

Rooted in place:  
equitable placemaking as green stormwater infrastructure

by

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A REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

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KANSAS STATE UNIVERSITY  
Manhattan, Kansas

2021

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## **ABSTRACT**

Today historically marginalized neighborhoods are among the most vulnerable communities to changes in their environment and socioeconomic status. This often results in the displacement of the community members or loss of community assets. This report aims to build resiliency to the threat of stormwater runoff while creating inclusive spaces for existing residents through green stormwater infrastructure and equitable placemaking. This study focuses on vulnerable communities in one of the historically redlined neighborhoods adjacent to Brush Creek in Kansas City, MO, as a case study to examine the development of green infrastructure that protects against urban flooding while bolstering local economies and sense of place.

# Rooted **in** **PLACE**

Equitable Placemaking as  
Green Stormwater  
Infrastructure

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## **ACKNOWLEDGMENTS**

This report would not have been possible without the community leaders willing to spend their time sharing their experiences with me. Thank you for your meaningful reflections about the Ivanhoe community. Your passion and impact on the well-being of your community are inspiring to me and undoubtedly to those who read this report.

This report is the product of many individuals who have generously offered their time and energy towards this project. Special thanks to Dr. Sara Hadavi for your clear and direct guidance throughout the entirety of this report process. Thank you to Lee Skabelund and Dr. Alisa Garni for your deep knowledge of your respective fields and your commitment to this report. It was a privilege learning from you all this year.

Thank you to my talented studio team members Paden Chesney, Erich Herbel, Kastasya Jackson, and Thomas Schneider, who played an essential role in developing the initial case study of the Brush Creek Neighborhoods. Thank you to the Landscape Architecture and Regional and Community Planning Department and faculty, who have crafted such a purposeful year in the middle of a pandemic.

Most especially, thank you to my family for the endless encouragement and support along the way.



C H A P T E R   O N E

# 1

# INTRODUCTION





## INTRODUCTION

In the 1930s, a New Deal federal agency called the Home Owners Loan Corporation (HOLC) began a policy that gave neighborhood ratings to guide investment in cities throughout the United States, rating each community on a scale from most desirable to least desirable (from blue and green to yellow and red). Redlining was a term used to define neighborhoods seen as the riskiest or most hazardous to invest in. It was an intentionally discriminatory process because it promoted the disinvestment of neighborhoods that were home to the poorest residents and people of color (Zuk, M., & Chapple, K. 2015). This process was discontinued because it was deemed unconstitutional. However, the impacts of disinvestment of redlined neighborhoods laid the groundwork for current racial inequities in the urban environment.

### Dilemma

Recently, there is rapid population growth in cities, and there is an increased housing shortage to meet the demand. City governments have begun gentrifying lower-income neighborhoods to attract an in-migration of wealthy educated residents (Agency 2018). Gentrification is the process where lower-income neighborhoods are showing spikes in real estate investment for high-income migration, typically displacing lower-income minority residents with wealthy educated residents (Agency 2018). Additionally, rapid urban growth increases impervious surfaces, causing some urban neighborhoods to be susceptible to extreme flooding from stormwater runoff. Historically redlined neighborhoods are among the most vulnerable to urban flooding because of decades of disinvestment in flood control. Consequently, displacement and gentrification have become the leading concerns (Cash et al. 2020) that jeopardize historically redlined neighborhoods' social and ecological dynamics in major cities throughout the United States (Chu, Anguelovski, and Roberts 2017).

## Problem Statement

Due to the lack of investment in historically marginalized neighborhoods, socially vulnerable residents living in redlined neighborhoods are exposed to environmental issues. Rapid urbanization has created ecological, social, and economic changes that disrupt the resident's attachment to their neighborhoods, and in some cases, causing displacement of the most vulnerable residents. Motivated by social justice, some cities and governmental agencies like the EPA are urging city planners, developers, designers, and community leaders to practice equitable measures for development in vulnerable neighborhoods that mitigate climate risks while ensuring benefits belong to longstanding low-income residents of color (US EPA 2014a). However, recent studies demonstrate that there is a narrow path for adaptation and mitigation practices centered around equity (Cash et al. 2020; Ranganathan and Bratman 2019; Gould and Lewis 2016).

## Project Significance

Rapid urbanization is a challenge for the ecological, social, and economic dynamics of cities. It has become increasingly important for planners and designers to be aware of how inequitable development can disrupt communities that cannot adapt to environmental disturbances. This disruption of urban community dynamics forces vulnerable communities to become adaptable and resilient to social, economic, and ecological change, making this topic of study especially important. The conflicts between longstanding urban communities and the new influx of wealthy residents result from social and economic dissonance that has been a struggle for many generations. This project is a call to resolve deeply rooted inequities in American cities, confront the ubiquitous legacy of marginalization and social stratification, and defend against potential threats that can disrupt these communities' environments.

## RESEARCH QUESTION

**How to equitably introduce green stormwater infrastructure to low-income, marginalized communities that are threatened by gentrification and displacement?**

## Project Goals

The following recommendations are necessary to build equitable spaces: first, examine and analyze social and ecological vulnerability across urban landscapes to ensure that green infrastructure not only builds resilience equitably but is justice enhancing by prioritizing neighborhoods with higher socio-ecological vulnerability. Second, planners and designers must also analyze neighborhoods for their vulnerability to gentrification and displacement identifying drivers of climate injustice. Third, community leaders must prioritize community-driven climate resilience approaches so that they can be responsive to socio-ecological processes and ensure that benefits belong to vulnerable residents (Shokry, Connolly, and Anguelovski 2020).

## Project Objectives

The main goal of this project is to demonstrate to community leaders how greater place attachment can be achieved in the Ivanhoe neighborhood through the application of green stormwater infrastructure using creative placemaking strategies. Objectives include:

1. Understand the highest threats that make Ivanhoe residents socially, economically, and ecologically vulnerable to displacement.
2. Understand what social processes, social capital, and assets exist in the city and how to protect and support them through design and planning.
3. Understand what hydrological processes, natural capital, and assets exist in the city and how to support them through design and planning strategies
4. Explore possible design applications that respond to socio-economic processes by supporting abiotic, biotic, and cultural functions and improving Ivanhoe's sense of place.

## Project Outcomes

The design outcomes from these goals will first include green infrastructure strategies to prevent damages, pollution, and accumulation of waste caused by stormwater runoff from entering streams, damaging community capitals, and degrading infrastructure. Objectives of this design will be to:

1. Increase infiltration upstream by decreasing impermeable surface area.
2. Convey stormwater runoff midstream onto contained green corridors that reduce quantity and velocity of accumulating stormwater runoff.
3. Capture water into naturalized detention areas downstream that can filter pollutants and sediments into green areas to reduce gray and black water from entering Brush Creek and the Blue River.

Secondly, this report programs green infrastructure initiatives using placemaking strategies that benefit local communities and prevent displacement by designing landscapes that facilitate place attachment. A placemaking framework will provide design elements and guidelines that serve the community's needs by improving imageability, sociability, accessibility, activity, and restfulness, in four key locations in the Ivanhoe neighborhood.

1. Revitalize commercial corridors and retail hubs and nodes by improving the image of the surrounding area through green stormwater infrastructure.
2. Ensure that green infrastructure projects improve the social, cultural, and natural capital of surrounding residential streets, vacant parcels, parks, and open space.

## Project Structure

This project aims to demonstrate how equitable green, resilient infrastructure can protect vulnerable communities from climactic threats while bolstering their social and economic capital. Not only to protect from environmental and health hazards but also to share financial and social benefits from development (US EPA 2010). This study focuses on vulnerable communities in one of the historically redlined neighborhoods adjacent to Brush Creek in Kansas City, Missouri, as a case study. This study examines the development of green infrastructure that protects against urban flooding while bolstering local economies and place attachment. Interviews are conducted with residents to understand the character and sense of place of the Ivanhoe neighborhood. Precedent studies inform this project regarding specific planning and design strategies used in similar settings to implement green infrastructure projects to facilitate the growth of the local economy and help create place attachment. The site analysis will reveal the biophysical and socio-cultural opportunities and constraints of the site. The projective design will use the synthesized data collected through these approaches to design a green stormwater infrastructure intervention within the Ivanhoe neighborhood, that is guided by resident's sense of place.



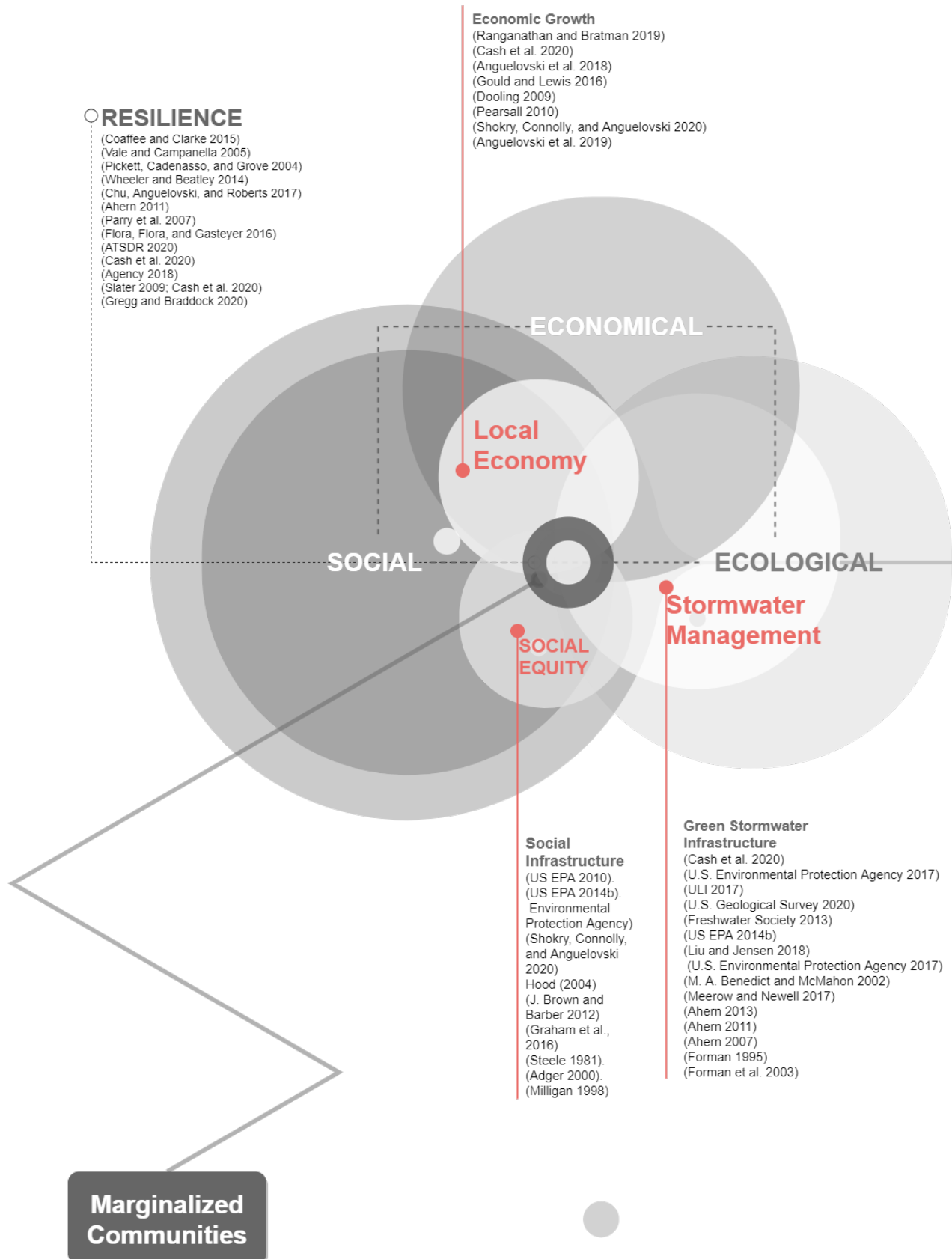
# C H A P T E R   T W O

## 2

# **BACKGROUND**



Figure 2-1 Literature Review Map



## 2.1 LITERATURE REVIEW

The literature review is completed to provide background information on the topic, and to explore recent scholarship and foundational theories that define the scope of this report. Additionally, this literature review will identify design principles and themes to organize the precedent studies, interviews, and site analysis. This literature review is the principal basis from which the design framework is structured. Figure 2-1 can be used as a reference to visually organize the scope of this literature review into the major topics and the references that were used.

