Planning, Preserving, and Increasing Accessibility: A Reflection on Going “Car-Free”

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Abigail Weizer

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**ABSTRACT**

This paper studies the accessibility of car-free areas to those with mobility impairments by examining three car-free and car-lite experiments in California. Whether slowly converted to car-free with long-term, careful planning, or expeditiously changed to car-free during the COVID-19 pandemic, these three car-free experiments show the shortcomings of planning for accessibility in car-free spaces, and how instead of improving accessibility, current planning practice often hinders it. This paper offers a deep-dive into the drawbacks and benefits of going car-free and the ethical and legal reasons why urban planners, designers, and policymakers must consider the accessibility of a space before planning a car-free space. The paper concludes with a discussion of successful current practices for accessibility and explores what new solutions are on the horizon.
INTRODUCTION

In the fields of urban planning and design, planners are increasingly de-prioritizing personal vehicle use in favor of pedestrianization, public transit use, and other methods that de-emphasize the car in the urban environment. As the world increasingly changes due to greenhouse gas emissions, the search for ways to reduce environmental impact grows more desperate. Cars currently produce 45 percent of global carbon emissions, making personal vehicles one of the biggest contributors to climate change. The United States is the world’s biggest contributor to vehicle and global carbon emissions (Foletta & Henderson, 2016). Along with the contribution of vehicle emissions to climate change, vehicles also negatively impact physical and mental health. Vehicle emissions like carbon dioxide, nitrogen oxide, carbon monoxide, and more (Environmental Protection Agency, 2022) negatively impact respiratory health, and urban sprawl patterns influenced by car usage reduce physical activity through the encouragement of vehicle use. Additionally, human and community interaction is limited when people are alone in the cars instead of in the public realm, leading to feelings of isolation and lack of a sense of community (Soni & Soni, 2016).

To fulfill their obligation to preserve public and environmental health, planners have found reducing vehicle usage effective (Nieuwenhuijsen et al., 2016; Khreis et al., 2017). Not only does reducing vehicle use improve physical, mental, and environment health, but it also fulfills popular desire for communities that are dense, active, and walkable. This urban planning and design trend is encapsulated by the terms “car-free” and “car-lite”.

Defining ‘Car-Free’ and ‘Car-Lite’

“Car-free” developments are defined as blocks, neighborhoods, or districts where automobile traffic is heavily restricted, either part time or full-time. “Car-lite” developments are similar to car-free development, but not as restrictive in nature. “Car-lite” developments are designed for minimal automobile use but tend not to fully exclude vehicles (Foletta & Henderson, 2016). This paper shall review both car-free and car-lite case studies. “Car-free” will be used as an umbrella term, encapsulating the concepts of both “car-free” and “car-lite” developments. That is, allow “car-free” to refer to any space where automobile traffic is limited, regardless to the level of restrictiveness.

Car-free development faces barriers to expansion, especially in the United States. Historically, the use of personal vehicles has only increased (Jones, 2008). While cars still dominate the American urban landscape, however, the use of public transit and vehicle de-privatization are on the rise (Nieuwenhuijsen et al., 2018; Morris et al., 2009; Levine & Inam, 2004). That is, as the benefits of public transit, active transportation, and vehicle-de-privatization businesses like Uber and Lyft are continuously discovered and experienced, so too are the benefits of car-free developments and lifestyles.
Mobility Impairments, Accessibility, and Going Car-Free

With the discovery of benefits comes the identification of flaws. While car-free development has numerous benefits, the distribution of these benefits is unjust. Limiting the use of vehicles, especially without proper public transit infrastructure or other mitigating strategies, will initially reduce accessibility. Anyone can experience limited accessibility due to the restriction of vehicles. However, this paper focuses on the limited accessibility those with mobility impairments face due to the reduction of car use.

‘Mobility impairments’ are defined as impairments that impact an individual’s mobility. That is, these impairments impact one’s ease of movement or the potential of movement to overcome physical distance (Sager, 2006; University of Washington, 2022). For example, mobility impairments can be caused by muscular dystrophy, when one may lose their ability to walk independently. Similarly, but distinctly, ‘accessibility’ is defined as capturing the spatial distribution of activities about a point and the ability and desire of all persons to overcome spatial separation (Hansen, 1959). For the sake of this work, ‘accessibility’ refers specifically to the ability of persons with mobility-impairments to fulfill their needs.

Though those with mobility impairments can face vast initial consequences due to the change to a car-free environment, with good planning, car-free development can in fact improve accessibility. In the following chapters, this paper will examine the efforted change from auto-centric urban planning to instead favor pedestrianization and active transportation uses and reflect on how this trend, captured by the “car-free” movement, impacts the mobility, daily life, and rights of the mobility-impaired. This paper will also examine and offer solutions to prevent the negative impacts of car-free development and encourage further scholarly thinking on this topic.

Overview

The first chapter will offer a reflection on the causes, benefits, and implications of going car-free in the United States. The chapter will identify how environmental health, public health, market demand, and public demand influence the trend towards car-free development. The benefits of such developments are widespread; however, car-free development has the potential to reduce community mobility and accessibility to uses, especially for those living with mobility issues. The chapter will define the viability of car-free development in the United States, identifying the unique constraints and strategies that are applicable in the American urban landscape.

The second chapter will explore mobility rights and identify the role of planners in preserving and increasing the equity of the built environment. The chapter will identify mobility as a right and define why access to food, healthcare, employment, education, society, and other need-fulfilling uses and opportunities are rights that must be protected by planners. In this light, the chapter will also identify the moral and ethical responsibility of the urban planner to protect public health and ensure the just distribution of resources. The special, multidisciplinary ability of planners to unite other professions in environmental design will be defined, along with their
unique position to plan, preserve, and increase accessibility for all over time. Finally, this chapter will identify some of factors which poorly impact those with mobility impairments.

The third chapter will examine three case studies of car-free experiments in California, differing in permanence, scale, and urban quality. The first case study, Higuera Street in San Luis Obispo, serves as an example of temporal car-restriction. The second case study, State Street in Santa Barbara, is a more restrictive example of a car-free environment. Becoming car-free just recently during the COVID-19 pandemic (Molina, 2022; COAST, 2021), State Street offers an example of how even the newest planning techniques can still reduce accessibility. State Street, however, is also an example of how smaller, less dense cities can also reap the benefits of car-free developments. On the other hand, the third case study, Market Street in San Francisco, is an example of how a car-free development can be planned for long-term and successfully implemented. Market Street is notably denser than the other two case studies, offering a more urban example of accessibility issues due to car-free development. The lessons from each of the three case studies, together, will provide a reflection on the accessibility issues and failures of car-free development and identify successful solutions and opportunity areas for accessibility improvement.

The fourth chapter will provide an overview of current, emerging, and proposed solutions for ensuring and increasing accessibility in planning. The chapter will discuss existing policy, program, and design solutions that are successful in planning, preserving, and increasing accessibility for those with mobility impairments, as well as identify solutions on the precipice of good planning practice. Additionally, this chapter will propose solutions that may improve the accessibility of the built environment further. The chapter will conclude with a summary of the research, field work, and findings of the paper and offer a concise conclusion, encouraging planners and urban thinkers to mindfully plan, preserve, and increase accessibility in effort to ensure mobility for everyone.
CHAPTER ONE – Causes, Benefits, and Implications of Going “Car-Free”

Chapter Topics

- For what reason should cities go ‘car-free’?
- What are the benefits of going ‘car-free’?
- Is going ‘car-free’ practical in the United States?
- What are the potential negative impacts of going ‘car-free’?

In the United States, the car-free movement finds its basis in the benefits it offers to human health, environmental health, the economy, and sustainability. In other words, the motivation for car-free development is rooted in the positive changes that going car-free can cause. The benefits of car-free development, therefore, are its basis.

Though a large portion of the American urban landscape is sprawling suburbia, more and more Americans are expressing desire for reduced auto-dependence and the increased use of active transportation and public transit (Morris et al., 2009). And with an increasing political and moral interest in reducing global emissions and improving environmental health, the United States is becoming a testing ground for car-free development.

This chapter aims to explain the causes, benefits, and implications of car-free development in the United States to provide a framework for the basis of this paper’s argument.

Benefits of Going “Car-Free”

Reducing Global Emissions

Cars currently produce 45 percent of global carbon emissions, and the United States is the world’s biggest contributor (Foletta & Henderson, 2016). The typical passenger vehicle in the United States emits 4.6 metric tons of carbon dioxide a year, varying based on fuel economy. In addition to carbon dioxide, typical vehicles also produce and emit smog, methane, nitrous oxide, particulate matter, and hydrofluorocarbons, most of which have a high global warming potential and share the status of greenhouse gas with carbon dioxide (Environmental Protection Agency, 2022; Department of Transportation, 2015). Such air pollutants have a major impact on public health due to their ability to trigger health problems, especially respiratory conditions such as aggravated asthma, reduced lung capacity, and increased susceptibility to other respiratory illnesses, including severe and life-threatening ones such as bronchitis and pneumonia (Department of Transportation, 2015). By reducing the use of cars as much as possible, American planners can reduce the impact of the United States on global emission levels. With fewer vehicles on the road, less harmful emissions will make their way into the global environment, reducing traffic-related air pollution and noise (Nieuwenhuijsen et
benefiting both **physical and mental health**, especially in those with pre-existing respiratory conditions.

