conditions that create a climate of poverty concentration, competition for housing,

transiency, and lack of social cohesion. Under these conditions, residents were struggling to confront the decay in the quality of infrastructure services.

But how does infrastructural violence manifest itself? So far, the study demonstrates that unreliable infrastructure services create a heavy socioeconomic burden (inform of time and money and lost opportunities) for the most marginalized in society. Like structural violence, infrastructural violence is also embodied in the form of psychological and physical stress associated with the infrastructure service deficiencies (see Adams et al. 2009; Farmer et al. 2004; Galtung 1969). But, based on the water concerns cited by residents, I argue that sensory experiences must not be overlooked in discussions about embodied forms of infrastructural violence. Perhaps another new addition to the literature is the idea that infrastructural violence manifests itself as silencing. That is when service providers deliberately suppress the voices or fail to provide space for underserved user groups to advocate for better services.

In response to the broader question posed by Rodgers and O'neill (2012), *To who does infrastructural violence occur?* I argue that within the context of Sulphur springs, infrastructural violence is highly gendered. Put differently; women bore the greatest responsibility as well as suffering associated with broken infrastructure services. Consequently, the project also adds to the growing body of work on gender inequities in gendered work such as water and sanitation and hygiene (see Anand 2011; McCabe 2018; McCabe and Denny 2019). As much as Sulphur Spring had become a low-income neighborhood, the impacts were much worse on low-income households.

That said, my argument does support the case studies that suggest that under all the conditions, it is the minority groups—either due to their gender, ethnicity, age, and income— who

suffer the costs of infrastructural violence (Alda-Vidal et al. 2018; Anand 2012; Anand 2015; Morales 2016; Morales et al. 2014; Rodgers and O'neill 2012). Additionally, I posit that that housing arrangement (such as renting, house assistance, and homeownership), family size, family structure (e.g., single parenthood) are important factors that determine who suffers most with infrastructure violence. So far, the studies reviewed seemed to overlook the influence of housing. However, these social conditions such as poverty concentration, competition for housing, transiency, lack of social cohesion, and the large rental population are outcomes of broader forces, mainly structural racism. This project demonstrates that the segregation practices in Sulphur Springs and many African American neighborhoods in the US determined infrastructural conditions and quality of services in minority neighborhoods. In doing so, this project also contributes to the emerging research on infrastructural racism. That is how racism is manifested in the designed and built environment.

Like in Flint, Michigan water quality crisis, the infrastructure decay, disinvestment, the making of a renter's neighborhood, and lack of accountability are extensions of the history of discrimination and racial segregation of minority communities. This perspective was lacking in the infrastructural violence discourse. Consequently, if anthropology is to make a meaningful contribution in addressing the infrastructural inequalities, we must then shift our ontology from infrastructural violence to infrastructural justice. That will enable us to think about who deserves what, and based on the history of racial discrimination, what kinds of interventions are relevant in addressing infrastructural racism in historically marginalized communities.

Setting aside the theoretical aspect of this study, I see the need to provide recommendations that may help to confront the immediate WaSH challenges in the neighborhood:

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1. *Awareness Creation:* In the WaSH amenities researched, there was a lack of information about avenues the residents could use to advocate for better services. Leveraging on the synergy brought by the Sulphur Springs working Groups, community organizations should work together to create awareness about avenues that residents could use to advocate for better services and steps to take when confronted with delayed repairs.

2. *Building Trust:* To address the concern over water quality, the water department needs to build trust with its customers. That may be achieved by expanding the subject of their current community engagement efforts from demand reduction and water conservation; to include information about the water quality and safety.

3. *Infrastructure Violence (I.V) Screening Tool-* Having seen the utility of spatial information in driving environmental justice initiatives (e.g., such as brownfields redevelopment), a first step in addressing infrastructure injustices and inequalities may be developing an I.V screening tool. This tool could be a collaborative effort between WaSH service providers, research institutions, and local communities. In the end, the I.V screening tool could be useful in effectively identifying infrastructure problems and vulnerable communities using spatial and sociodemographic data. That would help WaSH stakeholders create targeted solutions.