### PLACE ATTACHEMENT

#### Placemaking

(Williams et al. 1992)  
(Proshansky, Fabian, and Kaminoff 1983)  
(Stokols 1981)  
(Milligan 1998)  
(B. Brown, Perkins, and Brown 2003).  
(Graham et al. 2016)  
(Steele 1981)  
(Gehl Institute 2018)  
(Lynch 1960)  
(Project for Public Spaces 2018)  
(Kaplan 2012)  
(Kaplan, Kaplan, and Ryan 2012)

## 2.1.1 RESILIENCE + MARGINALIZED COMMUNITIES

### Urban Resilience Thinking

Cities are increasing their efforts to fund climate adaptation, focused on reducing vulnerability to environmental risks (Shokry, Connolly, and Anguelovski 2020). Climate risks are ongoing, like the threat of global warming and sudden flash flooding. Resilience thinking has come to be seen as a comprehensive way of reducing vulnerability and improving the capacity of systems to handle shocks and ongoing disturbances (Coaffee and Clarke 2015). Resilience builds capacity for a diverse range of social, economic, and environmental risks. Resilience thinking is multi-scaled and applies to various disciplines from governance, planning to design. Building resilience capacity through the landscape and urban environment requires that planners or designers first identify the widespread and problematic processes faced by a city, such as urban stormwater runoff. Then, understand the frequency and intensity of these events within a particular landscape, such as flooding that erodes soil and causes sanitary sewer overflows. Lastly, planners and designers must find adaptive solutions or ways that cities can respond to these complex processes while remaining functional (Vale and Campanella 2005).

To be effective, resilient planning and design must be clearly informed by ecological, social, and economic drivers and dynamics of a particular place (Pickett, Cadenasso, and Grove 2004). For this report, it is necessary to distinguish between ecologically and socially resilient systems. This report defines social resilience as the capacity for communities to cope with social, economic, or environmental disturbances or change. Displacement and gentrification are factors that jeopardize the social and ecological dynamics of a particular place and counteract the goals of resilience thinking (Chu, Anguelovski, and Roberts 2017). It is common in practice for socio-ecological-driven adaptation and mitigation initiatives (focusing on reducing vulnerability to natural disasters and extreme events) to be implemented while overlooking the environment's socio-economic dynamics. However, Ahern (2011) advocates for resilience that achieves equity by building the capacity of social infrastructure that adapts to socio-economic dynamics. Therefore, if climate adaptation initiatives do not address a particular place's socio-economic processes, it is not resilient (Pickett, Cadenasso, and Grove 2004).

This report highlights two inequitable social impacts of climate adaptation initiatives that are the primary contributors to communities' displacement and community asset loss. First, historically marginalized communities are least invested in building resilience capacity but are often the most vulnerable to ecological, social, and economic changes to their environment. Second, overlooking historically marginalized communities' social and economic dynamics when building climate resilience can lead to inequitable and unsustainable growth and "green gentrification" (Gould and Lewis 2016, p. 153).



## **Vulnerable Communities**

The threats of climate change unequally affect communities depending on individual and social factors and their capacity to adapt to climate change risks (Parry et al. 2007). The individual's vulnerability to change is generally measured by exposure, sensitivity, and adaptive capacity. Exposure means the thing they value or their asset that could be exposed to variation or change. Community assets refer to economic and wealth and places of cultural, spiritual, and personal value equally. Sensitivity is the extent to which that exposure could harm them. Adaptive capacity can mitigate the potential for harm by reducing exposure or sensitivity (Parry et al. 2007). Assets with higher exposure and sensitivity have a lower adaptive capacity and therefore are more vulnerable to climate threats (Parry et al. 2007).

Social factors of a community, including the legacy of social stratification, play a major role in how vulnerable it is. The legacy of racism and classism in the U.S. is preserved in its cities' social stratification based on cultural, financial, and built capital. Social stratification divides people into tiers based on a series of attributes related to a social status hierarchy (Flora, Flora, and Gasteyer 2016). The Centers for Disease Control and Prevention's Social Vulnerability Index (SVI) (ATSDR 2020), has outlined the four social classifications based on census block data that can be used to assess a community's vulnerability. These classes are socio-economic status (unemployment, income), household composition and disability (ages, disability status, single-parent households), minority status and language (race/ethnicity, English as a second language), and housing and transportation (no vehicle, mobile homes, crowding) (ATSDR 2020). Census blocks with the highest population of all these characteristics are the most vulnerable. This data has been used by many publications in mapping spatial inequalities within U.S. cities. The ATSDR classifications have been used when mapping socially vulnerable communities for the purpose of this report.

## **Social Mobility**

Karl Marx defined classes as material relationships, including the intergenerational transfer of wealth and property (Flora, Flora, and Gasteyer 2016). Sociologists argue that the transfer of both wealth and property is

equally important when understanding social class. Social Mobility is the process where people move from one position in a stratification system to another. Structural racism often blocks black parents from passing on acquired social mobility to their children (Flora, Flora, and Gasteyer 2016). The structural racism that causes this disparity in social mobility is clearly illustrated in redlining maps of the 1930s. Redlining supported the disinvestment of infrastructure from city government, less access to mortgages, and greater disparities between races and class. These redlined districts have been linked with neighborhoods' social vulnerability today in many cities throughout the United States.

## **Displacement of Vulnerable Communities**

The historic lack of investment in vulnerable communities has caused these historically marginalized neighborhoods to be more sensitive to climatic risks and socio-economic status changes. A recent publication from the Urban Displacement Project found it more likely for socially vulnerable communities to live in high-risk areas and exposure to natural hazards. This condition is caused by the legacy of segregation, the siting of subsidized housing, and the location of cheaper housing options in higher-risk areas (Cash et al. 2020). The increase in urbanization worsens the problem. Increased impervious surfaces cause urban runoff to increase in quantity and is more frequent, causing damages to these communities' assets. Additionally, urbanization is causing developers and city governments to target some of these communities for revitalization projects, bringing a flux of wealth into these areas. The changes in socio-economic classes and race can cause gentrification and the displacement of low-income minorities who can no longer afford to live there (Agency 2018).

Throughout the United States, upper-income populations are moving back into vulnerable neighborhoods after decades of disinvestment. This change causes low-income, minority residents to struggle to retain their homes and sense of place, and historic neighborhoods. This new development often overruns small businesses. These threats are causing many longstanding low-income minority residents to have no choice but to be displaced from their homes. Research has found climatic and socio-economic changes to be the leading causes for the displacement

of vulnerable communities (Slater 2009; Cash et al. 2020). A 2020 survey of U.S. anti-displacement practitioners, comprised of mostly city government, private, and community organizations, were asked to identify and rank their concern of community pressures. The most frequently voiced concerns, between "very" to "moderately concerned," were related to socio-economic issues. Concerns such as the availability of affordable housing (92%), fair housing opportunities (92%), rising property values (85%), employment opportunities (86%), cost of living (85%), displacement of individuals and communities (83%), economical access to critical services (82%) were highest-ranked. Socio-economic concerns were followed by climate-related concerns such as storms and extreme weather events (74%), pollution (air and water quality) (73%), and flooding (73%) (Gregg and Braddock 2020). This survey illustrates that the main threat of displacement for vulnerable communities is changing the local economy, while the second most pressing concern is climate threats. Of the 60% of participants in this study who participated in climate change-related initiatives, most of them (80%) listed "concerns about climate justice and equity" as their primary motivating factors (Gregg and Braddock 2020). These findings stress the role of equity in greening initiatives that minimize pressures of displacement of vulnerable residents. This study also found equitable practices essential to protect the local economy while minimizing environmental threats of climate change (Gregg and Braddock 2020).

In sum, there is a need for a more integrated approach to building social and ecological resilience. Historically marginalized communities are the most vulnerable communities to ecological, social, and economic changes to their environment. However, they are least invested in building resilience capacity. They often lack social infrastructure due to the legacy of discrimination, racial and class stratification, and closed systems of social mobility (Flora, Flora, and Gasteyer 2016). Social-economic changes to the community are the primary threat for the displacement of these communities, and climatic threats secondary (Gregg and Braddock 2020). Social equity and justice-enhancing strategies must be the primary motivation of building resilience capacity to protect vulnerable communities from displacement (Slater 2009; Cash et al. 2020).

## 2.1.2 STORMWATER MANAGEMENT

### Urban Development, Impervious Surfaces, and Increased Precipitation

Among the major climatic pressures for displacement, the increased severity of storms has become a prominent issue, especially for vulnerable communities in urban areas. Climatic changes have significantly increased the pressure of urban water systems on U.S. city's water management infrastructure. The primary stressors of climate change on city infrastructure are the frequency and severity of storms, changes in precipitation amounts and timing, and flooding (Cash et al. 2020). Additionally, The EPA identifies rapid urbanization, the increased spread of impervious surfaces, and outdated infrastructure as principal contributors to this problem (ULI 2017). The EPA states that increased impervious surfaces cause urban runoff to flood more frequently, at a larger extent, and with a shorter peak flow. These conditions change the urban stream-channel morphology, increase erosion, and decrease water quality (U.S. Environmental Protection Agency 2017). When rainfall increases at high volumes within a short amount of time, in urban areas with higher amounts of impervious buildings and surfaces, it prevents the water from being absorbed into the ground. Low absorption causes water to accumulate in high quantities and at high velocity carrying sediments and urban pollutants (ULI 2017). It can result in polluted stormwater entering streams, streambank erosion, and flooding in communities downstream. Vulnerability to storm events is worsened among renters in low-income communities of color, where people are more likely to live in inadequate housing and near low-lying floodplains close to high capacity drainage sites (Cash et al. 2020; ULI 2017).

like oil, grease, fertilizers, sediment, and pesticides into sewers or water bodies, producing many hazardous effects on the environment, wildlife habitat, and public health. The EPA estimates that 40 million U.S. residents are impacted by combined stormwater and sewage runoff (ULI 2017).

Succinctly, the challenges of rapid urbanization and increased rainfall are exacerbated by outdated and environmentally hazardous stormwater infrastructure, causing significant negative impacts on urban communities, particularly in low-income neighborhoods. This has motivated cities to look for alternative approaches to managing stormwater. The EPA has recommended green stormwater infrastructure has as an equitable development approach to mediate flood control while also improving longstanding environmental, health, and economic disparities in low-income, minority neighborhoods (US EPA 2014).

### Stormwater Management and Water Quality

The U.S. National Research Council claims that stormwater management is one of the more pressing environmental concerns of the country because stormwater is the most consistent pollution source of rivers, lakes, and streams (U.S. Geological Survey 2020). Stormwater infrastructure in cities throughout the United States is outdated. They have a fixed volume capacity and are insufficient to meet future storm events' demands (Freshwater Society 2013). Many U.S. cities have combined sewers that mix stormwater and sewage when they are overflowed and cause "combined sewer overflow," which discharges stormwater and wastewater into nearby streams, further polluting the environment. Stormwater carries pollutants





## Green Stormwater Infrastructure

Cities are increasingly implementing green infrastructure as an urban climate adaptation approach, primarily to mitigate urban stormwater runoff risks (Liu and Jensen 2018). Green stormwater management tools have been widely accepted as an alternative strategy to mitigate stormwater's adverse effects and improve water quality (U.S. Environmental Protection Agency 2017). It is defined as a "network of interlinked green spaces" that provide ecosystem services and functions while also providing co-benefits for people (M. A. Benedict and McMahon 2002). The term infrastructure is used because of its multi-functionality, providing critical utilitarian services. Like roads and sewer systems, it also provides essential human health services (Mark A. Benedict, McMahon, and Fund 2012). Today, as many cities have set a goal towards building climate resilience, implementing green infrastructure has increasingly become a part of urban climate adaptation planning (Meerow and Newell 2017). Green infrastructure that uses resilient strategies is preferred to traditional grey infrastructure, such as underground sewer systems, to address climate threats because of their flexibility, social benefits, and their lower-cost (Ahern 2013). Ahern (2011) believes that green infrastructure is the key to building resilience. By spatially organizing urban environments through green infrastructure approaches, cities can continue to urbanize while sustaining critical ecological and cultural functions (Ahern 2007).