**Safety and Safety Perception**
The safety benefits are car-free development are widespread. Most prominently, vehicle-involved traffic collisions are greatly reduced or altogether eliminated in car-free environments. Even if cars are only slightly reduced, speed limits are often lowered, which also has a positive impact on public safety (Glazener et al., 2022).

The visual reduction of cars on the street sends a **psychological message to everyone that the street is built to prioritize pedestrians, cyclists, and other active transportation uses** (Radomska & Kolotylo, 2020). **Cars, instead, become the invader of the space**—a guest that must tread lightly to preserve their limited welcome.

*Figure 1.1: Visualizing ‘Car-Free’*

![A rendering of a car-free Market Street in San Francisco, published in 2019.](source)

The psychological effect of a reduced number of cars on the street does lessen when transit is introduced to the street, however transit-exclusive lanes, raised crosswalks, and sidelined transit lines can help maintain the look of pedestrian dominance.

The reduction of cars in urban spaces not only literally improves safety, but it also improves the **collective feeling of safety** in the built environment (Soni & Soni, 2016). The perception of safety, especially among **women, disabled persons, and other ‘vulnerable’ groups** is found to be nearly as important as safety itself; that is, the feeling of safety is an invaluable **mental asset** that allows one to enjoy an urban space (Iudici et al., 2017).

**Community Health**
Car-free streets are **socially beneficial** for everyone (Soni & Soni, 2016; Gehl, 2011; Ross, 1999; Beatley & Manning, 2016; Whitelegg, 2002; Appleyard, 1981). Areas with less vehicle traffic
have higher levels of community interactions and greater access to social activities. Opportunities for social interactions are indispensable to good mental health. The COVID-19 pandemic highlighted how decreased socialization is bad for everyone. For those without mobility impairments, decreased socialization can also have broader consequences, including limited access to assistance with everyday tasks such as driving, getting in and out of vehicles and other transportation, using aids like wheelchairs, and more (Cochran, 2020).

Connectivity and Mobility
Car-free environments offer more opportunities for good connectivity and ease of mobility in cities. Without the obstruction of vehicles, traffic, and the infrastructure that comes with both, the connections between existing urban patterns can be densified and become more robust. Cars do not provide last mile connectivity (Soni & Soni, 2016), and by eliminating large surface parking lots that often clutter the frontages of commercial uses, people can more easily mobilize between their destinations via walking, cycling, or other active methods, and can experience more community interaction at the neighborhood level (Ross, 1999).

Public and Market Demand
People, markets, politicians, and planners alike are favoring pedestrian and transit-oriented urban forms over the auto-centric sprawling practices of the past (Levine & Inam, 2004). Many of the most successful shopping districts are pedestrian-centric; that is, the uses are built at the pedestrian-scale and do not include large surface parking lots for cars to clutter their entrances. Instead, more businesses are thriving in pedestrian areas, enjoying the additional foot traffic and extended shopping trips brought on by a lack of immediate parking in front of the business. Business owners and politicians are satisfied with the revenue sparked by pedestrian-centric areas, and people and planners are happy with the comfort, ease of use, health benefits, and other perks of car-free living.

Viability in the United States
A More Appealing Alternative
In order to be viable, especially in the sprawling cities of the United States, alternatives to car-dependence such as car-free and car-lite designs must provide an improved quality of life, not just a car-free living option or an anti-car agenda, which is not viable nor popular (Morris et. al, 2009). Absolute pedestrianism, especially in the United States, is not possible in the modern, industrialized, and globalized world (Soni & Soni, 2016). Between 2000 and 2020, the number of registered vehicles increased from 225,821,241 to 275,924,442 (Bureau of Transportation Statistics, 2021). Historically, the use of personal vehicles has only increased (Jones, 2008). However, a reduced car-dependence and a heavier priority on the pedestrian, public transit, and active transportation uses are recognized as beneficial and are on the rise in urban planning practice and in demand among developments and private markets (Nieuwenhuijsen et al., 2018; Morris et al., 2009; Levine & Inam, 2004). People, markets, and planners alike are favoring pedestrian and transit-oriented urban forms over the auto-centric sprawling practices of the past (Levine & Inam, 2004). Simply favoring active transportation and public transit over personal vehicles, while still permitting the limited use of vehicles, such as for deliveries,
emergencies, public transit, drop-offs, accessible parking, and other restricted uses, is a more viable way to gain the benefits of car-free development in the United States. Importantly, car-free change must present a lifestyle that is more appealing than a car-centric one. It is ineffective and not realistic to advocate for an entirely anti-car attitude. Rather, it is more effective to instead provide a more appealing alternative (Soni & Soni, 2016; Foletta & Henderson, 2016; Nieuwenhuijsen et al., 2018; Morris et al., 2009).

**Constraints for American Cities**

Compact cities are the easiest urban fabrics to retrofit into car-free cities. Compact cities are often older and were in the first place retrofitted to accommodate vehicles (Nieuwenhuijsen et al., 2018). Many older cities outside of the United States have implemented car-free policies in recent years, varying in scale from the entire city to just a corridor or specific district (Radomska & Kolotylo, 2020). These case studies provide insight and an international perspective on the successes and failures of car-free and car-lite designs at present. The younger age, size, and sprawling nature of American cities breeds continued dependence on automobile usage (Ewing et al., 2018), but there is both developer and public favor for car-free development (Morris et al., 2009).

Urban density and transit options are both exponentially linked to automobile use and act as the two biggest indicators of car dependence in the United States (Newman & Kenworthy, 2015). Car usage is generally determined by a neighborhood’s access to the rest of the region (Ewing et al., 2018), meaning that the poor connectivity and lack of transport in sprawling American cities is a constraint to rapid pedestrianization.

Compact cities are innately easier to refit as car-free (Nieuwenhuijsen et al., 2018), meaning that less dense, sprawling cities will transition to reduced auto-dependence at a slower rate. Retail interests and the automobile industry also threaten to slow the transition to reduced car-dependence in American cities, acting as a barrier to changing people’s attitudes and behaviors when it comes to automobile usage (Nieuwenhuijsen et al., 2018). However, in recent years, the public has begun to prioritize vehicle access over private vehicle ownership, reflecting the general de-privatization of cars and a heavier interest in public transit and ride sharing (Featherstone et al., 2005).

**Potential Negative Impacts**

Cars offer a level of mobility that is not yet, or perhaps never, granted by other transportation uses such as public transit, walking, cycling, or other non-motorized uses. Cars offer a degree of access, freedom, and mobility with which no other use can currently compete. Cars provide freedom from scheduled and fixed route systems, a direct line to one’s destination, and a degree of personalization (Glazener et al., 2022). In other words, personal vehicles allow for personal autonomy. With vehicle personalization, cars can be retrofitted to accommodate a variety of needs and wishes. For example, a car can be retrofitted with adjustable foot panels, extra-wide doors, support handles, seat adjustors that move in all directions, and other accommodations to meet the varying needs of disabled drivers (National Highway Traffic Safety
Going car-free, then, can potentially have a negative impact on the freedom, health, and safety of disabled drivers who can no longer use their vehicles to connect directly to their destinations.

As this paper will explore in Chapter Two, freedom and self-determination are vital human needs. Car-free development, however, does not need to threaten the freedom and rights of those with mobility impairments. Planners and policymakers must avoid going car-free prematurely. Without suitable, effective, and accessible transit infrastructure to supplement the loss of autonomy that personal vehicles grant, car-free developments are bound to fail. Suitable, effective, and accessible transit infrastructure, in this case, is infrastructure that people with varying mobility impairments can utilize just as well as those without impairments, and that also provides reasonable and reliable connection to their destinations. This is a difference from personal vehicles in auto-centric urban environments, where large parking lots directly in front of uses allow persons with mobility impairments to park their accessible vehicles as close to their destinations as possible, eliminating the safety risk presented by walks on narrow, uneven, or nonexistent sidewalks.

Similar to how the benefits of car-free environments must exceed the benefits of the auto-centric lifestyle dominant in the United States (Soni & Soni, 2016; Foletta & Henderson, 2016; Nieuwenhuijsen et al., 2018; Morris et al., 2009), public transit—and other transportation methods—must too offer a better alternative to driving. See Chapter 4 for a more detailed discussion on how car-free development can in fact improve upon accessibility in the long run.

Planners can eliminate the risk of negative impacts due to car-free development if the proper infrastructure, policies, and programs are implemented proceeding the switch. With these preemptive strategies, planners can ensure that accessibility is not only preserved by car-free development but improved upon. Chapter 2 will discuss the importance of accessibility and offer a glimpse at life without it.
CHAPTER TWO – Mobility Rights and Equity in the Built Environment

Chapter Topics

- What are mobility impairments?
- The typical demographics of the mobility-impaired population in America.
- What is the importance of mobility?
- How is mobility linked to needs fulfillment?
- What are the responsibilities of planners to make the built environment accessible?
- What struggles do those with mobility impairments face within the urban environment?

This chapter aims to examine the demographics of the mobility-impaired population in the United States and explain the importance of mobility, accessibility, and needs fulfillment. Specifically, this chapter will define mobility in the urban environment as a right and will consequently identify planners as the clear stewards of accessibility in the built environment. Planners, then, have an ethical and professional obligation to ensure equity in the built environment as it relates to accessibility. Finally, the chapter will touch on the every-day struggles of the mobility-impaired due to barriers in the built environment.