4. *Powershift:* more importantly, addressing infrastructural violence in the context of structural racism requires a shift of power to historically marginalized communities. That could be achieved through increased representation of underserved and minority communities across all levels of WaSH governance.

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Appendix I: Interview Guides

An ethnography of WaSH infrastructures and governance in Sulphur Springs, Florida

WaSH Study Pro00041249

Interview Guide (Version 2.0, 06-21-2019)

For Sulphur Springs Residents

Semi-structured interviews will target key informants in Sulphur Springs, Tampa, and employees associated with the Transportation and Stormwater Services, Water and Wastewater departments of the City of Tampa. The following are possible questions I may ask the interviewees, organized by theme.

Opening

1. How long have you lived in Sulphur Springs?

2. How many people live in your house?

Water and Sanitation Conditions

3. What comes to mind when you think about the past and current conditions of water and sanitation infrastructures in Sulphur Springs? *(Probe: water, wastewater, laundry, and stormwater)*

4. To what extent have the water and sanitation conditions changed since you have been here? *(Probe: if there are changes, what are they, and what kind of processes have led to the changes, Swimming pool, Sulphur Springs Tower, Hillsborough dam, Hillsborough river)*

5. Please tell me more about your current household situation with regards to water, wastewater, laundry, and stormwater services? *(Probes: primary water sources, wastewater disposal, and stormwater management)*

Interaction with Water and Sanitation

6. Could you please tell me about your day to day interaction with water and sanitation services *(Probe: major water use areas for your household, laundry, Swimming pool, Sulphur Springs Tower, Hillsborough dam, Hillsborough river, has the interactions changed, if yes, how and why?)*

Water and Sanitation Needs (Freelisting)

7. Please provide a shortlist of aspects of **drinking water** services that are MOST important to your household. *(Follow up: picking one item from the list, tell more about why you care about it)*

8. Please provide a shortlist of aspects of **wastewater** services that are MOST important to your household. *(Follow up: picking one item from the list, tell more about why you care about it)*

9. Please provide a shortlist of aspects of **stormwater** services that are MOST important to your household. *(Follow up: picking one item from the list, tell more about why you care about it)*

10. Please provide a shortlist of aspects of **laundry** services that are MOST important to your household. *(Follow up: picking one item from the list, tell more about why you care about it)*

Water and Sanitation Expectations

11. With reference to what you have seen, read, or experienced in other places, what are your expectations on water and sanitation services in the city of Tampa? *(Probe for water, sewer, and stormwater)*

12. What aspects of water and sanitation services do you wish you had? *(Probe for water, sewer, and stormwater)*

Water and Sanitation Experiences

13. Briefly describe your overall experience with water and sanitation services. *(Probe for specific responses for water, wastewater, and stormwater)*

14. What aspects of your current water and sanitation services do you like most, and why? *(Probe for specific responses for water, wastewater, and stormwater)*

15. Tell me about the last time you had problems with your water and sanitation services

16. In your opinion, what kinds of concerns do people in your community have about water and sanitation services?

Water and Sanitation Governance

17. Tell me about your interactions with people from the city's water and sanitation departments.

18. What kinds of practices (meetings, conferences, workshops, etc.) do you engage in that ensure or prevent the integration of your views in the management of WaSH services?

19. To what extent do you think WaSH services providers in the City of Tampa incorporate your (or other people's) opinions in their decision making?

Demographics

20. What is your age?

21. What is your gender?

22. How do you identify with any racial or ethnic categories?

23. What is your highest level of education?

24. Can you provide a general estimate of your annual household income?

Closing

25. Is there anything else you would like to add?

26. Is there anything that you wish I had asked that I did not?

27. Do you have any questions for me?

Thank them for their time and participation in the study. Provide them with contact information for the PI of this study, Mathews Wakhungu (mwakhungu@mail.usf.edu, 813-570-2640).

Interview Guide: For Service Providers

Semi-structured interviews will target key informants in Sulphur Springs, Tampa, and employees associated with the Transportation and Stormwater Services, Water and Wastewater departments of the City of Tampa. The following are possible questions I may ask the interviewees, organized by theme.