### Co-Benefits of Green Infrastructure

Ecological functions are defined as services that moderate climatic extremes, cycle nutrients, detoxify wastes, control pests, maintain biodiversity, and purify water and air, among other services (US EPA 2016) (see Figure 2-2). These ecological functions directly benefit human populations in terms of their physical health, economy, and social components (Ahern 2007). The Abiotic, Biotic and Cultural (ABC) resource model is a widely accepted model for landscape planning that mutually benefits both human populations and ecological systems (Ahern 1995).

Cultural functions and benefits are essential to consider when designing green infrastructure in urban populations because each culture can respond differently to a type of green infrastructure landscape (Ahern 2007). For green infrastructure installations to support cultural functions, they must be specialized to suit the specific urban

community. Alternatively, some green infrastructure types may have high cultural functions with lower biological value. Therefore, to provide a complete suite of ABC functions, a plan and design must include a range of hydrological types that best suit a particular urban landscape (Ahern 2007). Figure 2-3 illustrates how abiotic, biotic, and cultural functions may vary depending on the particular landscape type.

Green infrastructure can support abiotic functions by providing maintenance of the hydrological system, buffering of nutrient cycling and climatic extremes, carbon sequestration, and soil development processes. The biotic resource functions that green infrastructure supports are creating a habitat for species, providing species movement and corridors, maintaining seasonal patterns, producing biomass, and supporting flora and fauna interactions. Cultural functions supported by green infrastructure provide direct experiences with natural ecosystems, physical recreation, a sense of solitude and inspiration, environmental education, and opportunities for healthy social interactions (Ahern 2007). Communities also benefit through involvement in the creation and management of green infrastructure. The active and ongoing process of ecosystem restoration provides employment opportunities, engagement in learning, and volunteering to care for ones local community

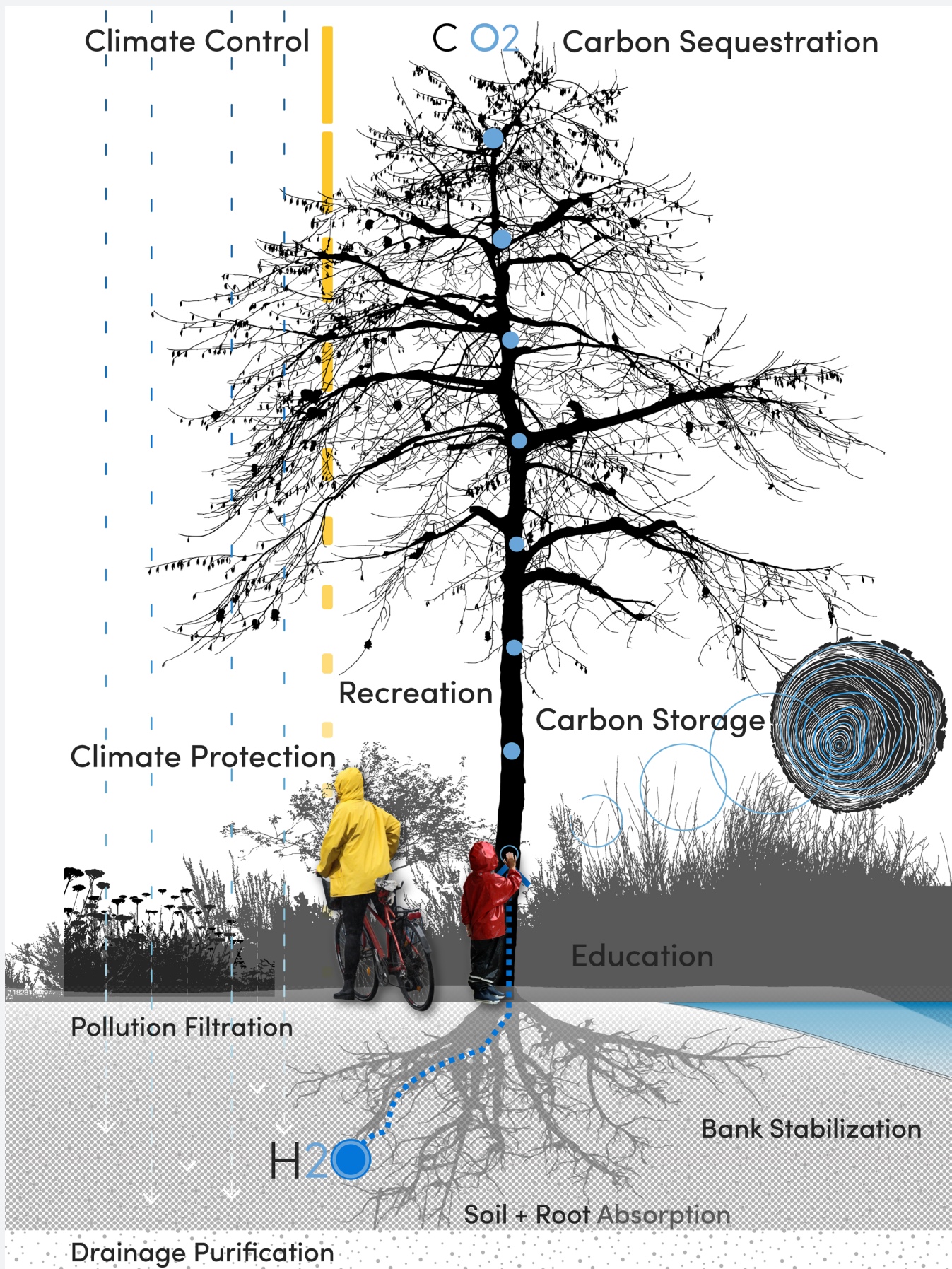


Figure 2-2 Illustrated example of the co-benefits green stormwater infrastructure can provide.

## Applying Green Infrastructure

The Patch-Corridor-Matrix model is a widely accepted model for spatial configurations of ecological landscapes (Ahern 2007). This model is used in green infrastructure that recognizes a need to organize the landscape ecology based on a particular ABC function and according to a characterized landscape type. A patch provides multiple ABC functions in a nonlinear area or zone. The corridor is a linear area of serves many functions but provides movement and connectivity from one patch to another. The matrix is the most dominant land cover type of that area (Forman 1995) and is thus very important in driving ecological functions and dynamics (such as infiltration of precipitation into soils in ways that cleanse the water and nourish ecosystems).

There are three major approaches to address when designing green infrastructure sustainably in urban environments. First, it must be a multi-scaled approach that makes the design work within a hierarchy of multiple scales. The multi-scaled approach is necessary because ecological systems, especially hydrological systems, are “nested” within larger land areas that control or constrain ecological processes (Ahern 2007). Nested scales exist in other systems in the urban fabric like transportation. One road is nested within a larger hierarchy of different roads. That road can lead to a larger scale like an interstate highway, for example. In urban environments, the scales that exist are the city, the neighborhood, and the site. Secondly, green infrastructure must also consider the pattern and process in the landscape. The process that is especially important for this report is water, particularly hydrological cycles, and the purification process. This report considers how water flows through the landscape, accumulates, or dissipates nutrients and pollutants. Connectivity is the third consideration when implementing green infrastructure in the urban environment because it relates to the connection between the structure and landscapes’ function. It determines whether the landscape facilitates or impedes the flow of things like nutrients, energy, materials, species, and people through the landscape. For this report, it is essential to consider the effectiveness of water flow through the landscape. In urban environments, roads are the most significant barrier to hydrological connectivity and are the leading causes of fragmentation (Forman et al. 2003). The integration of hydrological connectivity and cultural connectivity is a significant focus of this report.

## Green Gentrification

When implemented inequitably, the greening of cities and climate resilience actions may ignore and even undermine the most vulnerable residents’ long-term security and livelihoods, causing unsustainable changes to their local economy and sense of place (Ranganathan and Bratman 2019). A growing body of research has found that urban sustainability planning efforts that incorporate green spaces into public-private development strategies can accelerate the process of gentrification (Anguelovski et al. 2018). A study by the University of California, Berkeley on Urban Displacement found that there are unintentional consequences of climate mitigation and adaptation projects that contribute to gentrification and displacement of historically marginalized communities (Cash et al. 2020). Finding that urban greening, a strategy that is used to help remove atmospheric carbon, cool urban heat islands, provide locally sourced food, and help manage stormwater runoff, has the potential to cause negative impacts on housing affordability, displacement, inequality, and neighborhood change (Cash et al. 2020). Concluding that urban greening initiatives such as parks and green space, planting trees, urban gardening, and urban agriculture contribute to “green gentrification” if not implemented equitably (Cash et al. 2020).

“Green gentrification” is a recent concern in environmental justice used to explain the process some developers use to redevelop areas of the city to increase economic benefits and reduce environmental hazards. The process termed green gentrification (Gould and Lewis 2016), ecological gentrification (Dooling 2009), and environmental gentrification (Pearsall 2010), are all similar in that the urban gentrification process is facilitated by creating or restoring a naturalized amenity or asset (Gould and Lewis 2016). These green climate adaptations are often highlighted for their economic and neighborhood attractiveness to boost political significance and financial feasibility. If motivated only by city-scale economic growth and environmental benefits, the process of greening can potentially increase racial and class inequalities by concentrating environmental capital in wealthy white neighborhoods (Gould and Lewis 2016). Consequently, building resilience capacity through the structural mitigation of climate change is often associated with wealth and is evolving into a new class for the urban elite (Gould and Lewis 2016). From this perspective, urban greening initiatives may be facilitating social stratification.