Demographics in America and Defining Mobility Impairments

As of 2023, it is estimated 1 in 4 Americans, or 26 percent, currently live with a disability (Centers for Disease Control and Prevention, 2023). Mobility is the most prevalent disability type in the United States, affecting 11.1 percent of the total population (Centers for Disease Control and Prevention, 2023). Further, mobility impairments affect 13.7 percent of the 61.4 million non-institutionalized disabled U.S. adults (Okoro et al., 2018). And, with an aging population, the population of mobility-impaired persons in the United States is expected to grow (Vaughn, 2006). Those with mobility impairments often use mechanical and electronic aides to assist them, including wheelchairs, walkers, motorized scooters, canes, crutches, and more.

Mobility impairments can result from orthopedic or neuromuscular conditions such as amputation, paralysis, cerebral palsy, stroke, multiple sclerosis, muscular dystrophy, arthritis, spinal cord injury, fibromyalgia, quadriplegia, paraplegia, and many more (University of Washington, 2022; University of Illinois at Urbana-Champaign, 2022). Mobility impairments can also present themselves more temporarily, such as in a broken leg or foot (University of Illinois at Urbana-Champaign, 2022). In this sense, every mobility impairment is different. The degree in which the impaired-person is impacted varies greatly on a case-by-case basis, and not all mobility impairments result in the same disabilities (Ciol et al., 2002; University of
In both society and in metric data, people with disabilities are often categorized into one homogenous group. While breaking down the classification “disabled” by impairment type does aid in analyzing the demographics and needs of the population, it is not a signal to stop breaking down these groups further. That is, grouping people with disabilities into the “mobility” or “visual” categories, for example, is not signal to address these groups categorically. People with disabilities, even similar disabilities, cannot be homogeneously grouped because the difficulties they face are not homogenous. While they share the struggle of difficulty with mobility, the varying degrees and stages at which mobility impairments impact people means that issues cannot be addressed with a single set of solutions.

Those living with mobility impairments tend to be poorer, less-educated, older, and are more likely to be people of color (CDC, 2017). These demographic trends mean that while experiencing the disadvantage of reduced mobility in the built environment, those with mobility impairments often experience a co-disadvantage which is further detriment to equity in the built environment. It is important to identify the potential demographics of the mobility-impaired population in order to implement effective change.

**Human Rights and Needs Fulfillment**

Mobility is defined as the ease and potential of movement and as the ability to overcome distance in space (Sager, 2006; Sager, 2005). The ease in which movement is conducted is a central tenant to mobility justice. Social and economic advantage is gained through mobility (Cook & Butz, 2018) because mobility, most importantly, provides access: access to employment, education, social opportunities, healthcare, economic opportunities and goods, and much more (Cook & Butz, 2018; Martens, 2017; Attoh, 2013). In other words, **mobility enables persons to fulfill their needs**. Limited mobility, then, threatens a person’s health, safety, happiness, and freedom. For these reasons, reduced mobility is a human rights issue (Fleischer & Zames, 2011). Human needs range from the physiological need for food, shelter, and water; to the safety need for employment, resources, and healthcare; to the social need for friendship, love, community, and sense of connection; to the self-actualizing need for freedom, independence, and autonomy (Maslow, 1943). The fulfillment of human needs is linked to one’s mobility, and often, not meeting one need threatens the fulfillment of another. For example, if a person cannot access employment due to a mobility injustice, their ability to fulfill their rest of their needs is hindered by their loss of income.

Our self-actualizing needs, or need for self-determination, in this sense, is the right to make choices so as to be in charge of one’s own fate (Sager, 2006). Self-determination is quite possibly the most under-valued human need, despite the United Nations declaring self-determination in regard to mobility a right, stating that every person has the right to freedom of movement and residence within the borders of each state (United Nations General Assembly, 1948). Because the lack of self-determination is not immediately life-threatening like lacking our physiological and safety needs is, the importance of our self-actualizing needs is diminished. **Self-determination is important for preserving autonomy, dignity, happiness, and free-will** (Sager, 2006; Vaughn, 2006; Iudici, 2017; de Vet et al., 2012). The fulfillment of human
self-actualizing needs is explicitly tied to mobility, such that the definition holds that the “potential of movement” is mobility itself (Sager, 2006; Sager, 2005). **Mobility, then, is the way everyone maintains their self-determination, their dignity, and their independence.** Self-determination through mobility is especially important to those with disabilities (Vaughn, 2006). Because **the ability to move about a space is unjustly distributed in a non-accommodating world**, self-determination is often the first human need to suffer from unfulfillment in the case of limited mobility.

Preserving mobility is of the highest priority in order to guarantee the fulfillment of needs for everyone. Therefore, **denying mobility is not only unaccommodating, discriminatory, and inequal** (de Vet et al., 2012; Cook & Butz, 2018; Cui & Levinson, 2020), but it is also **life-threatening**. For these reasons, **mobility is inextricably linked to fulfilling human needs of all kinds**.

**Mobility and Spatial Justice**

Because mobility allows for the fulfillment of needs, those who lack mobility are affected by their difficulty participating in movement (Cook & Butz, 2018). Spatially marginalized persons can include those who lack a vehicle (Featherstone et al., 2005), those who live far from public transit infrastructure (Farrington & Farrington, 2005), and those who are unable to participate in public transit due to a mobility disability. Mobility justice, as a relatively new term and unexplored topic, aims to examine the inequitable distribution of access to mobility as it relates to racial, ethnic, gender, age, ability, and class differences (Cook & Butz, 2018).

**Every mode of transportation demands a certain set of skills or ability, which by nature restricts the population able to use each transportation mode** (Martens, 2017). Driving a personal vehicle, for example, demands the physical and mental ability to operate a motor vehicle, which is not the same skills demanded by the bicycle, or any other transportation mode. Even walking demands a certain set of skills. Any mobility impairments—either temporal, permanent, or somewhere in between—can hinder a person’s ability to operate a personal vehicle, use public transit, or impact a person’s ability to walk, bike, or otherwise use active transportation. Because all mobility impairments are different, it must be recognized that **mobility impairments impact the lives of those who have them at varying degrees and stages** (Ciol et al., 2002; University of Washington, 2022). Though they often are, it is ineffective and counterintuitive to homogenously group together persons with mobility impairments (Vaughn, 2009). As identified in Chapter 1, the issues faced by those with mobility impairments cannot be addressed with one, uniform set of solutions. The difference in abilities necessary to participate in transportation, and thus enable mobility, is what leads to the exclusion of some people and the advantage of others (Martens, 2017; Sager, 2005). It is for this reason that mobility is a right not so easily guaranteed to those with disabilities. With mobility so tied to accessing food, employment, education, health services, social opportunities, and self-determination (Bascom & Christensen, 2017), those with mobility impairments have more difficulties fulfilling their needs.
The Planner’s Power and Responsibility
Planners are bound by state and national law, international framework, and ethics to ensure that the built environment is accessible to all.

Legal Obligations and Framework
In the United States, local, state, and federal governments are obligated to ensure public health (Barclay & Gray, 2020). The legal mandate for controlling land use stems from the police power of cities to protect the health, safety, and general welfare of the public (Barclay & Gray, 2020). This responsibility falls into the hands of many professionals, including urban planners.

Governments must ensure equity in public health. In order to achieve equitable and just communities in regard to public health, planners must acknowledge and plan for the fulfillment of human needs across a range of abilities, including but not limited to physical and financial abilities.

The primary federal law regarding accessibility is The Americans with Disabilities Act of 1990 (ADA), signed by President George H.W. Bush. While the Act encompasses many topics, two of the main titles of ADA specifically relate to the built environment. The Act’s ‘Title II: State and Local Government Activities’ requires that State and local governments give those with disabilities an equal opportunity to benefits from government services and programs, which includes, but is not limited to, public transportation (U.S. Department of Justice Civil Rights Division, 2023). Title II violators are subject to both public and private lawsuits if violations are not resolved. Specifically with public transport, Title II prohibits public transportation authorities from discriminating against people with disabilities and requires vehicles to be accessible and to, when possible, provide paratransit services (U.S. Department of Justice Civil Rights Division, 2023). Similarly, Title III of ADA prohibits discrimination against disabled persons in businesses that are general open to the public (U.S. Department of Justice Civil Rights Division, 2012). In addition to ADA, the Architectural Barriers Act of 1968 (ABA) and the Federal Fair Housing Act of 1968 (FFHA) both provide additional protections for disabled persons at the federal level. The ABA, for example, requires that Federal buildings comply with Federal standards for physical accessibility. These three acts are each good examples of progress forward in required accessibility for all. The ADA and other Federal laws act as minimum accessibility requirements in California, but the State has additional requirements in its building standards (Moffitt, 2013), making for a higher standard of accessibility within the state. For example, the State requires qualified historic buildings and facilities be altered to accommodate those with disabilities (Corada, 2021).

Much of American accessibility legal framework derives from defining mobility as a right. For years, the United Nations has supported mobility as a right and worked towards improving accessibility in the built environment. In 1982, the United Nations adopted the World Programme of Action Concerning Disabled Persons (WPA), which is a global strategy with multiple primary focus points relating to disabled persons, including the equalization of opportunities (United Nations Department of Economic and Social Affairs, 2022; United Nations
General Assembly, 1982). Importantly, the WPA approaches disability and inequalities in access from a human rights perspective, a view that aligns with the United Nation’s previous declaration of mobility as a right. As the world population continues to urbanize, international advocacy for accessibility in urban centers is becoming more widespread. The United Nations expects that by 2050, 6.25 billion people will live in urban centers, and projects that at least 15 percent of this population will be persons with disabilities (United Nations Department of Economic and Social Affairs, 2016).