Opening

1. What is your occupation and title?

2. For what organization do you work?

3. How many years have you worked at your organization? In this field?

4. Are you involved in customer engagement in your organization?

Water and Sanitation Conditions

5. What comes to mind when you think about the current conditions of water and sanitation infrastructures in Sulphur Springs? *(Probe: water, wastewater, and stormwater)*

6. To what extent do you think water and sanitation conditions have changes in Sulphur Springs? *(Probe: if there are changes, what are the processes leading to the changes)*

7. Do you think the current state of wash services effectively reflect the performance of your organizations?

8. In your opinion, what kinds of challenges constraint the delivery of satisfactory services to your customers?

9. What kinds of opportunities exist to improve the experiences of your customers with your services?

Water and Sanitation Needs (Freelisting)

10. Please provide a shortlist of aspects of **drinking water** services that are MOST important to your customers in Sulphur Springs. *(Follow up: picking one item from the list, tell more about why they care about it)*

11. Please provide a shortlist of aspects of **wastewater** services that are MOST important to your customers in Sulphur Springs. *(Follow up: picking one item from the list, tell more about why they care about it)*

12. Please provide a shortlist of aspects of **stormwater** services that are MOST important to your customers in Sulphur Springs. *(Follow up: picking one item from the list, tell more about why they care about it)*

13. Please provide a shortlist of aspects of **laundry** services that are MOST important to your customers in Sulphur Springs. *(Follow up: picking one item from the list, tell more about why they care about it)*

Water and Sanitation expectations

14. With reference to water and sanitation in other places or what is in the media, what kind of expectations you think your customers have of your services?

Water and Sanitation experiences

15. To what extent do you think your services effectively address the needs and expectations of your customers

16. What aspects of your current services do you think customers like most, and why?

17. In your opinion, what kinds of concerns do people in Sulphur Springs have about your services water and sanitation services?

User Engagement and Governance

18. What kinds of practices (meetings, conferences, workshops, etc.) do you engage in that promote or impede the integration of customer opinions or perceptions in decision making regarding WaSH services?

19. To what extent do you incorporate customer opinions or perceptions when making decisions about the management of your utility?

Demographics

20. Do you live in the city of Tampa, if so, how long?

21. What is your age?

22. What is your gender?

23. How do you identify with any racial or ethnic categories?

24. What is your highest level of education?

25. Can you provide a general estimate of your annual income?

Closing

26. Is there anything else you would like to add?

27. Is there anything that you wish I had asked that I did not?

28. Do you have any questions for me?

Thank them for their time and participation in the study. Provide them with contact information for the PI of this study.

Oral history Interview Guide (Version 1.0, 09-9-2019)
Opening

1. How long have you lived in Sulphur Springs?

2. What was it like when you grew up here/first moved here? (*Probe: Talk about the different parts of the neighborhood.*)

3. What kinds of stories do you remember about the era of racial segregation in Sulphur Springs?

Historical perspective of Water and Sanitation in Sulphur Springs

4. How were the conditions of water and sanitation infrastructures like back then? (*Probe: Plumbing, storm drains, sewer lines, septic tanks, laundry, etc.*)

5. What kind of water and sanitation concerns did people have here?

6. What do you remember about severe storms and hurricanes that have hit in Florida over the years?

7. Do you remember any of the stories about the Hillsborough dam? (*Probe, what about the Hillsborough river, Water treatment plant?)*

8. Do you remember any of the stories about the Sulphur Springs Tower?

9. What do you remember about the laundry facilities in the neighborhood?

10. What is your earliest memory of the Sulphur Springs pool?

11. How have the conditions changed over those years? (*Probe, what has led to these changes?*

12. How has the housing situation changed over the years*? (Probe: e.g., Urban Renewal Program, Section 8,*

13. How has the housing situation affected water and sanitation here?

14. What do you miss most about the way Sulphur Springs used to be?

15.

Demographics

16. What is your age?

17. What is your gender?

18. How do you identify with any racial or ethnic categories?

19. What is your highest level of education?

20. Can you provide a general estimate of your annual household income?

21.