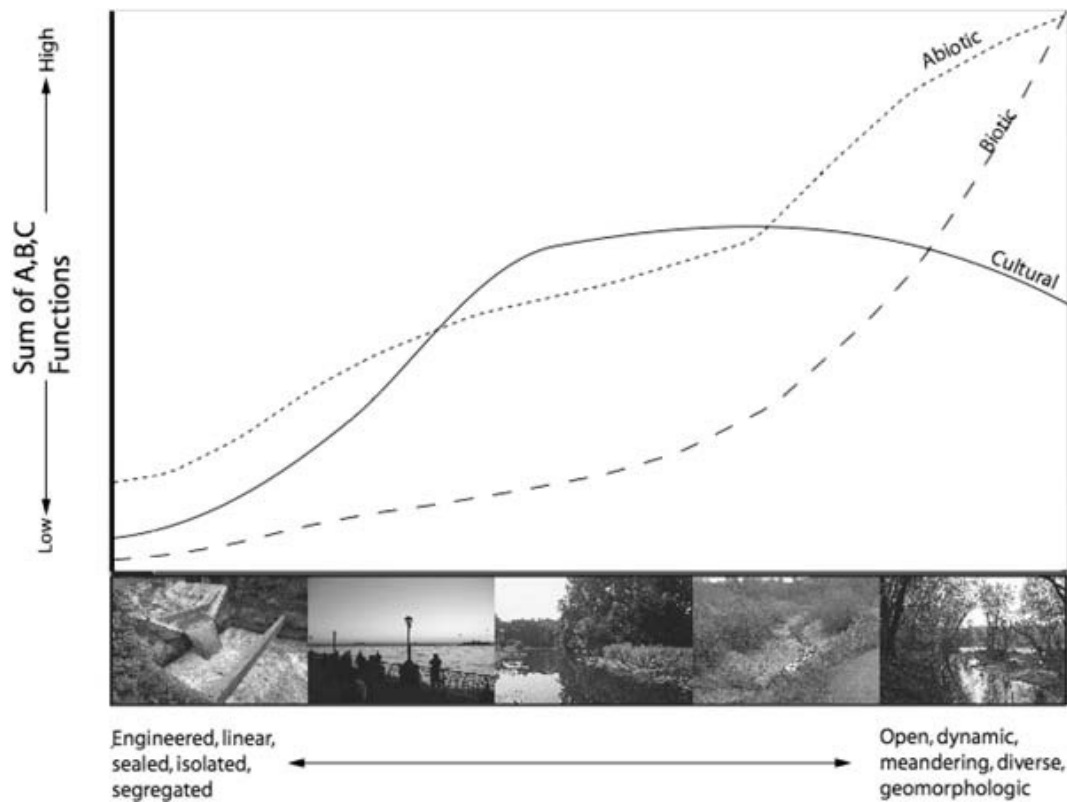


Figure 2-3 Example of How Varying ABC Functions are Supported Depending on the Landscape Type ( Ahern 2007, p. 277)

Additionally, greening initiatives like native planting may be faced with resistance by low-income minority residents. Due to the history of urban development and disinvestment, greening initiatives may induce the perception that they will be responsible for its maintenance (Shokry, Connolly, and Anguelovski 2020). Socially vulnerable residents may perceive green beautification tactics as “green locally unwanted land uses” (Anguelovski et al. 2019), meaning they do not meet the community’s needs and have not been included or represented in the decision.

## 2.1.3 EQUITABLE PLACEMAKING

### Social Equity

Today, there are equitable measures cities can take that would protect vulnerable neighborhoods from climate risks while also ensuring benefits to longstanding low-income minority residents. Many community organizations and city governments integrate social equity into their development plans to prevent these threats of displacement and gentrification. Social Equity is defined as access to critical services, facilities, and opportunities, including employment, transportation, and affordable housing. Federal agencies like Environmental Protection Agency (EPA) promote the development of “sustainable communities” that promote equitable development and environmental justice. Equitable development helps prevent gentrification, and environmental justice protects socially vulnerable communities from climactic threats. Sustainable communities target vulnerable neighborhoods to revitalize existing community assets that provide affordable housing, job opportunities, cultural sites, economical transport, and infrastructure (US EPA 2010). The EPA recommended green stormwater infrastructure as an equitable development approach to mediate flood control while also improving longstanding environmental, health, and economic disparities in low-income, minority neighborhoods (US EPA 2014).

community-driven efforts, bolstering local workforce development and minority-owned businesses (Shokry, Connolly, and Anguelovski 2020). Creative Placemaking seems to be an effective way to build inclusiveness and social cohesion in public space.

### Social Infrastructure

Social cohesion/inclusion and social capital are measured by indicators like happiness, well-being, and quality of life as the key determinants. With green infrastructure, there is an opportunity to build social capital within communities by partnering with community organizations and build adaptable social infrastructure (Shokry, Connolly, and Anguelovski 2020). Social infrastructure is defined as public landscapes that contain physical objects that contribute to community sustainability and growth. They consist of physical and spatial landscape installations that facilitate human use and practices of human use. Hood (2004) provides a model for structuring a particular landscape to perform better as a social infrastructure. Beyond infrastructure itself, any work that strengthens local organizational networks, social ties, and place attachments is more likely to benefit long-lasting climate resiliency and justice (Graham et al., 2016).

### Ecosystem Services and Well-being

Green infrastructure also has strong correlations between health and well-being, greater inclusiveness, and social cohesion (J. Brown and Barber 2012, MEA 2005). Figure 2-4 shows the correlations between ecosystem services provided by green infrastructure and well-being. The strength of these correlations is socio-economically dependant to a degree. While the inequitable approach prioritizes economic profit through environmental development, socially just and spatially equitable approaches prioritize the community. The equitable approach to developing green infrastructure prioritizes areas where socio-economical factors have prevented communities from experiencing the co-benefits that are linked to health, safety, social relations, and essential materials for life. This connection creates an excellent opportunity for entering green infrastructure implementation with social services to partner with programs that promote low-income minority

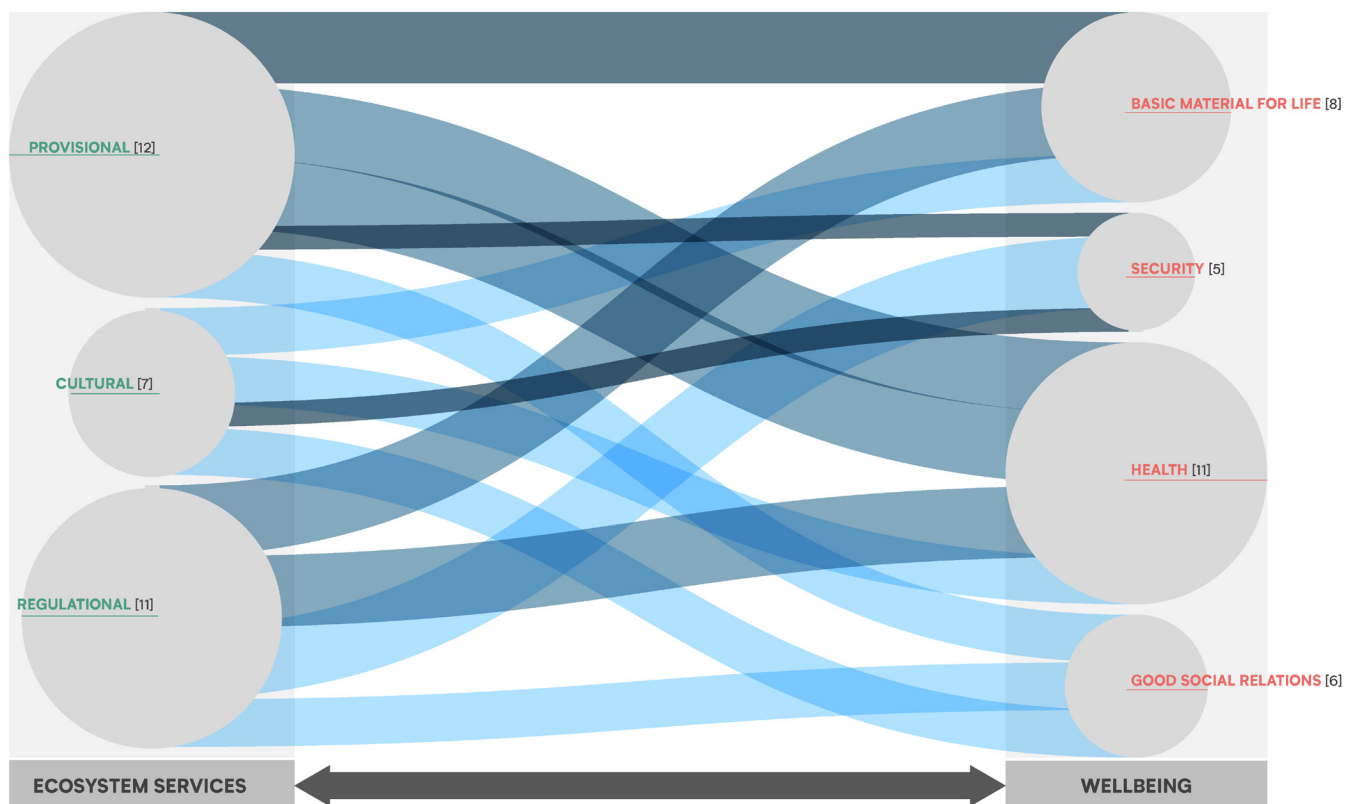
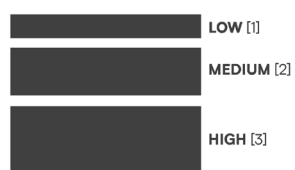
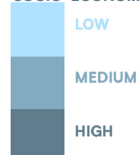


Figure 2-4 Correlation of Ecosystem Services to Well-being. Adapted from Millennium Ecosystem Assessment (2005).

#### CORRELATION STRENGTH



#### SOCIO-ECONOMICAL DEPENDANCE



## Place Attachment

Place defined by sociologists, geographers, environmental physiologists, and landscape architects is not just a spatial construction but is a social construct that reflects and holds cultural, economic, and political beliefs and meanings (Adger 2000). Places refer to the physical and cultural features of a site or locality. It also is tied to the significance an individual assigns to a particular location. Individual places are nested within spatial and hierarchical categories (Rottle 2010). Sense of place is used to describe the attitudes, beliefs, meanings, and interpretations of a particular place (Steele 1981). Sense of place is a broadly used concept but has also been referred to in environmental psychology and consumer behavior as place attachment. Place attachment involves the interplay of emotions, knowledge, and beliefs, and actions about a place. Two components of place attachment are commonly identified by sociologists, its functionality (place dependence) and its emotional or symbolic characteristics (place identity) (Williams et al. 1992). Place identity is the memories of an individual's past experiences at a particular place (Milligan 1998). It consists of an individual's self-identity concerning a particular place, including ideas, beliefs, preferences, feelings, values, goals, behavioral tendencies, and skills relevant to the environment (Proshansky, Fabian, and Kaminoff 1983). Place dependence is the experiences that an individual believes are likely to occur at a particular site (Stokols 1981) or how suitable a place is for certain preferred activities (Milligan 1998). Homeownership, length of residence in the neighborhood, perceptions of neighborhood cohesion, and the frequency of community activities are positively correlated with place attachment, identity, and dependence (B. Brown, Perkins, and Brown 2003). Any work that strengthens place attachments is more likely to benefit long-lasting climate resiliency and justice (Graham et al., 2016). Place attachments are positively experienced bonds to physical and social settings developed over time through behavioral, affective, and cognitive ties, support identity, among other psychological benefits (Mihaylov and Perkins 2014).

Community sociologists and psychologists have found that attachments to one's neighborhood, or specific places in one's community, are an essential motivation for people to become more involved in their community (Mihaylov and Perkins 2014). Place attachments can motivate people to spend more time outdoors, meet and talk to neighbors, share concerns about local problems and potential solutions, participate in community efforts, and ultimately preserve, protect, and improve the community (Manzo and Perkins 2006). An adapted model of community place attachment is represented in Figure 2-5.

## Placemaking

Not all neighborhoods, towns, or cities are created equally and equitably, and neither are the public spaces within them. Health disparities and inequities are correlated with limited access, availability, and low quality of public spaces (Gehl Institute 2018). Health disparities and inequalities are also correlated with lesser representation and participation in planning, designing, and maintaining public spaces (Gehl Institute 2018). Conversely, Steele (1981) outlines the following criteria for successful placemaking: providing choices and options for how space is used; reinforcing patterns and sequences within a place; providing rich material for memories and fantasies through coherent cues; ensuring that the place has a sense of identity through consistent themes in forms, materials, items, arrangements, and symbolism; highlighting personal awareness of visitors sense of self; highlighting opportunities for enriching visitors experience; the spatial qualities are at the appropriate scale; the site is active and generates a visible vitality through patterns of use and activities.

The Project for Public Spaces has developed its framework for evaluating successful public spaces. This framework consists of four characteristics, accessibility and linkages, comfort and image, activities and uses, and sociability (Project for Public Spaces 2018). Space is accessible if it is easy to get to, pass through, and is visible from both up close and from a distance. It is successful if it is comfortable and has a positive image. It must include perceptions about safety, cleanliness, and availability of places to sit. The activities give people a reason to visit the space and make the place special or unique. Sociability is what makes people feel comfortable interacting with their friend's neighbors, and strangers. Sociable spaces are essential in growing an attachment to their community and place (Project for Public Spaces 2018). Kaplan (2012) understands that placemaking in nature requires designing for people. This requires coherence and legibility to understand the environment better. The environment provides opportunities for exploration by designing spaces that are complex and have an element of mystery. Space should create experiences that are restful and enjoyable. Lastly, people should feel that their participation in the space is welcome (Kaplan, Kaplan, and Ryan 2012).