Ethical Obligations
Because planners must ensure public health on behalf of the government, they are also ethically obligated to plan for the mobility of every ability, ranging from a person with severe mobility-impairments to a person with none. As one of many stewards of the built environment, urban planners are obligated to design accessible environments that allow the mobility of people with physical disabilities. Those with mobility impairments are often ignored by design (Cochran, 2020; Vaughn, 2009), and planners have the ethical and moral obligation to prevent that. That is, planners are responsible for planning, preserving, and increasingly mobility for those with physical disabilities.

Planners are uniquely able to maintain, preserve, and increase mobility. Planners find themselves at the crossroads of multiple disciplines. Planning is a fusion of social sciences, politics, architecture, engineering, and other disciplines (Iudici et al., 2017) that bridges all of the components of the built environment together, enabling planners to ensure the best built environment for the future. Because of this multidisciplinary position, planners are uniquely qualified to fill the gaps between these disciplines that enable inaccessibility in the built environment. With the police power and knowledge to dictate land use, transportation patterns, and urban policy, planners have the opportunity to plan around quality of human life (Farrington & Farrington, 2005) as it relates to mobility and accessibility. Planning, unlike many of its counterparts, finds legitimacy in defining and pursuing the public interest (Alexander, 2002). Indeed, planners protect the interests of cities and their populations from the interests of capitalistic exploitations (Mohammed, 2016). Planners prevent market interests from competing with the obligation to ensure an accessibility environment. With these powers, planners find themselves at the forefront of designing for accessibility.

Constraints to Change by Planning
While the potential of urban planners to create change in the built environment is high, professionals in the field face barriers to highly effective or worthwhile change. The political and participatory nature of planning can limit a planner’s effectiveness and outreach. Planning, innately, can be contributed to by everyone. From the private sector to the government to the public, planning is done by everyone (Coburn, 2009). While this is part of the beauty of planning, it also presents challenges with time-effectiveness, costs, political disagreements, bias, and dominating private interests (Coburn, 2009). Planners are limited by the public and private will, the slowness of the political system, the overturn of local and state government officials, and the funding and resources available to them. The lack of coordination
between jurisdiction levels also limits the effectiveness of planning and the spread of innovation and implementation (Steinfeld et al., 2017). Most importantly, **planning is limited by the difference between prescribed policy and actual practice** (Coburn, 2009). The field itself is also limited by its **trial-and-error nature**. Planning is at its most effective, and indeed only functions, by discovering problems, observing mistakes, and trying out various solutions (Mohammed, 2016).

**Some Issues in Current Accessibility Practices**

Those with mobility impairments face barriers to their mobility on a daily basis. Most notably, those with physical disabilities are **more dependent on public transit** (Bascom & Christensen, 2017). The **limited service, hours, and stop locations** of public transit present quality of life altering and even life-threatening problems for those with mobility impairments, preventing access to healthcare, food, employment, education, civic engagement, and the ability to see friends. Limitations or lack of weekend service can be loss of urban access for those with disabilities (Attoh, 2013; Steinfeld et al., 2017). The debilitating effects of this fluctuating or lack of access to transportation run deep. Access to transportation means immediate access to many things, but its loss also means the **loss of potential access**. A lack of transportation, for example, not only limits a person’s ability to get to their employer, but it also limit’s a person’s ability to find employment in the first place. With no access to employment centers and interview locations, the mobility impaired are further disabled by a lack of transportation (Bascom & Christensen, 2017). The lack of transportation access also enables a vicious cycle in the dissonance between the built environment and those with mobility impairments: those who are socially excluded by a lack of mobility in the urban environment are often not participants in the political and institutional structures and organizations that most heavily inform local planning. That is, those most impaired by the built environment are by the built environment rendered unable to participate in efforts to fix it (Bascom & Christenson, 2017). Most broadly, though, a lack of public transit in the urban environment means a lack of equity (Iudici, 2017). With this, then, it is a lack of transportation access, limited service, hours, stops, and inaccessible transit vehicles that provide a main issue for those with mobility impairments in a car-free environment.

Other built environment qualities disaffecting those with mobility impairments include high curb heights; a lack of curb cuts; uneven terrain; high elevation; high frequency of stairs or a lack of ramps; low urban density; poor connectivity between uses; poor repair; poor lighting; narrow walkways; lack of accessibility signage, resources, and amenities; poor pedestrian signal height, size, and visibility; and more. A primary concern with going car-free is that eliminating cars may increase the barriers those with mobility impairments face every day.

With this potentially negative consequence, planners must take warning to ensure mobility, accessibility, and a good quality of life for everyone before, during, and after their jurisdiction’s transition to a car-free environment. That is, planners must take crucial steps to ensure equitable access to car-free environments before eliminating cars, which in many areas are
often the easiest, cheapest, fastest, and most convenient transportation method for those with mobility impairments (Knoflacher, 2006).

Planners are limited in many ways, but their ethical obligations and uniquely qualified position as a multidisciplinary make them influential in the design of an equitable built environment. Chapter 3 will explore three differing car-free experiments in California and examine the shortcomings and successes of each.
CHAPTER THREE – Lessons from Three Car-Free Experiments in California

Chapter Topics

- What are some criteria factors for judging accessibility in the built environment?
- Lessons from a temporal, established, and short car-free segment in San Luis Obispo, California.
- Lessons from a permanent, COVID-19 modified, larger car-free street in Santa Barbara, California.
- Lessons from a permanent, long-term planned, urban car-free street in San Francisco, California.

This chapter will examine the accessibility of three car-free experiments in the state of California. The following case studies aim to provide a view of the reality of car-free practice at varying densities and scales in regard to accessibility for those with mobility impairments. Each of these case studies will offer a different perspective on how car-free development impacts the accessibility of the amenities inside such areas. The case studies will also show how three City governments have approached accessibility in their car-free experiment and will attempt to evaluate the successes and short-comings of these efforts. These case studies range from temporally car-free to permanently car-free and are in three different cities in California, ranging from the small city of San Luis Obispo with a population of less than 48,000 (U.S. Census Bureau, 2021) to the high-density, highly urbanized city of San Francisco with a population of over 815,000 (U.S. Census Bureau, 2021).

Methods and Evaluation Criteria

In effort to aptly evaluate the accessibility of car-free spaces, criteria were developed to identify, qualify, and quantify common problem areas. The data collected regarding these problem areas will provide a rough determination of the accessibility of the site for those with mobility impairments.

The evaluation of each case study site's accessibility was conducted through fieldwork, employing the use of field notes and photography. In addition, each case study was evaluating using an Accessibility in Car-Free Spaces (ACFS) Evaluation Form, developed for this project to qualitatively and quantitively evaluate the problem areas identified below:

- Curb heights
- Curb ramp and ramp frequency
- Elevation and slope, including frequency of stairs
- Pedestrian facility width
Pedestrian facility quality
Distance from nearest accessible transit station
Cost of public transit
Accommodations of public transit
Distance from the nearest accessible parking space
Cost of accessible parking
Availability of drop-off areas
Availability of “last-mile” connecting transit such as paratransit
Availability of disability travel resources and information
Availability of rest areas and/or urban furniture
Height, size, and visibility of pedestrian signal buttons
Availability of accessible bathrooms
Sense of safety and comfort
Any other site-specific criteria

It is important to note that while these criteria and this evaluation method only evaluate the accessibility of car-free spaces for those with mobility impairments, the evaluation method can be modified for use in spaces with cars and to also address accessibility issues for other disabilities. Many of the areas of concern in the case study method and criteria are also areas of specific concern for other disabilities. The ACFS Evaluation Form (see Appendix 1) can be modified to evaluate the concerns of other disability types such as for people with visual or hearing impairments.

Higuera Street, San Luis Obispo
As the global population continues to urbanize, it is important recognize that this phenomenon also applies to small- and medium-sized cities. The United Nations found that although the world’s biggest most populous cities are growing, so too are cities with populations less than 500,000 (United Nations Department of Economic and Social Affairs, 2018). San Luis Obispo is a small city on the central coast of California with a population of 47,545 (U.S. Census Bureau, 2021). As the home to Cal Poly, a public university with a prevalent planning program and a large student body, and as a growing hub of tourism on the Central Coast, planning practice in San Luis Obispo is often progressive in nature. The goals of retaining student populations after graduation and bringing tourism to the City motivate the City government to keep San Luis Obispo an exciting and safe place to live and visit.

This first case study, then—a look at Higuera Street in Downtown San Luis Obispo—is an examination of a temporal car-free experiment conducted by the City in the past decades. Higuera Street, one of the main streets in Downtown San Luis Obispo, is typically used by cars. However, a five-block segment of Higuera Street is temporally closed off to vehicles on a weekly basis in order to become completely car-free for San Luis Obispo’s famous Farmer’s Market,
established in 1983. For the purposes of this case study, five blocks of Higuera Street, spanning between Nipomo and Osos Streets, are analyzed.

This study examines what measures the City of San Luis Obispo has taken to make Higuera Street accessible while it is closed to vehicles. The study will also explore the nature of the street while it is available to cars—how do users with impairments typically get to the various shops, restaurants, and employment centers on Higuera Street? Is this the same way those with impairments access the same amenities? Are the amenities accessible at all? What immediate action can the City of San Luis Obispo take to improve the accessibility of Higuera Street and all of the Downtown area?