Closing

22. Is there anything else you would like to add? Do you have any questions for me?

Thank them for their time and participation in the study. Provide them with contact information for the PI of this study.

Appendix II: Survey Questionnaire

Having read the consent form, I freely give my consent to take part in this study. I understand that by proceeding with this survey that I agree to take part in research, and I am 18 years of age or older.

 Yes, I consent

 No, I do not consent

1 Which of the following best describes your association with Sulphur Springs? *(Check all that apply)*

 Resident

 I work in the community

 Other _____

2 Which type organization do you primarily work in? *(Check one)*

 Water Department

 Wastewater Department

 Transportation and Stormwater Department

 Laundry facility

 Non-profit

 Business

 Other _____

3 Which of the following best describes your housing status? *(Check one)*

 Renter

 Renter on Section 8

 Renting to own

 Homeowner

 Other_____

4 Which of the following aspects of your **drinking water** do you care most about? *Please rank them by giving 5 stars for item you care most about, and 1 star for the you care least about.*

 NO floating things in my water ☆ ☆ ☆ ☆ ☆

 Filtering my drinking water ☆ ☆ ☆ ☆ ☆

 Smell ☆ ☆ ☆ ☆ ☆

Taste

The type of chemicals in my water

5 Please tell us how often do you

	Never (11)	Rarely (12)	Once in awhile (17)	Sometimes (18)	Always (19)
Drink water from the faucet	○	○	○	○	○
Filter tap water for drinking	○	○	○	○	○
Boil tap water for drinking	○	○	○	○	○
Buy bottled water for drinking	○	○	○	○	○

6 Which of the following **laundry services** do you use? *(Check all that apply)*

Laundromat on E. Bush

Laundromat on E. Waters and Nebraska

Laundromat by N. Florida

My own washer and dryer

Other_____

7 Which of the following aspects of your laundry services do you care most about? *Please rank them by giving 5 stars for the item you care most about, and 1 star for you care least about.*

Working machines

A clean of facility

Security and lighting

The cost of laundry

A bathroom onsite

8 Which of the following aspects of your drainage services do you care most about? *Please rank them by giving 5 stars for the item you care most about, and 1 star for you care least about.*

Sufficient storm drains

Proper disposal of trash

212

Fixed roads ☆ ☆ ☆ ☆ ☆

Regular cleaning of drains ☆ ☆ ☆ ☆ ☆

Education on how stormwater ☆ ☆ ☆ ☆ ☆
affects drinking water

9 Which of the following aspects of your sewer services do you care most about? *Please rank them by giving 5 stars for the item you care most about, and 1 star for you care least about.*

Not having sewer back-up ☆ ☆ ☆ ☆ ☆

Timely repairs for plumbing issues ☆ ☆ ☆ ☆ ☆

New and leak-proof sewer pipes ☆ ☆ ☆ ☆ ☆

Preventing sewer from contaminating ☆ ☆ ☆ ☆ ☆
drinking water

Water recycling ☆ ☆ ☆ ☆ ☆

10 How would you rate the ease or difficulty of getting the following water, sewer, and drainage issues resolved?

	Extremely difficult (5)	Slightly difficult (4)	Neither easy nor difficult (3)	Slightly easy (2)	Extremely easy (1)
Sewer issues resolved by landlords in Sulphur Springs	○	○	○	○	○
Water leaks addressed by landlords in Sulphur Springs	○	○	○	○	○
Laundry issues resolved at public laundromats	○	○	○	○	○
Drainage issues resolved by the city	○	○	○	○	○

11 To what extent do you agree with these statements about the participation of residents in improving services in Sulphur Springs?