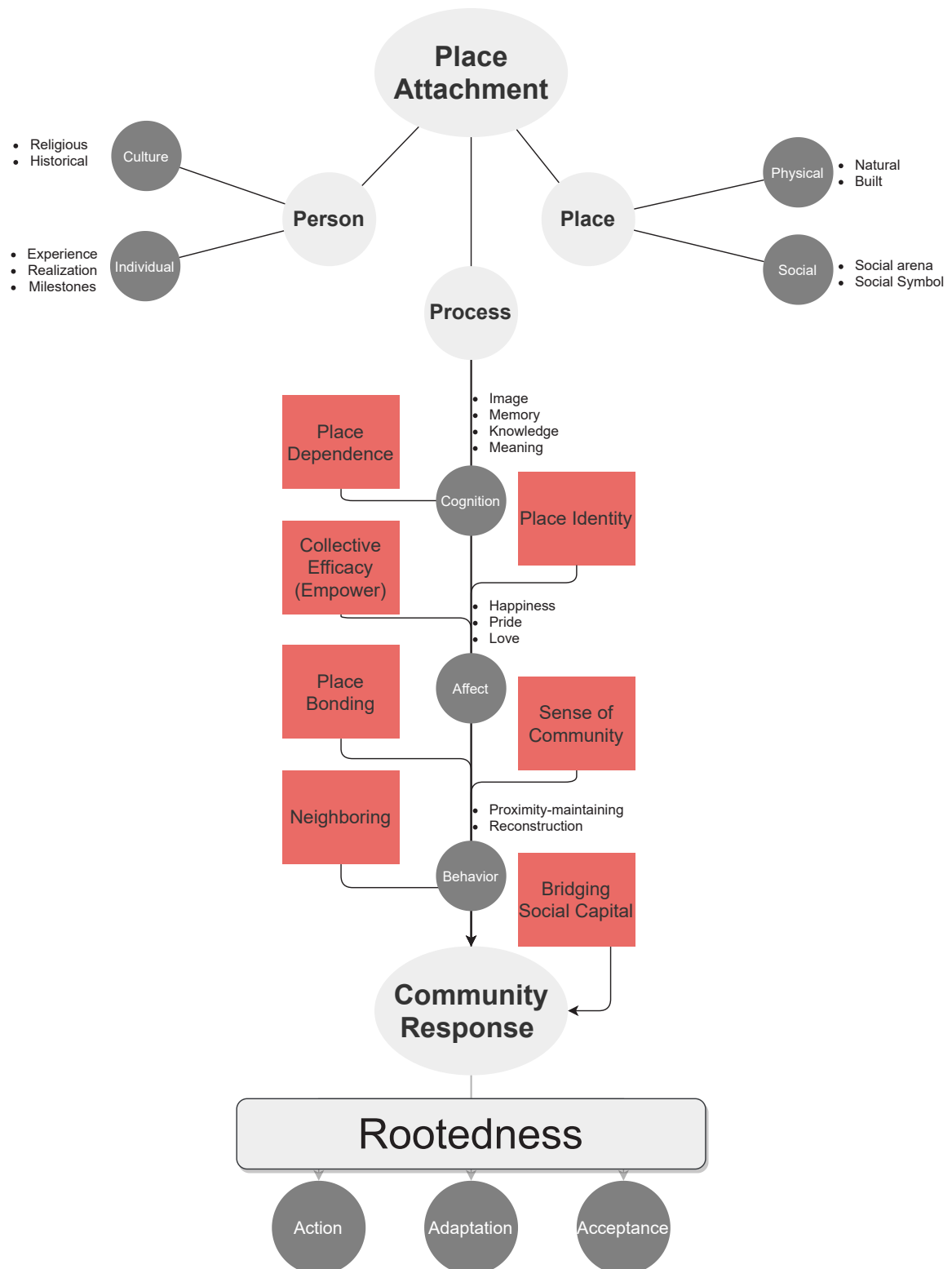


Figure 2-5 Place Attachment Model for Developing Social Capital Adapted from (Mihayov and Perkins 2014).

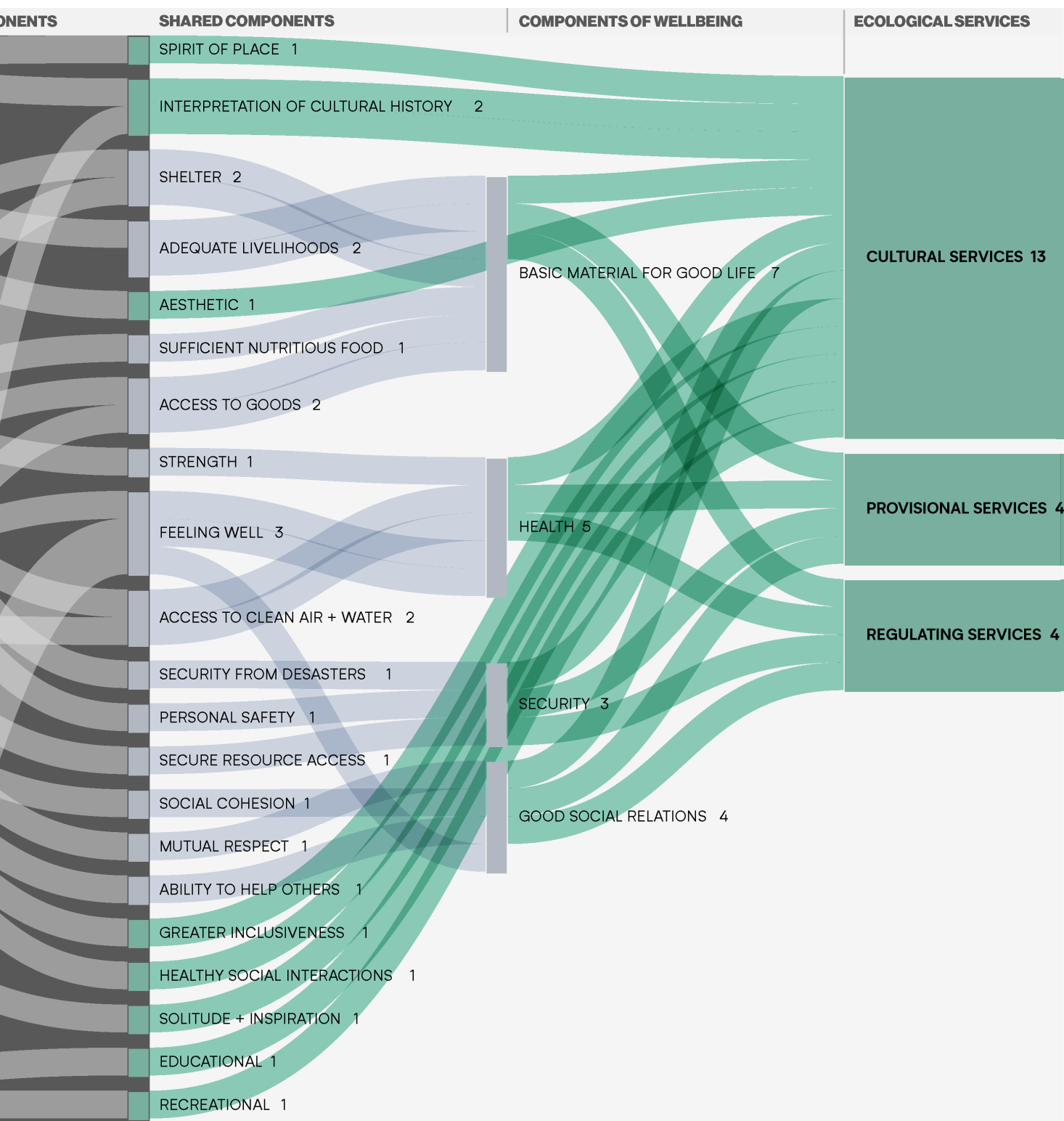


2.1.4 LITERATURE REVIEW SYNTHESIS

In summary, a range of foundational knowledge related to the attachment, protection, and disinvestment of the place was analyzed through the lenses of sociologists, ecologists, and designers to better understand the impact of placemaking and its relationship to social equity (see Figure 2-6). Strong associations were drawn between green infrastructure and its ability to build the groundwork for socio-cultural, economical, co-benefits. This foundation seems to be missing from historically marginalized communities throughout the united states. Not only have these communities have to overcome social and wealth segregation, but the city has also disinvested in them. The literature review has provided a foundation for this study by highlighting themes and principles to organize this research study. The second section of this chapter will provide examples of how these themes have been applied in practice.



Figure 2-6 : Literature Review Major Themes + Concepts





## 2.2. PRECEDENT STUDIES

This report has identified common themes, conditions, and recommendations for equitable planning and design within historically marginalized communities through an extensive literature review and analysis of the study site context. Precedents were analyzed to identify characteristics of successful design and implementation of socially equitable stormwater management development practices. The purpose of analyzing precedents is to find tangible spatial applications of concepts, themes, and themes extracted in the literature. The analysis and synthesis of these precedents result in design elements and criteria that complement the themes from the literature. This study intends to analyze well-executed examples of equitable green stormwater management, specific programming, and design strategies that promote residents' place attachment, social capital, local economic growth, and environmental protection.

The study applies recommendations for applying green infrastructure strategies from Ahern (2007) as considerations for organizing the precedent study. This first criterion is that design strategies are applicable at nested scales of planning and design. The second is to examine patches and processes within the landscape. The process that is especially important for this report is water, particularly hydrological cycles and the purification process. This study considers how water flows through the landscape, accumulates, or dissipates nutrients and pollutants. The final structural component of this study is the circulation of people, the connection between the structure and landscape function. It determines whether the landscape facilitates or impedes the flow of things like nutrients, energy, materials, species, and people

through the landscape. This component will consider design elements and considerations that best integrate the connectivity of water, plants, and people.

Foreman's (1995) Patch-Corridor-Matrix model is applied in the process of precedent selection that corresponds with the study site conditions. Precedents were chosen based on their similarities in the matrix of the study site, and the composition of dominant land uses. The dominant land uses from the study site include commercial, residential, park, open green space, and vacant properties. Secondly, they are selected for their corresponding linear corridor types that dominate the site and facilitate movement. The primary corridors of the study site are a six-lane vehicular highway and a creek corridor. Secondary corridors include a sub-watershed basin stream network, a commercial corridor. Patches are the third counterpart of the model distinguishable by a particular area or zone that services ABC functions. Patches and their supporting ecosystem services are highly influenced by the context, leading to highly variable design elements and considerations. Landscape types classify the patches in the study site to maintain consistency and ensure the study produces resilient design strategies. These landscape types include sites that are or were formally classified as a Greenfield, Floodplain, Greyfield, Urban Infill, or Wetland.



## 2.2.1 NEIGHBORHOOD SCALE

This section presents two precedents relevant to creating equitable, diverse growth in low-income diverse neighborhoods. Both have addressed equitable development design and planning strategies by implementing green infrastructure at the neighborhood scale. Residential land uses dominate these sites, while subdistricts of commercial, open green space, and vacant properties are dispersed throughout.

## HIGH POINT, SEATTLE, WASHINGTON

FIRM: MITHUN, SVR DESIGN

LOCATION: SEATTLE'S WEST SEATTLE NEIGHBORHOOD

SIZE: 120 ACRES

### CONTEXT:

Highpoint is one of Seattle's most demographically diverse neighborhoods. It includes a new street system and space for approximately 4,000 people in 1,600 houses, townhouses, condominiums, and apartments, all designed to build Green 3-star standards or better (Wener 2008).