Overall, the maintenance and conditions of Higuera Street are good. During the San Luis Obispo Farmer’s Market, cars are kept off of Higuera Street and pedestrians are free to walk in the street or on the sidewalks. For the purposes of this case study, both the street and the sidewalk were analyzed. See Appendix 2 for the full version of the ACFS Evaluation Form for Higuera Street.

On Higuera Street, pedestrian facilities, especially crosswalks, are high in quality. The sidewalk gently slopes down to street level as it approaches the crosswalk (see Figure 3.2), rather than sharply cutting the curb to street level. This not only makes a more comfortable experience, but also improves safety by increasing the width usable by those in wheelchairs or using other mobility aids. It also reduces vehicle primacy on the street when vehicles are present; because pedestrians and cars join together on the same level, pedestrians have comparable priority. Ramps spanned the entirety of the crosswalks on Higuera Street. Many crosswalks, including
the street’s mid-block crosswalks, are composed of different surface materials, improving legibility (see Figure 3.3).

**Figure 3.2: Wide, Sloping Crosswalk Ramps**

**Figure 3.3: Ramps Spread the Entire Crosswalk**

Wide crosswalk ramps on Higuera Street are comfortable and safe. The entire sidewalk slopes down to the street. Ramp spans the entirety of this Higuera Street crosswalk.
Despite its successes, Higuera Street still has room for improvement. Though its sidewalks are wide, the pedestrian right-of-way is often obstructed. Trees, trash cans, newspaper receptacles, construction zones, advertisements, benches, and dining areas are the most common obstructions on the sidewalk (see Figures 3.4 and 3.5).

**Figure 3.4: Construction Blocking Sidewalks on Higuera Street**

Scaffolding, cones, tarps, and other construction equipment blocking the sidewalk on Higuera Street.

**Figure 3.5: Wide Sidewalks with Barriers on Higuera Street**

Urban furniture, dining areas, advertisements, and lighting fixtures diminishing the amount of pedestrian right-of-way space on the sidewalk of Higuera Street.
Elsewhere on Higuera Street, sidewalk width is better preserved by better placed urban furniture, building frontages, and landscaping (see Figures 3.6 and 3.7).

*Figure 3.6: Sidewalk Width with Landscaping, Lampposts, and More

Figure 3.7: Maintaining Sidewalk Width With Urban Furniture*

Sidewalk width and street amenities can co-exist. Parklet dining and benches on edge of sidewalk allow the sidewalk width to remain clear for passage.

As Figures 3.4 and 3.5 show, the usually wide sidewalks on Higuera Street are often obstructed. However, not all of Higuera Street’s wide sidewalks are obstructed. Mindful design decisions, such as moving outdoor dining areas into parklets instead of on the sidewalk, allow sidewalks to remain wide and free of obstruction. In comparison to Figures 3.4 and 3.5, Figures 3.6 and 3.7 offers a wide, more accommodating pedestrian space while still offering the same urban furniture amenities.

As Higuera Street is only temporally car-free, both the sidewalk and the street are heavily used by pedestrians at different times. The San Luis Obispo Farmers’ Market closes five blocks of Higuera Street every Thursday from 6:00 P.M. to 8:30 P.M. from November to February and 6:00 P.M. to 9:00 P.M. March to October (Downtown SLO, 2022).
State Street, Santa Barbara

State Street is a car-free area between Sola and Gutierrez Streets in Santa Barbara, California (Visit Santa Barbara, 2022). Previously built for cars, this segment of State Street became temporarily car-free in 2020 during the outbreak of the COVID-19 pandemic. This change was largely popular among public and active transportation advocates throughout the Central Coast and among residents of Santa Barbara, but also sparked communitywide debate over the importance of cars in the city (COAST, 2021; Molina, 2022). Already modified to provide a safe, car-free, outdoor dining environment during the pandemic, the City took the opportunity to close State Street to cars permanently in 2021, a planning decision that would otherwise take years to make a reality (Molina, 2022). As a consequence of becoming car-free during the pandemic, State Street is largely restaurant focused rather than retail-focused. However, over the years since its initial conversion to a car-free state, State Street has continued to improve and change.

Figure 3.8: Car-Free State Street Location Map

Located centrally in downtown Santa Barbara, State Street is a hub for retail businesses, public buildings, services, and restaurants. Contrasting the temporal car-free state of Higuera Street in San Luis Obispo, State Street is permanently car-free with cars only crossing via intersecting cross streets. Within the boundaries of Sola and Gutierrez Streets, cars are no longer permitted to drive along State Street, despite its car-centric existing structure.

The legibility of State Street could use some improvements. To the pedestrian, it is obvious that the street is a retrofitted one. Its built-for-cars skeleton defines the street, especially visually. In
certain places, State Street’s successes in car-free accessibility for those with mobility impairments are marred by the illegibility of the street itself.

*Figure 3.9: Ramp to Cross State Street*  
*Figure 3.10: View of an Accessible Ramp from Across the Street*

Parklet dining and benches on edge of sidewalk allow the sidewalk width to remain clear for passage.

Throughout State Street are ramps with gentle slopes to provide access to the sidewalk from the car-free street. However, because of the old car lanes, turn arrows, and other notation on the street, the ramps are not obvious to the eye. It also feels wrong and unsafe to cross there. Bikes zoom by and there is no good system for crossing at these ramps.

Luckily, there are frequent crosswalks at the intersections found on State Street. Like the segments with ramps, though, the crosswalks are tarnished by the preexistence of a car-centric environment.
While the slope down to street level is wide, the preexisting crosswalk lines make for an unnatural experience. As a person without a mobility impairment, I was inclined to step off of the curb and follow the crosswalk lines instead of following the awkward angle the slope leads to. Unlike in the State Street segment above (see Figure 3.11), these car-centric markings are not obsolete. Cars are permitted to cross State Street at many intersections, meaning that users with mobility impairments must follow those lines to cross the street. The current paint pattern of the crosswalk is not ideal for notating this. Rather, the City of Santa Barbara should consider repainting their crosswalk or increasing the width of the slope to street level. Most of State Street’s faults are easily corrected with simple solutions.

Many of the businesses and public buildings on State Street were accessible and made that fact well-known. Most of the parklets along State Street had ramps to bridge unsafe gaps between
the parklet platforms and the sidewalk (see Figure 3.12), an example of an accessibility accommodation that makes the environment better for everyone.

Figure 3.12: Ramps for Safety

Metal platforms bridge the dangerous gap between the sidewalk and the parklet.

Many buildings had automatic doors and obviously displayed buttons for use. Many restaurants had signs outside their main entrances marking alternate accessible entrances. In most places, the signage was easily spotted when searched for.
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Automatic door buttons are frequent on State Street, as well as signs indicating accessible entrances and other accessibility information.

Due to the historic nature of the State Street buildings and fabric, many buildings have narrow entrances or stairs that cannot be easily modified for accessibility. Clear signage helps this problem.

This vacant building currently has no ramp or other accessible entrance.
Due to the historic nature of the State Street fabric and buildings, many structures have entrances with stairs or are too narrow for modification. Successfully modified buildings had clear signage (see Figure 3.14), while some unsuccessful buildings made no modifications at all (see Figure 3.15).

Even with the historic nature of State Street, some buildings had excellent, prominent signage to coincide with their accessible accommodations.

*Figure 3.16: Good Signage for Accessible Entrances*

This sign clearly indicates the direction of the accessible entrance.

*Figure 3.17: Additional Information with Clear Signage*

Additional helpful information can also be posted with accessible entry arrows.

The City provides a few accessible parking spots every few blocks or so. Most accessible parking composed of one or two spots or enough curb space for one car parked parallel to the street (see Figures 3.18 and 3.19). There is opportunity to expand the amount of accessible spots available, as currently, most of the parking spaces on State Street and on its immediate perimeter may be converted to accessible spaces due to the amount of businesses and other uses on State Street and the surrounding streets.
Figure 3.18: ADA Parallel Parking

This accessible parking area is enough space for one vehicle.

Figure 3.19: Opportunity for More Accessible Parking on State Street

While there are multiple parking spaces along this segment of State Street, only two are accessible. There is opportunity for the conversion of the remaining spaces.
The experience of walking on State Street’s sidewalk was a pleasant one. The width of the right-of-way and the good quality of the surface materials makes walking safe, comfortable, and pleasurable. State Street is an example of how sidewalks can be unobstructed and wide while still preserving high quality aesthetics (see Figure 3.20).

*Figure 3.20: Wide Sidewalks with High Aesthetic Quality*

While trees are in the center of the right-of-way on this segment of State Street, the sidewalk is still wide enough for easy and comfortable passage.

Construction on a frontage of State Street marked the only instance of an obstructed right-of-way. Additionally, the surface material quality was worse here; there were some lifted pavers that could cause safety issues. In general, however, the quality of the surface material and the width of the sidewalk was consistently satisfactory.
This construction on State Street represents the worst obstruction found on State Street.
Due to the width of the sidewalk and the current availability of urban furniture and rest areas, there are many opportunities for improvement. Currently, State Street has many edges that are suitably functioning as seating areas (see Figure 3.22), which are the primary resting areas available along the street. There are some benches on the street as well, however most of them are built with additional arms and are not suitably wide enough for all users.

*Figure 3.22: Edges Along State Street*

Low edges as seating on State Street.