	Strongly disagree (1)	Slightly disagree (2)	Neutral (3)	Slightly agree (4)	Strongly agree (5)
We discuss water, sewer and drainage issues as neighbors	○	○	○	○	○
We need more community meetings to discuss issues in my neighborhood	○	○	○	○	○
Overall, I feel Sulphur Springs residents protect and care for public infrastructures	○	○	○	○	○

12 To what extent do you agree with these statements about the water, sewer, and drainage in Sulphur Springs?

	Strongly disagree (1)	Slightly disagree (2)	Neutral (3)	Slightly agree (4)	Strongly agree (5)
Renters who withhold rent because of water and sewer issues risk eviction	○	○	○	○	○
I would rather move to another house than call code enforcement	○	○	○	○	○
The city pays attention to Sulphur Springs when it comes to improving water, sewer, and drainage	○	○	○	○	○

13 Overall, how satisfied are you with the quality of the following services in Sulphur Springs?

	Extremely dissatisfied (1)	Slightly dissatisfied (2)	Neutral (3)	Slightly satisfied (4)	Extremely satisfied (5)
Drinking-Water	○	○	○	○	○
Public laundry	○	○	○	○	○
Drainage	○	○	○	○	○
Sewer	○	○	○	○	○

14 In your opinion, what **should or could** be done to improve your living situation in Sulphur Springs?
_____
_____

15 How long have you lived in Sulphur Springs? *(Check one)*
Less than 6 months

6 months to 1 year

1 to 3 years

4 to 7 years

7 to 9 years

10 years or More

16 How long have you worked in Sulphur Springs? *(Check one)*
Less than 6 months

6 months to 1 year

1 to 3 years

4 to 7 years

7 to 9 years

10 years or More

17 How do you identify your gender? *(Check one)*

      Male/man

      Female/woman

      Non-binary/third gender

      Prefer not to answer

      Prefer to self-describe_____

18 Which racial/ethnic category or categories do you identify yourself with? *(Check all that apply)*

      White

      Black or African American

      American Indian or Alaska Native

      Hispanic/Latino

      Asian

      Native Hawaiian or Pacific Islander

      Other_____

19 What is your age?

_____

20 What is the highest level of school you have completed or the **highest degree** you have received? *(Check one)*

      Less than a high school degree

      High school diploma or equivalent

      Technical or Trade school

      Some college but no degree

      Associate degree in college

      Bachelor's degree in college

      Master's degree

      Doctoral degree

      Professional degree (JD, MD)

21 What is the total **annual income** for your household? *(Check one)*

      Less than $20,000

      $20,000 - $39,999

      $40,000 - $59,999

      $60,000 - $79,999

      $80,000 - $99,999

      More than $100,000

22 Which part of Sulphur Springs do you live in? *(Check one)*

North of Waters Avenue AND West of Brooks

North of Water Avenue AND East of Brooks

South of Waters Avenue AND West of Brooks

South of Waters Avenue AND East of Brooks

23 Which part of Sulphur Springs do you work in? *(Check one)*

North of Waters Avenue AND West of Brooks

North of Water Avenue AND East of Brooks

South of Waters Avenue AND West of Brooks

South of Waters Avenue AND East of Brooks

Appendix III: USF IRB Letter of Approval

UNIVERSITY OF SOUTH FLORIDA
USF RESEARCH & INNOVATION

RESEARCH INTEGRITY & COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd, MDC35, Tampa, FL 33612-4799
(813) 974-5638   FAX (813) 974-7091

8/14/2019

Mathews Wakhungu
Anthropology
15501 Bruce B Downs Blvd, Apt 1906 Tampa, FL
33647

RE: **Exempt Certification**
IRB#: Pro00041249
Title: An Ethnography of WaSH Infrastructures and Governance in Sulphur Springs, Florida
Dear M. Wakhungu:

On 8/13/2019, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45 CFR 46.104(d):

(2) Research that only includes interactions involving educational tests(cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:(i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF HRPP policies and procedures.

Please note, as per USF HRPP Policy, once the exempt determination is made, the application is closed in ARC. This does not limit your ability to conduct the research. Any proposed or anticipated change to the study design that was previously declared exempt from IRB oversight must be submitted to the IRB as a new study prior to initiation of the change. However, administrative changes, including changes in research personnel, do not warrant an Amendment or new application.

We appreciate your dedication to the ethical conduct of human subjects research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.
Sincerely,

Kristen Salomon, Ph.D., Chairperson
USF Institutional Review Board