This project replaced dilapidated buildings constructed poorly during the New Deal era with 716 subsidized housing units. By reusing old materials from demolished homes, affordable housing was built for low to modest income residents (731 affordable 798 market rate). This construction also includes energy-efficient, healthy homes that are air-sealed to support families with children who have asthma.

This neighborhood, stormwater carried pollutants, spilled oil, and other pollutants that emptied into pipes that flew into the creek. The new design holds a 34-block natural drainage system that protects Longfellow Creek (Seattle's most productive salmon-spawning stream) (Wener 2008). The stormwater management plan incorporates bio-swales, porous concrete, and detention ponds.

### STORMWATER INFRASTRUCTURE EVALUATION:

Protects natural streams by developing a drainage system that protected the nearby Longfellow Creek. High Point accounts for 10% of Longfellow Creek's watershed, one of the three largest natural streams left in Seattle, and draws the most salmon (Wener 2008). The design produces pedestrian-friendly streets by narrowing streets, shortening blocks, creating strategic alley connections, porches, hidden parking lots, landscaped sidewalks, new utilities, mature and newly planted street trees. An integrated stormwater management system provides permeable pavements installed in residential streets, sidewalks, parking lots, sidewalks, and basketball courts. A quarter-mile walking trail and gathering space was constructed around a 22-acre pond and was linked to a 4-mile-long bio-swale, improved water quality, and protected wildlife habitat on-site and nearby (Wener 2008).

### SOCIAL EVALUATION

High Point has generated a vibrant, engaged community where residents feel involved in their immediate surroundings and the larger West Seattle neighborhood. The design facilitates neighbor-to-neighbor contact features of new urbanism applied where small pocket parks are situated so that parents can monitor children playing outside and get to know their neighbors. Employment and training was provided for 50 low-income residents through the construction of the site (Wener 2008).

### TAKEAWAYS:

First, large-scale affordable and market-rate housing developments can integrate high-quality, low-impact design while infiltrating 75 to 80 percent of stormwater runoff (Wener 2008). Secondly, street grids can manage stormwater runoff while creating safer pedestrian environments. 4 miles of vegetated bio-swales created, more than 2,000 new trees, porous sidewalks, quarter-mile recreational trail, and multiple traffic calming measures (Wener 2008). Third, endangered species can be protected from contaminants through stormwater management and protected major salmon run creek in a watershed that was 65% impervious (Wener 2008).





Figure 2-7. Rainwater Runoff Captured off Streets through an Aesthetic Vegetated Bio-swale in High Point, Seattle, WA (SvR 2006).



Figure 2-8. Multi-functional Curb Extension Captures, Slows, and Infiltrates Rain Runoff from the Street Gutters. The Artful Design Feature Acts as a Gateway into the Marlborough Neighborhood, Kansas City, MO (Huerta 2021).

## **MARBOROUGH, KANSAS CITY, MISSOURI**

FIRM: BNIM

LOCATION: MARLBOROUGH, KANSAS CITY, MO

SIZE: 1280 ACRES

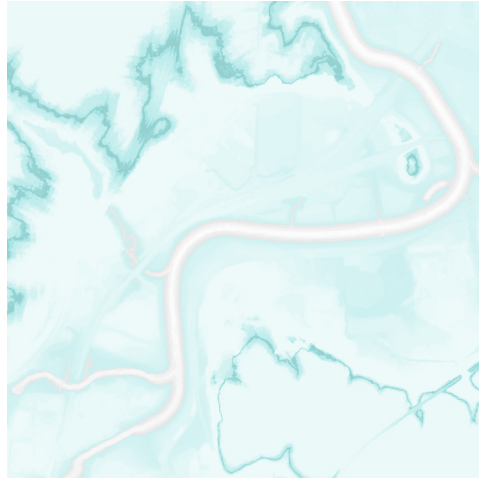
FUNDING: \$550 MILLION

### **CONTEXT**

The Marlborough Neighborhood Catalyst Plan was initiated by the non-profit organization named the Marlborough Community Coalition. This plan aimed to discover community assets within five neighborhoods in Marlborough and develop these assets to transform this neighborhood into a thriving place to grow up, live, and work. This neighborhood plan addresses five problems through various means. Increase the attention to property maintenance and beautification of properties (public and private). Secondly is to address the failing transportation infrastructure by repairing and building new sidewalks, curbs, connections to transit, and providing street maintenance. Third, to build pride in the neighborhood by supporting organized community involvement. Fourth, improve the health of the community by improving healthy food access and awareness. Fifth, invest in the youth by increasing the availability of programed activities, recreation, mentorship opportunities for youth, and build awareness of healthy choices and skills. Sixth, promote homeownership and landlord accountability to prevent unjust rental prices and evictions. Seventh, address the concerns for safety and the perception of crime, especially around the schools. Eighth, create new educational opportunities to develop resident's employment skills and catalyze new businesses. Lastly, instill a new image of the community as a dynamic and innovative neighborhood that can attract residents, visitors, and businesses while retaining the ability for current residents to remain in their homes and community (BNIM 2007).

The Marlborough Coalition was able to revitalize the community and address these problems primarily through utilizing housing, green space, and the arts. Through interviews with residents and the site's spatial analysis, they developed six major goals to implement the master plan. These goals are listed as the following themes: Housing, Crime and Safety, Green Space and Beautification, Community Health, Arts and Culture, Economic Development





### **2.2.2 CORRIDOR SCALE**

In this section, two precedents are evaluated for their relevance to the study area as a linear corridor that supports the movement. One is a riverfront greenway passage the second is a grey corridor in a central commercial district. Both facilitate the safe movement of sociocultural and ecological functions.

## **BUFFALO BAYOU PARK, HOUSTON, TEXAS**

FIRM: SWA GROUP  
LOCATION: HOUSTON, TX  
FUNDING: \$88,200,000  
SIZE: 160 ACRES

### **CONTEXT:**

Buffalo Bayou Park is in the heart of the city. It stretches for 2.3 miles on the west side of downtown Houston. Houston experienced rapid urban growth and expansion in the early 20th century and continues to grow and develop to this day. It has resulted in a very large area that is impervious. When a major rain event in 1938 flooded Houston and caused severe damage to properties, and killed seven people. Since then, the city has continually reinvested in the safety measures along the Buffalo Bayou to support the growing urban footprint. The city has installed dams, cisterns, and highly engineered concrete channels within the Bayou.

The main purpose was to use this site to make Houston more resilient to floods, but it has become far more than that. The Bayou has created a highly valued public space that supports programming elements for the surrounding neighborhoods and serves green stormwater infrastructure functions supporting the imminent major floods that submerge the area. The park elements within the flood plain are designed to withstand the flooding without damaging it.

### **STORMWATER INFRASTRUCTURE EVALUATION:**

Park performed well after Hurricane Harvey raised the floodwaters to 38.7 feet (Aman and Yalcin 2019). The park functions well, holding floodwaters and does not stay flooded for very long, and may drain water too fast for some floods (Aman and Yalcin 2019). Forty thousand cubic yards of silt and debris were left behind, and it erodes riverbanks (Aman and Yalcin 2019). The park features like recreation fields are also used as flood storage areas.

### **PLACEMAKING EVALUATION:**

The site has become highly visited by residents and by tourists receiving 150,000 visitors a month (Aman and Yalcin 2019). Linking the Downtown to the park network has increased visitation. It has become a part of the identity of Houston and as a regional amenity. Scenic views created from pedestrian bridges of the skyline highly photographed and contribute to this image of the city.

### **ECONOMIC EVALUATION:**

Commercial activity like restaurants is very profitable in this location. Many landowners benefited from this park. Properties were worth 16% more if they lived within 20-minute walking distance from the park (Aman and Yalcin 2019).

### **TAKEAWAYS:**

Designing resilient features was of great importance, and its usefulness was demonstrated in the frequent floods that occurred. The money spent on heavy-duty materials and careful planning process paid off in the long run because of the wear and tear from the high volume of crowds, group events, and river flooding.



Figure 2-9. Programing and Pedestrian Trails Activates and Provides Access Underneath Vehicular Bridges in Buffalo Bayou Park, Houston, TX (Fox 2005).



Figure 2-10. Aesthetically Vegetated Bulb-outs at Intersections Slow and Calm Traffic, Provide Additional Visibility and Protection for Pedestrians when Crossing the Street, and Reduces Exposure to Vehicular Traffic along South Grand Boulevard, St. Louis MO (Design Workshop, 2011).



## **SOUTH GRAND BOULEVARD, ST. LOUIS, MISSOURI**

FIRM: DESIGN WORKSHOP, INC.

LOCATION: SOUTH GRAND BOULEVARD AND ARSENAL STREET  
ST. LOUIS, MISSOURI 63118

PROJECT TYPE: RETAIL + GREEN STREETScape +  
TRANSPORTATION

SIZE: 6 BLOCK CORRIDOR

BUDGET: \$3 MILLION

### **CONTEXT:**

The street is a culturally diverse and historic district. The multicultural population presented a challenge for this project. It was essential to produce a public realm that would accommodate the diverse needs of business owners, commuters, pedestrians, and residents. The main goals were to transform this street into a vibrant destination, improve the pedestrian experience, enhance safety, and provide opportunities for continued economic development. The final boulevard design enhances walkability, incorporates innovative stormwater management, and creates a “memorable” public realm that builds upon the community’s character.

### **STORMWATER INFRASTRUCTURE EVALUATION.**

The design was projected to reduce vehicle emissions by 50% because the street was designed to reduce vehicular delays (Yang, Blackmore, and Zhang 2012). The percentage of previous surfaces increased from 2% to 50% along the street by implementing permeable pavement materials (Yang, Blackmore, and Zhang 2012). The soil volume for each tree was increased from 100 to 1,000 cubic feet, which will enhance tree growth, health, and longevity (Yang, Blackmore, and Zhang 2012). Planting was designed for seasonal interest and can also withstand the harsh street conditions and increase the populations of birds and butterflies. Rain gardens were placed at all intersection bulb-outs and contained tree boxes with native perennials and forbs which filter and infiltrate stormwater.

### **PLACEMAKING EVALUATION**

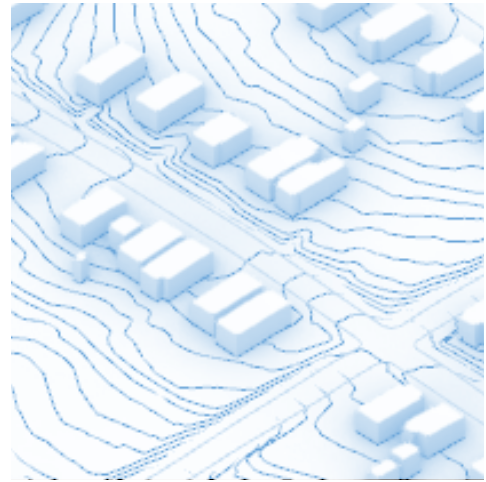
The reduction of average traffic speed by 17 mph has been projected to result in an 85% drop in accidents (Yang, Blackmore, and Zhang 2012). The reduction of traffic speeds has also been projected to reduce the noise level from an average of 68 decibels to below 60 decibels (Yang, Blackmore, and Zhang 2012). This noise level falls within the range that allows a comfortable conversation for a dining experience.

### **ECONOMIC EVALUATION:**

Annual sales tax revenue increased by 14% in the first year after redevelopment (Yang, Blackmore, and Zhang 2012).

### **TAKEAWAYS:**

Street improvements can become the multi-functional infrastructure that creates social, ecological, and economic benefits. Reducing traffic speeds and increasing pedestrian accessibility have greater benefits for the adjacent businesses and revenue. Streets provide necessary public spaces that can accommodate social interactions and active vitality. Increasing pedestrian spaces also increase the surface area for vegetation on site.



### **2.2.3. SITE SCALE**

This section presents design strategies and elements of two precedents at the site scale that provide integrated cultural and ecological functions.