There are other additional details that improve the accessibility and quality of State Street. Most of the crosswalk buttons are low for easy wheelchair-user access. Wayfinding signs, while they do not show an information on accessibility, are situated to be visible from wheelchairs or other mobility assisting devices (see Figure 3.23).
Figure 3.23: Wayfinding Signs Visible to All

Though the wayfinding signs do not show information on accessibility, the signs are visible to wheelchair users.

The ACFS Form was filled out for State Street in Santa Barbara. See Appendix 3 for details.

**Market Street, San Francisco**

Market Street in San Francisco, California is a historic main thoroughfare of the city. Starting in January 2020, the San Francisco Municipal Transportation Agency (SFMTA) made sections of Market Street car-free. Unlike the shortness of the car-free experiments in Santa Barbara and San Luis Obispo, the car-free section of Market Street is a two-mile segment that is longer segment completely unavailable to cars. This downtown section of Market Street only serves public transit vehicles, allowed only in exclusive lanes (Maguire, 2021; Pierce, 2020). Personal
cars are allowed to cross Market Street at certain intersections, but vehicles are largely prohibited.

*Figure 3.24: Car-Free Market Street Location Map*

The car-free section of Market Street lies between South Van Ness Avenue and Steuart Street, as shown in blue.

*Figure 3.25: Turn Restrictions and Traffic Movements on Market Street*

This diagram shows the restrictions on car movement in the intersections closest to Market Street.

Source: Maguire, 2021

Market Street acts as a major thoroughfare for San Francisco’s public transit services. Because of this, Market Street is not a car-free street in which pedestrians, cyclists, or other users may
cross freely; rather, Market Street operates as a car-containing street with crosswalks, crosswalk signals, and stoplights.

The Powell Street and Montgomery transportation stations are two of the main Bay Area Rapid Transit (BART) stations serving Market Street. While all BART stations are designated as accessible by the transportation authority (BART, 2023), the system could be improved upon.

Two elevators were accessible to wheelchair users on Market Street. There is a single elevator for the Montgomery and Powell platforms respectively. BART and the San Francisco Municipal Transportation Agency (SFMTA) post helpful information on both of these elevators, including a list of elevators around the city and in the BART system that are out of service (see Figures 3.26 and 3.27).

Contrary to the successful accessibility of the BART elevators, the same transit system locates these elevators far from the frequent escalator and stair entrances to the stations, and the signage notating the location of elevators is poorly visible and often hard to find. In addition, one of the elevators (see Figure 3.26) is on a seemingly random street corner, far from any escalator or stair entrance to either station. These escalator and stair entrances that frequent
Market Street are specifically not accessible; wheelchairs are prohibited (see Figure 3.29), therefore the oversight of poor signage (see Figure 3.30) and elevator location is all the more problematic.

**Figure 3.28: A Typical Escalator and Stair Entrance to a BART Platform**

These entrances frequent Market Street and do not have great resources for accessibility.

**Figure 3.29: No Wheelchairs Allowed**

BART escalators prohibit wheelchairs.

While BART and SFMTA does have easy-to-use online resources, the resources on the ground could be improved greatly. The easiest and quickest way to improve would be to add more signs like the few elevator direction signs identified (see Figure 3.30).
One of few signs directing users toward the accessible elevator. Though low quality, this sign is a good start.

Many of the transit maps located on Market Street were almost entirely illegible (see Figures 3.31 and 3.32). Though it was raining before, during, and after the conduction of the case study site visit, even wiping the water away from the plastic surface of the maps did not help much with visibility.
One of the other major successes of Market Street’s accessibility is the availability of paratransit services. SFMTA offers a van and taxi program called San Francisco Paratransit (SF Paratransit) to those who unable to otherwise use public transit in the city (SFMTA, 2023). Once eligible for the service, users can schedule rides to be picked up from Market Street. Pick-up locations are easily identified thanks to great signage by SFMTA (see Figure 3.33).
Paratransit signs on Market Street help mark the pick-up and drop-off locations selected by the user.

Outside of public transportation, Market Street offers a comfortable walking experience. Sidewalks are wide and surface materials are flat and in excellent repair. Even with trees mid-sidewalk in some places (see Figure 3.34), the sidewalk was still comfortable and safe for everyone.
Figure 3.34: Width with Trees

Streets and sidewalks can be simultaneously wide and beautified with trees.

Market Street could benefit from additional urban furniture. There was a severe lack of any resting places throughout Market Street, which poses problems for anyone who may desire or require rest or an opportunity for socialization.

Construction closures were infrequent on Market Street, but the construction occurring was safely separated from the walkway. This construction did greatly limit the width of the sidewalk (see Figure 3.35), and although a clear walkway still exists adjacent to the construction, the barrier created could pose a mild safety risk for those with mobility impairments, especially those using aids (see Figure 3.36).
Crosswalks, alternatively, are a less comfortable and safe experience for all users, but especially for those with mobility impairments. Because Market Street is a public transit thoroughfare and because it is a historic San Francisco street, metal transit tracks run through many of the crosswalks. These crosswalks, then, are not flat, and shoes, wheelchairs, canes, and any other mobility aids can easily get caught in the tracks while crossing the street. Additionally, many of the curb ramps are in an inconvenient position for the angle of the crosswalk (see Figure 3.37). Often, curb ramps are at the very edge of crosswalk boundaries and also not parallel to the curb ramps on the other side of the crosswalk. These issues in addition to a high curb height throughout Market Street create frequent problems for users with mobility impairments.
This curb cut is at the very edge of the crosswalk boundary, like many on Market Street. This curb cut pushes users with mobility aids towards the middle of the intersection instead of the crosswalk.

However, not every crosswalk on Market Street was awkwardly planned or retrofitted. Many crosswalks, including one near a BART accessible elevator, are wide and have curb cuts in the center of the crosswalk. Crosswalk signals throughout Market Street were low and could be easily reached by wheelchair users.
The quality of accessibility signage on Market Street was mostly good. Overall, most buildings had visible signage; flat, wide entrances; and easy-to-use buttons for automatic door-opening (see Figures 3.41, 3.42, and 3.43), with few exceptions (see Figure 3.44).
Accessible entrance sign on Market Street.

One of many accessible, automatic door buttons on Market Street.

A clear sign posted on the Flood Building.

Patio tables blocked this automatic door button from view and use.
Overall, Market Street offers a relatively good experience to those with mobility impairments. The availability of public transit, especially close-to-destination drop-offs and pick-ups conducted by paratransit, and accessible BART stations, make Market Street’s car-free environment a vast improvement from many car-centric environments.

As for the previous two case studies, the ACFS Form was filled out for Market Street in San Francisco. See Appendix 4 for details.

Synthesizing Lessons from Three Different Streets
San Luis Obispo’s Higuera Street, Santa Barbara’s State Street, and San Francisco’s Market Street each share a car-free nature. The aim of these case studies was to provide a range of city sizes and densities, temporal or permanent statuses, ages, and locations in order to provide a cohesive glance at what ‘going car-free’ looks like in California today. The research and fieldwork in this paper could benefit from more extensive case studying; for example, examining a car-free street in the Sacramento, Los Angeles, or San Diego metropolitan areas could provide a wider scope. Further, expanding the case study lens to the entirety of the United States would also provide insightful information. International examples of car-free streets could also serve as helpful examples for American planners.

Based on the three car-free experiments examined in this paper, it is evident that long-term planning is the ideal way to implement car-free practice into American streets, second in preference only to building a street that is car-free in the first place, instead of retrofitting one. These experiments also prove that going car-free can be done at a variety of scales. Higuera Street in San Luis Obispo showed that streets can be temporally made car-free, for the purposes of a farmer’s market for example. The same street also showed that cities need not have large, dense populations in order to go car-free. With a small population of less than 50,000, San Luis Obispo is a small city. Santa Barbara, with a bit larger population, showed that even in the case of planning for a ‘car-free’ state after the switch has been made is possible. By changing to permanently car-free in light of the COVID-19 pandemic, State Street became an example of retroactive planning in a historic area. Likewise, that historic status did not prevent State Street from being relatively accessible to those with mobility impairments, showing a great deal of signage for accessible entrances and minimal flaws in the urban fabric. San Francisco’s Market Street shows how going car-free is possible in a densely populated urban environment, and establishes that accessible, rapid, and reliable public transit is a primary factor in ensuring mobility in a car-free space.

The lessons from each of these case studies as well as knowledge from the shortcomings and successes of current accessibility planning practice help highlight both the needs of those with mobility impairments and the emerging directions of urban planners and other designers, builders, politicians, and policymakers.
Chapter Four – Planning for Accessibility in Car-Free Spaces

Chapter Topics

- What components of the urban environment are successful for promoting accessibility?
- What are some emerging solutions in the fields of planning and urban design for better accessibility in the built environment?
- What additional solutions are proposed?
- How can going car-free improve accessibility for those with mobility impairments?

The number and breadth factors which can alter one’s mobility cannot be understated. The terrain, elevation, and maintenance conditions of the environment, as well as the distance between points, connectivity, density, and proximity to transit each affect the mobility of a person (Ciol et al., 2002). As established in Chapter Two, mobility is a right, and planners have the authority and responsibility of best ensuring mobility for everyone in the built environment. As policymakers and designers, planners can implement equity in the built environment. Around the world today, there are many existing solutions to the problems those with mobility impairments face on a daily basis. These solutions can be examined for their successes and failures and then applied to new practice.

Current and Proposed Solutions

Current successes in going car-free without compromising mobility highlight the importance of widespread, accessible public transit that offers a better alternative to driving. The importance of gradual, mindful change towards car-free environments can also not be understated. Because of auto-dependence in the United States, as identified in Chapter One, solutions that simply discourage rather than completely eliminate cars tend to be successful in the United States. Outside of the United States, cities around the world are too identifying how going car-free works in their existing urban fabrics and culture. Like American cities, many international cities are limiting rather than eliminating cars, varying from entire cities to smaller districts. Many city districts are going car-free or planning to in the next ten years. Some notable cities planning to go car-free in part include Hamburg, Germany; Athens, Greece; Oslo, Norway; Madrid, Spain; and Bogota, Colombia (Radomska & Kolotylo, 2020).

Seattle, New York City, and St. Louis were the first pioneers of accessible public transit programs in the United States (Fleischer & Zames, 2011). Even today, New York City still pioneers continued efforts for accessibility in transit planning, hiring their first all-agency chief accessibility officer as a part of MTA permanent staff (MTA, 2021), a position entirely responsible for matters of accessibility in the New York City transit system. Positions solely
focused on accessibility matters in the built environment are a great start for improved mobility for everyone.

Transit-oriented development is another popular planning practice that is proven successful for promoting mobility within communities. Likewise, because smart growth principles encourage connectivity, multimodal transportation, higher density, and infill development, smart growth too is successful in increasing mobility for those with impairments (Foletta & Henderson, 2016).

Like transit-oriented development and smart growth encourage mobility and improve accessibility, so too can car-free development centered around the principle needs of access to healthy food, employment, education, and social and civil opportunity. With accessible public transit that is far-reaching and well connected, user benefit becomes endless. From Market Street in San Francisco, BART users can access over 600,000 jobs within 40 minutes (Foletta & Henderson, 2016). The speed, reliability, low cost, and frequency of BART service is a great example of how car-free communities, due to reduced vehicle dependence and increased investment in public transit, can improve mobility for those with impairments.

A major lesson of this paper’s case studies and of current failures in city planning is that no matter how accessible, innovative, or easy-to-use a car-free area is, the area cannot be truly accessible without public resources. Both modern and classic resources and outreach should be made available to the public. San Luis Obispo, Santa Barbara, and San Francisco each had accessibility information widely available on their websites, but only San Francisco had information available on-site and in-person as well. There is wide opportunity for mobile app development surrounding accessibility. Many apps, such as Wheelmate, Wheelmap, and others aim to map the accessibility of the built environment, but data is not widespread, and often areas on these apps offer little or no information. Jurisdictions and public agencies, such as transit authorities, may benefit from developing apps with accessible routes, updated accessible transit information, and other relevant information. Equally important, classic, on-the-ground resources must also be available. Highly visible signage for accessible entrances, restrooms, routes, transit, and maps should be present in every urban environment. Updated brochures, websites, and other outreach also helps spread the word about car-free changes and keep users up-to-date on the accessibility status, allowing individuals to make their own educated judgments.

Another proven way to implement accessibility improvements is by establishing local standards that the local government and businesses must follow. For example, San Francisco is working to improve its streets with its ADA Transition Plan for Curb Ramps and Sidewalks, which is aiding the City to reach its goal of having a curb ramp installed at every intersection and mid-block location where pedestrian crossings exist (City & County of San Francisco, 2015).
The Wheelmap app displays information relating to environmental accessibility. This screenshot shows an intersection in Downtown Los Angeles.

Similarly, the Wheelmate app also shows information about the accessibility of the environment and of businesses. This is a broader view of Downtown Los Angeles. Information is limited.

**Quantifying accessibility** is another potential way to improve mobility and accessibility in the built environment. Though the ACFS Evaluation Form developed for this paper is not currently an index that can provide such a quantitative measurement of a site’s accessibility, perhaps a quantitative evaluation of a site, such as a **rating**, could be helpful for those seeking to know...
the accessibility and quality of a site. Another, more concrete way to improve accessibility on a broader scale is to **expand local, state, and federal standards for accessibility**.

**Summary**

In recent memory, cars provided last-mile connectivity to users; in an increasingly car-free built environment, this is changing, as is the primacy and convenience of the car. With mindful and equitable planning practice and the implementation of proven policies, programs, and designs, planners can not only preserve the mobility often enjoyed by car users with mobility impairments, but they can in fact increase mobility.

To conclude, current practice, emerging solutions, and new ideas show that car-free and car-lite design can be better for accessibility—car-free environments can aid accessibility rather than hinder it. Car-free environments, in short, can vastly improve the lives of those with mobility impairments.
REFERENCES


Centers for Disease Control and Prevention. (2023). Disability Impacts All of Us. Retrieved on February 6, 2023 from https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html#text=Up%20to%201%20in%204,have%20some%20type%20of%20disability.

Ciol, Ferrucci, L., Stewart, A., Guralnik, J. M., Shumway-Cook, A., & Patla, A. E. (2002). Environmental Demands Associated With Community Mobility in Older Adults With and


## APPENDIX 1: Accessibility in Car-Free Spaces (ACFS) Evaluation Form

### Study Area (street, neighborhood, district, city):
______________________________________________

### City:
______________________________________________

### State:
______________________________________________

### Date(s) of Evaluation:
______________________________________________

#### Curbs

<table>
<thead>
<tr>
<th>Curb height</th>
<th>Satisfactory</th>
<th>Moderate</th>
<th>Needs Improvement</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curb ramp quantity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curb ramp blockage</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curb ramp quality and frequency</td>
<td>Satisfactory</td>
<td>Moderate</td>
<td>Needs Improvement</td>
<td>Unacceptable</td>
</tr>
</tbody>
</table>

#### Safety and Quality

| Elevation and slope | | | | |
|---------------------| | | | |
| Surface material evenness | | | | |
| Maintenance quality | | | | |
| Frequency of stairs | | | | |
| Width | | | | |
| Sense of comfort | | | | |
| Availability of rest areas and urban furniture | | | | |

#### Ease of Use

<p>| Availability of accessibility resources for public transit use | | | | |
|---------------------------------------------------------------| | | | |</p>
<table>
<thead>
<tr>
<th>Availability of accessibility mapping of pedestrian facilities, restroom access, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility signage</td>
</tr>
<tr>
<td>Height, size, and visibility of pedestrian signals and signs</td>
</tr>
<tr>
<td>Availability of “last-mile” connecting services</td>
</tr>
</tbody>
</table>

**Distance**

<table>
<thead>
<tr>
<th>Distance from nearest accessible transit station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from nearest accessible parking space</td>
</tr>
<tr>
<td>Distance of nearest “drop-off” area</td>
</tr>
</tbody>
</table>

**Cost**

<table>
<thead>
<tr>
<th>Cost of public transit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of accessible parking</td>
</tr>
</tbody>
</table>

**Site-Specific Criteria**
## APPENDIX 2: Higuera Street, San Luis Obispo

### Accessibility Evaluation Form

**Study Area (street, neighborhood, district, city):** Higuera Street; between Nipomo Street and Osos Street  
**City:** San Luis Obispo  
**State:** CA  
**Date(s) of Evaluation:** November 19, 2022

### Curbs

<table>
<thead>
<tr>
<th>Curb height</th>
<th>City standard is 6 inches. Curbs were comfortable and mostly low. Often at crosswalks, curbs flattened to crosswalk level well before crossing the street.</th>
</tr>
</thead>
</table>
| Curb ramp quantity | ☑ Satisfactory  
☒ Moderate  
☐ Needs Improvement  
☐ Unacceptable |
| Curb ramp blockage | ☑ Yes  
☐ No |
| Curb ramp quality and frequency | ☑ Satisfactory  
☒ Moderate  
☐ Needs Improvement  
☐ Unacceptable |

Curb ramps were not steep and were wide and easy to use. Appropriately placed.

### Safety and Quality

| Safety and Quality | Flat pedestrian facilities, slopes are miniscule if any. The sidewalk meets street level before intersections.  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevation and slope</td>
<td>Surface materials were well taken care of and even.</td>
</tr>
<tr>
<td>Surface material evenness</td>
<td>Building under construction created a construction zone around the façade and on the sidewalk. Cones, scaffolding, and tarp obstruct the sidewalk</td>
</tr>
<tr>
<td>Maintenance quality</td>
<td>None</td>
</tr>
</tbody>
</table>

| Frequency of stairs | None |
| Width | Sidewalks were mostly wide. Trees, benches, tables, or construction sometimes obstructed sidewalk width |
| Sense of comfort | Better at wider points of the sidewalk. At intersections, cars are right next to pedestrians contributing to an unsafe feeling |
| Availability of rest areas and urban furniture | Frequent benches for stopping along Higuera. |

**Ease of Use**

| Availability of accessibility resources for public transit use | Poor availability of resources on site. |
| Availability of accessibility mapping of pedestrian facilities, restroom access, etc. | Good online resources, including map of location of all ADA-reserved spots in downtown San Luis Obispo. |
| Accessibility signage | Poor. ADA parking signs were the only easy-to-find signage aside from ADA entrance signs on some buildings. |
| Height, size, and visibility of pedestrian signals and signs | Good. |
| Availability of “last-mile” connecting services | Needs improvement. San Luis Obispo’s transit station, one of the bus stops closest to Higuera Street, is at a higher elevation than the site and almost 0.5 miles away on foot. |