## **BONEYARD CREEK RESTORATION, CHAMPAIGN, ILLINOIS**

FIRM: HITCHCOCK DESIGN GROUP

LOCATION: SECOND STREET BASIN CHAMPAIGN, ILLINOIS

PROJECT TYPE: PARK/OPEN SPACE, STORMWATER  
MANAGEMENT FACILITY + STREAM RESTORATION

SIZE: 10 ACRES

BUDGET: \$10.7 MILLION

### **CONTEXT:**

Boneyard Creek is a highly engineered and channelized waterway that flows through most of the city of Champaign. Poor water quality and flooding issues caused the city and university to develop a redevelopment master plan. The design integrates land requirements for water holding capacity with recreational uses while also creating an environment suitable for accessibility by pedestrians and cyclists. The design restored the natural alignment of the original waterway using natural stone terraces to control erosion. The site is a major link in a pedestrian and bicycle corridor connecting downtown Champaign to the University of Illinois.

The design incorporated both an aboveground and an underground retention system to manage 100-year floodwaters. It also provides enough open space to be used during non-flood conditions. Two large retention basins act as the main focal points for the park. Terraces constructed from natural stone are strategically positioned within the basins, allowing visitors to explore the various aspects and contours of the site. Full pedestrian and bike access are aided by a network of pathways that connect the site to the surrounding neighborhood.

### **STORMWATER INFRASTRUCTURE EVALUATION**

The design provides green stormwater infrastructure in several ways. By providing 100-year storm flood protection through detaining 15 million gallons of stormwater generated during a major storm event (Kinki and Whalen 2013). Improved habitat value of the site. Improved physical characteristics and water quality in the creek. According to monitoring data, water pH dropped from 7.93 to 6.96 in Scott Park and 7.54 to 6.89 in the North Basin (Kinki and Whalen 2013).

### **SOCIAL EVALUATION**

Provides educational and volunteer opportunities for the community. An annual event called the Boneyard Creek Community Day draws about 300 volunteers to remove

litter and invasive plants (Kinki and Whalen 2013). Provides educational tours of the site. Provides bike path connection between the University of Illinois campus and downtown Champaign. After this installation, 42% of students use bikes at least once a week, and 4% of employees use bikes as their primary mode of transportation (Kinki and Whalen 2013).

### **TAKEAWAYS**

This project provides a holistic design by integrating stormwater safety measures and creating a social asset for the community. The park has increased the connectivity of the community and the increased recreational activity of the area to use bikes.

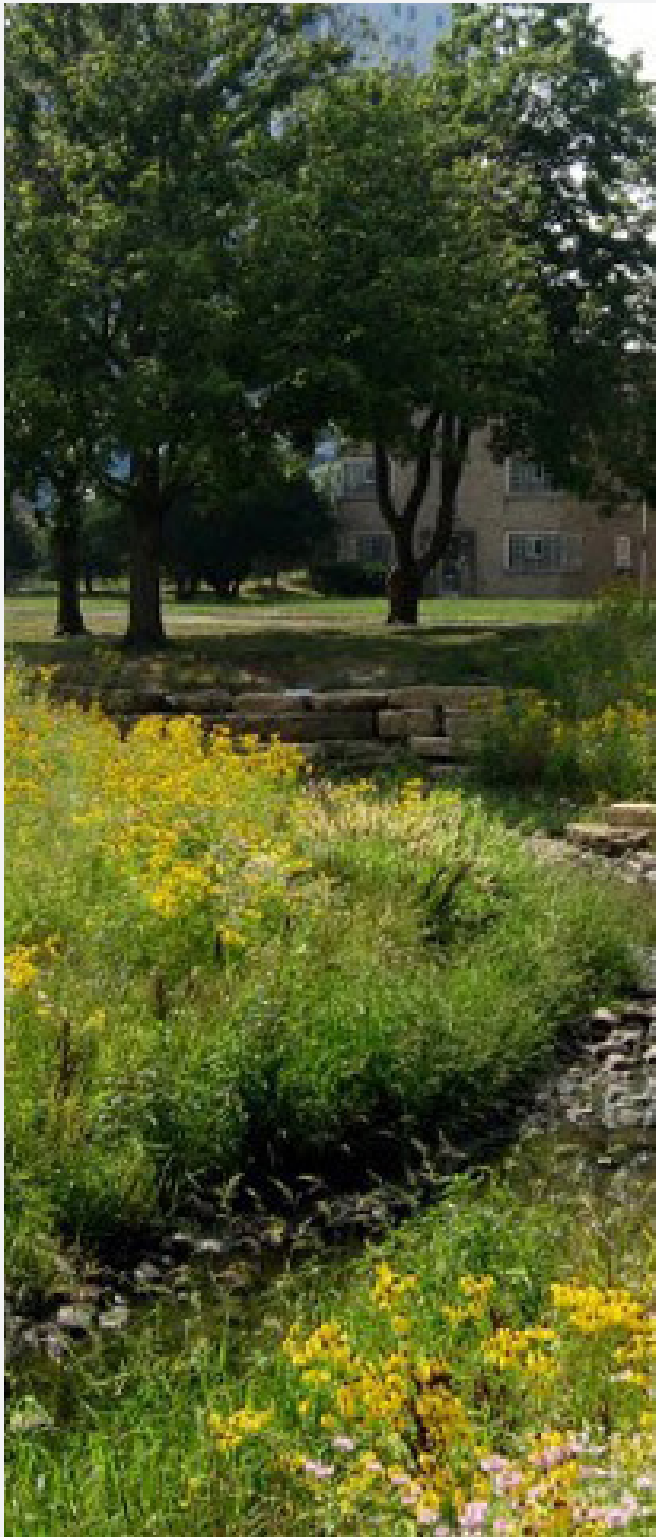


Figure 2-11. Detention Basin Holds Rich Variety of Native Plant Species along the Boneyard Creek in Champaign, IL (Hitchcock Design2012).



Figure 2-12. Cusano Environmental Education Center Building Overlooks Dense Field of Mixed Prairie Plants in Jordan, UT (Andropogon, 2003).

## **CUSANO ENVIRONMENTAL EDUCATION CENTER, JORDAN, UTAH**

FIRM: DESIGN WORKSHOP, INC.

LOCATION: JORDAN, UTAH

PROJECT TYPE: COMMUNITY STORMWATER MANAGEMENT FACILITY

SIZE: 4127 ACRES

BUDGET: \$48-63 MILLION

### **CONTEXT:**

Project model for a mixed-use community for comprehensive sustainable design accommodating over 20,000 residential units and nine million square feet of commercial space (Myers and Andrew 2011). It includes walkable streets, an extensive trail system, native and drought-tolerant plants, habitat conservation, recycled materials, and various amenities and services. Terraced demonstration gardens display the aesthetics of native species and teach residents about responsible landscape methods within the contextual ecology. The extensive parks and open space integrates stormwater management that integrates with natural systems and is activated by social and recreational programming. Stormwater management is integrated and creates habitat, provides irrigation, and enhances recreational opportunities. The design integrates natural systems, social and recreational spaces, and aesthetic visual amenities.

### **STORMWATER INFRASTRUCTURE EVALUATION**

The stormwater management system includes a 65-acre artificial lake, 25 acres of constructed wetlands, stormwater canals, dry wells, infiltration basins, and roadside bioswales. Oquirrh Lake retains stormwater and supplies reserve irrigation water while providing habitat to over 59 species of birds and fish. Native plant communities comprise 68% of common open space, and drought-tolerant plants cover at least 40% of every residential lot (Myers and Andrew 2011). Community Gardens display the beauty of native species while also educating residents about responsible landscape methods within the contextual ecology. It retains 100% of stormwater that falls on the site for up to a 100-year storm with no impacts on or connections to the municipal storm sewer system (Myers and Andrew 2011). Using a drip irrigation design saves 1.5 million gallons of potable water each year. Annual savings at build-out are 18.7 million gallons (Myers and Andrew 2011). It also promotes species diversity with 2.5 times the national average for comparable wetland bird populations (Myers and Andrew 2011).

### **SOCIAL EVALUATION**

The site reduces auto trips, with 88% of neighborhood students currently walking or riding bikes to school. It is projected to reduce auto trips by 2.3 million miles a year since it was built, saving 102,000 gallons of fuel and reducing carbon emissions by 950 tons annually (Myers and Andrew 2011).

### **TAKEAWAYS:**

When planned in a collaborative, holistic way, parks and open spaces can perform multiple social, ecological, and economic functions. The landscape captures stormwater, nurtures habitat, facilitates recreation, provides a stunning visual amenity, increases land values, and promotes social interactions.



#### **2.2.4. PRECEDENT STUDY SYNTHESIS**

Precedents have been studied for their relevance to the site and topic of study. Program elements and design considerations were extracted then organized by nested scales (see Figure 2-13). This analysis at these varying scales will supplement the succeeding chapters of this book in creating a design framework and projective design for the Ivanhoe neighborhood.

	WATERSHED		CORRIDOR		SITE		
	1	2	3	5	7	8	
Program Elements + Design Considerations	MARLBOROUGH, KANSAS CITY, MO	HIGH POINT, SEATTLE, WA	BUFFALO BAYOU PARK, HOUSTON, TX	SOUTH GRAND BOULEVARD GREAT STREETS INITIATIVE	BONEYARD CREEK RESTORATION: SCOTT PARK AND THE SECOND STREET DETENTION BASIN	CUSANO ENVIRONMENTAL EDUCATION CENTER	Sums
Pond/Detention Basin	●	●			●	●	4
Water Circulating Feature						●	1
Benches	●	●	●	●	●	●	6
Amphitheater			●				1
Trail Loop			●		●	●	3
Sculpture Plaza			●				1
Playing Lawns/Fields			●				1
Cistern			●				1
Dog Park			●				1
Flash Flood Area			●				1
Linear Park			●		●	●	3
Playground			●				1
Public Art			●				1
Pedestrian Bridges			●				1
Biking Trails			●		●	●	3
Visitor Center			●				1
Bioretention Swales	●	●				●	3
Native Plants/Trees	●	●				●	3
Natural Drainage System	●	●				●	3
Permeable Pavers		●					1
Rain Gardens	●	●					2
Affordable Housing	●	●					2
Tactile crosswalk striping	●			●			2
Health And Dental Clinics		●					1
New Library		●					1
Community Center		●					1
Pocket Parks		●					1
Athletic Field		●					1
Natural Forest		●					1
Street width reduced				●			1
Shortening crosswalk				●			1
Commercial Center		●					1
ADA accessible ramps				●			1
Visual and audio cues				●			1
Detectable warnings				●			1
Sidewalk widths increased	●			●			2
Larger tree boxes	●			●			2
Lively gathering places				●	●		2
Gateway				●			1
Water body overlook			●		●		2
Picnic area			●			●	2
Historic Office Building					●		1
Spotting Tower						●	1
Exhibition Kiosks					●	●	2
Site entry Sign					●	●	2
Walkable Streets				●		●	2
Habitat Conservation						●	1
Recycled materials						●	1
Wetlands						●	1