**Distance**

| Distance from nearest accessible transit station | Bus stops on nearby Marsh Street. Transit center is 0.5 miles away. Marsh Street bus stops are over a block away from Higuera Street. |
| Distance from nearest accessible parking space | Accessible parking spaces located on-site and nearby. At least 6 ADA-specific reserved spots exist within 2 blocks of Higuera Street. |
| Distance of nearest “drop-off” area | Drivers can drop-off just beside Higuera Street on one of its many cross streets. Pedestrians can easily and safely exit and enter the car-free zone at every cross street. |

**Cost**

<p>| Cost of public transit | Fare for persons with disabilities is $0.75. |
| Cost of accessible parking | Hourly rate $1.50. Maximum $6.00 daily rate. |</p>
<table>
<thead>
<tr>
<th>Site-Specific Criteria</th>
<th>n/a</th>
</tr>
</thead>
</table>

WEIZER | PLANNING, PRESERVING, AND INCREASING ACCESSIBILITY: A REFLECTION ON GOING “CAR-FREE”
# APPENDIX 3: State Street, Santa Barbara Accessibility Evaluation Form

**Study Area (street, neighborhood, district, city):** State Street between Sola Street and Gutierrez Street  
**City:** Santa Barbara  
**State:** CA  
**Date(s) of Evaluation:** December 14, 2022

## Curbs

<table>
<thead>
<tr>
<th>Curb height</th>
<th>City standard is 6 inches.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Curb ramp quantity</th>
<th>Satisfactory</th>
<th>Moderate</th>
<th>Needs Improvement</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Street has a good start on ramp quantity. Mid-block ramps to cross the street are satisfactory, but adding more could improve the quality of the street.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Curb ramp blockage</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Curb ramp quality and frequency</th>
<th>Satisfactory</th>
<th>Moderate</th>
<th>Needs Improvement</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively frequent, at a rate of about 1 additional ramp per block, in addition to the ramps at each intersection and ADA parking space. Curb cuts to crosswalks could be wider and better angled to the crosswalk.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Safety and Quality

<table>
<thead>
<tr>
<th>Elevation and slope</th>
<th>Almost entirely flat. Slopes and ramps for accessibility were not steep.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface material evenness</td>
<td>Good quality, very limited number of cracks and lifts in the surface material.</td>
</tr>
</tbody>
</table>
## Maintenance quality

<table>
<thead>
<tr>
<th>Maintenance quality</th>
<th>Good maintenance quality, except for construction on a storefront that obstructs the right-of-way.</th>
</tr>
</thead>
</table>

## Frequency of stairs

<table>
<thead>
<tr>
<th>Frequency of stairs</th>
<th>Very few stairs. Most stairs accompanied ramps. Some building entrances had only stairs, no accessible entry points.</th>
</tr>
</thead>
</table>

## Width

<table>
<thead>
<tr>
<th>Width</th>
<th>Very wide.</th>
</tr>
</thead>
</table>

## Sense of comfort

<table>
<thead>
<tr>
<th>Sense of comfort</th>
<th>Comfortable. Intersections were the least comfortable areas.</th>
</tr>
</thead>
</table>

## Availability of rest areas and urban furniture

<table>
<thead>
<tr>
<th>Availability of rest areas and urban furniture</th>
<th>Infrequent benches and other urban furniture, but edges at seating level provided rest areas throughout State Street. There are many opportunity areas for benches and more rest areas due to the width of the sidewalk.</th>
</tr>
</thead>
</table>

## Ease of Use

<table>
<thead>
<tr>
<th>Availability of accessibility resources for public transit use</th>
<th>On site resources are poor. Online resources are better.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of accessibility mapping of pedestrian facilities, restroom access, etc.</td>
<td>Lack of mapping and signage on site. Accessible entrances were well displayed, but other information was not found on-site.</td>
</tr>
<tr>
<td>Accessibility signage</td>
<td>Good signage for accessible entrances, parking, and mapping.</td>
</tr>
<tr>
<td>Height, size, and visibility of pedestrian signals and signs</td>
<td>Good. Signs especially were low, legible, and easy to view.</td>
</tr>
<tr>
<td>Availability of “last-mile” connecting services</td>
<td>Possibility of drop-off and close proximity of public transit stops makes for good connection, but there is room for improvement with perhaps a paratransit service or wider sidewalks on side streets for those with mobility impairments.</td>
</tr>
</tbody>
</table>

## Distance

<table>
<thead>
<tr>
<th>Distance from nearest accessible transit station</th>
<th>Multiple bus stops in close proximity to State Street, most within 100-200 feet of State Street. No transit on the car-free section of State Street.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from nearest accessible parking space</td>
<td>Accessible parking spaces located on-site.</td>
</tr>
<tr>
<td>Distance of nearest “drop-off” area</td>
<td>Cars and paratransit services are able to drop off within a 100-foot walk of State Street along cross streets.</td>
</tr>
</tbody>
</table>
### Cost

<table>
<thead>
<tr>
<th>Cost of public transit</th>
<th>Fare for persons with disabilities is $0.85.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of accessible parking</td>
<td>Accessible parking spaces are $2.50 after the first 2.5 hours. Daily maximum is $7.00. Valid placard or plate required.</td>
</tr>
</tbody>
</table>

### Site-Specific Criteria

<table>
<thead>
<tr>
<th>Site-Specific Criteria</th>
<th>n/a</th>
</tr>
</thead>
</table>
APPENDIX 4: Market Street, San Francisco
Accessibility Evaluation Form

**Study Area (street, neighborhood, district, city):** Market Street
**City:** San Francisco
**State:** CA
**Date(s) of Evaluation:** February 4, 2022

### Curbs

<table>
<thead>
<tr>
<th>Curb height</th>
<th>City standard is 6 inches (0.5 feet), allows 0.33 to 0.6 feet on a case-by-case basis. Curbs on Market Street seemed higher and sharper than on Higuera or State Streets in San Luis Obispo and Santa Barbara respectively.</th>
</tr>
</thead>
</table>
| Curb ramp quantity | [ ] Satisfactory  
[ ] Moderate  
[X] Needs Improvement  
[ ] Unacceptable  
Not many curb ramps/cuts from street level to sidewalk level. |
| Curb ramp blockage | [ ] Yes  
[X] No |
| Curb ramp quality and frequency | [ ] Satisfactory  
[ ] Moderate  
[X] Needs Improvement  
[ ] Unacceptable  
Infrequent curb ramps and often weirdly placed. |

### Safety and Quality

<table>
<thead>
<tr>
<th>Elevation and slope</th>
<th>Flat terrain.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface material evenness</td>
<td>Excellent quality surface materials that appeared thoroughly even.</td>
</tr>
<tr>
<td>Maintenance quality</td>
<td>Excellent repair, but construction obstructed the sidewalk in one area. Overall good.</td>
</tr>
<tr>
<td>Frequency of stairs</td>
<td>On the sidewalk, no stairs. The only stairs were leading down to BART below ground.</td>
</tr>
<tr>
<td>Width</td>
<td>Very wide sidewalk in all areas except near one construction area.</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Sense of comfort</td>
<td>Felt very comfortable. Lack of vehicles nearby and wide sidewalks made for a comfortable experience. Even transit vehicles were far from the sidewalk.</td>
</tr>
<tr>
<td>Availability of rest areas and urban furniture</td>
<td>Lack of any rest areas. No edges for seating, very few benches, and no tables or other rest area options. Majority of rest options were at bus stops.</td>
</tr>
</tbody>
</table>

**Ease of Use**

<table>
<thead>
<tr>
<th>Availability of accessibility resources for public transit use</th>
<th>Good online resources via SFMTA and BART. Maps were poorly visible on site. Signs directed towards accessible transit and paratransit drop-off and pick-up areas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of accessibility mapping of pedestrian facilities, restroom access, etc.</td>
<td>Poor map quality and availability on site. Again, online resources were better.</td>
</tr>
<tr>
<td>Accessibility signage</td>
<td>Good for accessible entrances. Room for improvement for elevator and mapping.</td>
</tr>
<tr>
<td>Height, size, and visibility of pedestrian signals and signs</td>
<td>Excellent.</td>
</tr>
<tr>
<td>Availability of “last-mile” connecting services</td>
<td>Paratransit option is excellent for last-mile connectivity, as well as the elevators leading to the two underground BART platforms.</td>
</tr>
</tbody>
</table>

**Distance**

<table>
<thead>
<tr>
<th>Distance from nearest accessible transit station</th>
<th>On site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from nearest accessible parking space</td>
<td>Accessible, ADA-reserved spots surround Market Street’s adjacent and cross-streets, especially near the segment closest to Union Square.</td>
</tr>
<tr>
<td>Distance of nearest “drop-off” area</td>
<td>Adjacent/cross streets were available for drop-offs, some even having “taxi zones” that were specifically for the purpose of picking up and dropping off.</td>
</tr>
</tbody>
</table>
Cost

<table>
<thead>
<tr>
<th>Cost of public transit</th>
<th>Muni (ground transportation) fare for persons with disabilities is $1.25. Paratransit services cost $2.50. BART offers discounted fares for persons with disabilities, and prices differ based on destination and time of travel. Fares average between $3 and $8.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of accessible parking</td>
<td>Varies with location.</td>
</tr>
</tbody>
</table>

Site-Specific Criteria

| Surface material slickness | In the rain, the surface materials seemed slightly slippery. |