Figure 2-13. Precedent Study Program Elements and Design Considerations

# C H A P T E R   T H R E E

## 3

## **METHODS**



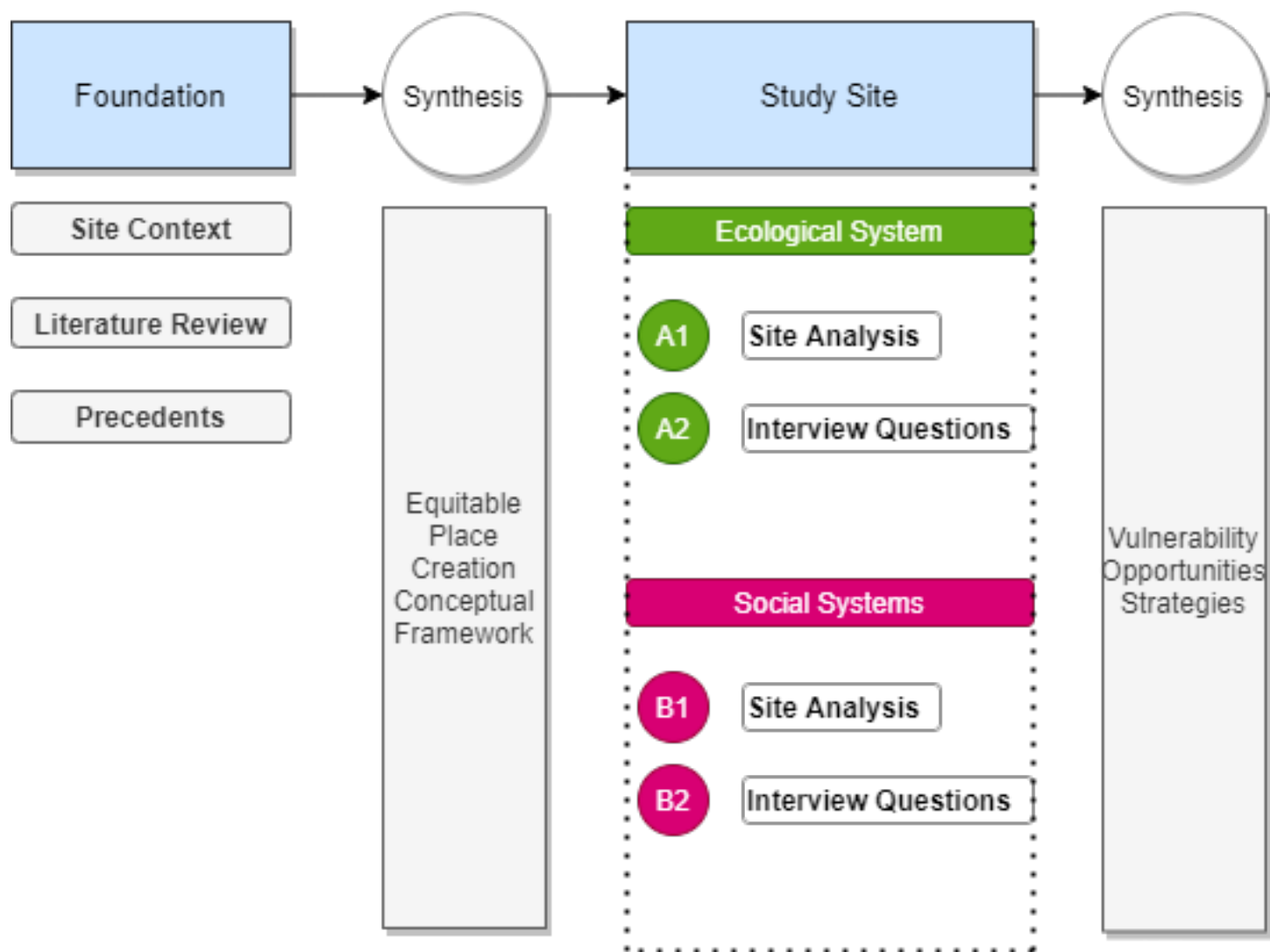
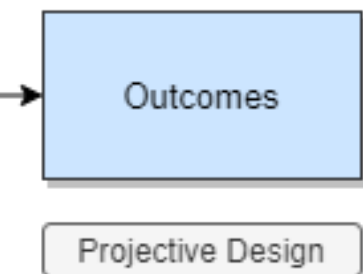


Figure 3-1. Project Organization



### 3 METHODOLOGY

This project aims to present a projective design for the Ivanhoe neighborhood to demonstrate how resilient green stormwater infrastructure can be used to mitigate the threat of urban stormwater runoff while preventing displacement of low-income minority residents by supporting residents' place attachment. For this study's focus, four types of green stormwater infrastructure environments were targeted that service the community through socio-cultural, economic, or ecological services and functions. Sites have been selected primarily by their current land use, either commercial, residential, park, or open space, secondly, by their adjacency to city elements that characterize the Ivanhoe neighborhood's image and identity. These elements are defined through literature and interviews with residents. Lastly, the sites were selected by the measure of exposure to stormwater runoff accumulation. The methods used for research include precedent studies, semi-structured interviews, and site analysis. Precedent studies were used to identify strategies and forms of green stormwater infrastructure that mitigate stormwater while also applying co-benefits for the surrounding community. Interviews were conducted to understand how residents of the Ivanhoe neighborhood perceived the character of their neighborhood. Site analysis was to understand the conditions of the site and to identify opportunities for improving green stormwater infrastructure. The findings from these methods were synthesized and used to inform a projective design within site (see Figure 3-1).



## **3.1 DATA COLLECTION**

### **3.1.1 SITE INVENTORY + ANALYSIS**

Site observations and analyses were conducted in the Ivanhoe neighborhood to understand how its ecological and social systems function, and to identify potential constraints and opportunities of the target locations listed above.

### **3.1.2 SEMI-STRUCTURED INTERVIEWS**

Interviews with the Ivanhoe neighborhood's longtime residents were conducted to understand how community members perceive the neighborhood's character, their sense of place and place attachment. The questions inform the report for how the residents perceive the neighborhood sense of place, community assets, strengths, weaknesses, locations of interactional potential, and challenges (see Appendix A). The second objective of the interviews was to understand the process of change in the neighborhood, and to better understand the potential ecological and social threats to the community through residents' perspective. Questions focused on how stormwater affects their neighborhood and what social or ecological disturbances the neighborhood faced. Interviews were structured around neighborhood change in the past, the current conditions, and if it would change in the future. The number of interviewees is listed below.

1. Ivanhoe Neighborhood Council Member (2)
2. Small Business Owners (1)
3. Ivanhoe Community Members (2)



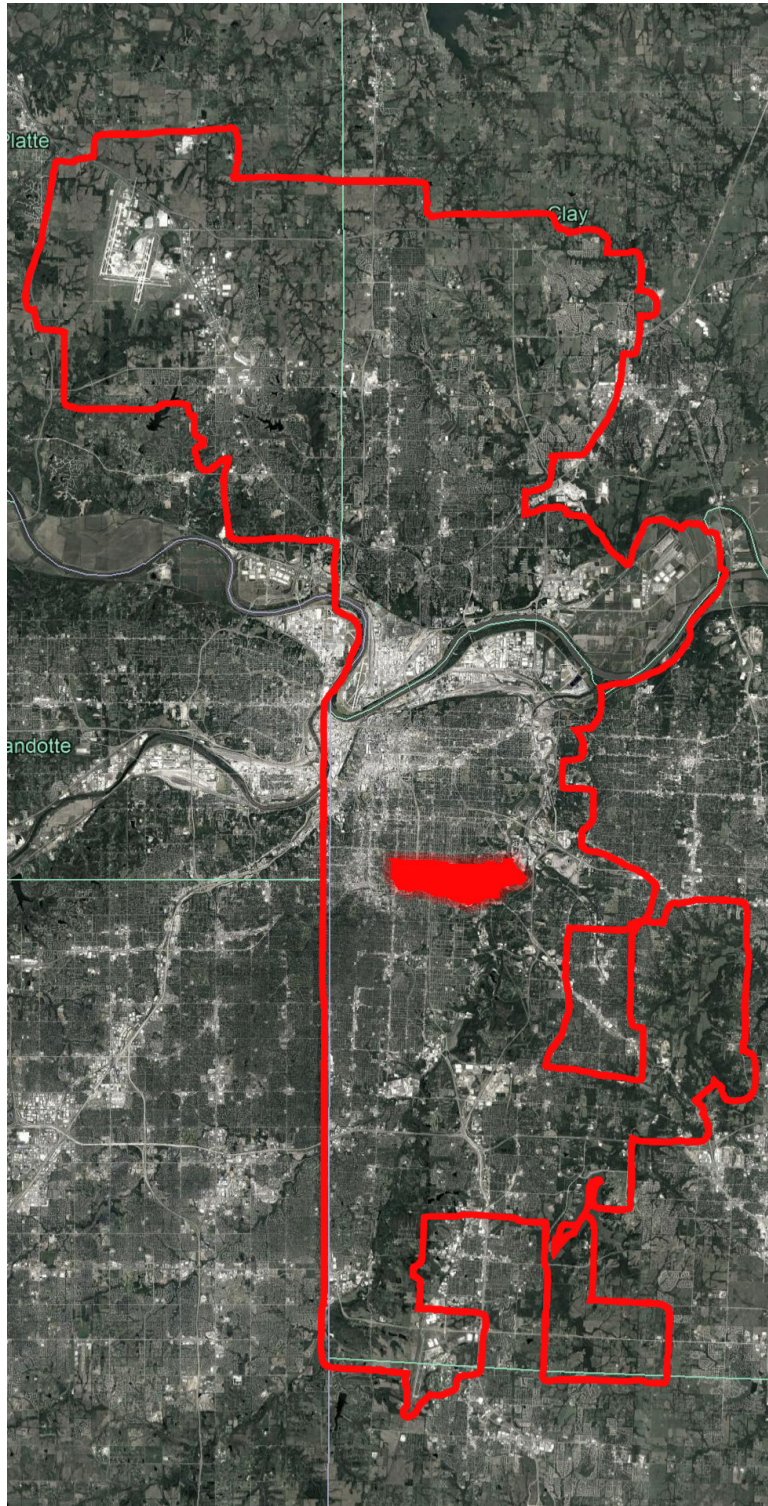


Figure 3-2. Context Map of Kansas City, with Brush Creek Neighborhoods Located in the Center

## 3.2 STUDY SITE

### 3.2.1 PAST: HISTORICALLY MARGINALIZED COMMUNITIES

The association between historically redlined neighborhoods and socially vulnerable neighborhoods within redlined districts is evident. 50% of the land in Kansas City was redlined as “hazardous” (grade D shown in red), and 33% of the land was classified as “declining” (Grade C shown in yellow) (see Figure 3-4). Today the Jackson County, Missouri population has received a moderately high vulnerability percentile score of .560 (ATSDR 2020). With the highest vulnerability scores located in historically redlined neighborhoods (see Figure 3-7).

Along Troost Avenue, the disparity between race and class is highly prevalent to this day, separating the east from the west. This street has been a longstanding physical boundary that has segregated Kansas City citizens based on race and class for many generations. It was named after the plantation owner Benoist Troost whose plantation was located along the street. Later, between 1865 and 1912, it was nicknamed “Millionaire Row” for the many mansions located on this street (O’Higgins, 2014). In the 1920’s it became a thriving business and commercial corridor. Between the 1930s and 1950s, discriminatory neighborhood boundaries were established based on race and class, limited loans, mortgages, and investment to neighborhoods to the west of Troost, and suppressed investment in the east (O’Higgins, 2014). After the mid-1950s, the nickname changed to the “Troost Wall,” which signifies the most dramatic shift in this street’s disparity. It became not just a boundary line but also a barrier to divided race and class. This division was caused by the desegregation of schools and “white flight.”

In 1954, the passing of *Brown v. Board of Education of Topeka* was supposed to desegregate school districts but left the task to cities and towns. Over the next two decades, the all-white Kansas City school board eliminated schools’ segregation based on race. However, they redrew school boundaries to move the white sections in mixed neighborhoods into white school zones. This border was continually drawn at Troost avenue and resulted in the segregation of white students from black (O’Higgins 2014). During this same timeframe, there was also a drastic out-migration of middle-class white residents to the suburbs, known today as “white flight.” Resulting in a significant loss of Kansas City’s population and tax base, the disinvestment of city infrastructure and services, and the decline in quality of education in inner-city schools. An investigation in 1973 by the federal Department of Health, Education, and Welfare found that the Kansas City Missouri School District had illegally perpetuated segregation and passed on desegregation opportunities (O’Higgins 2014).



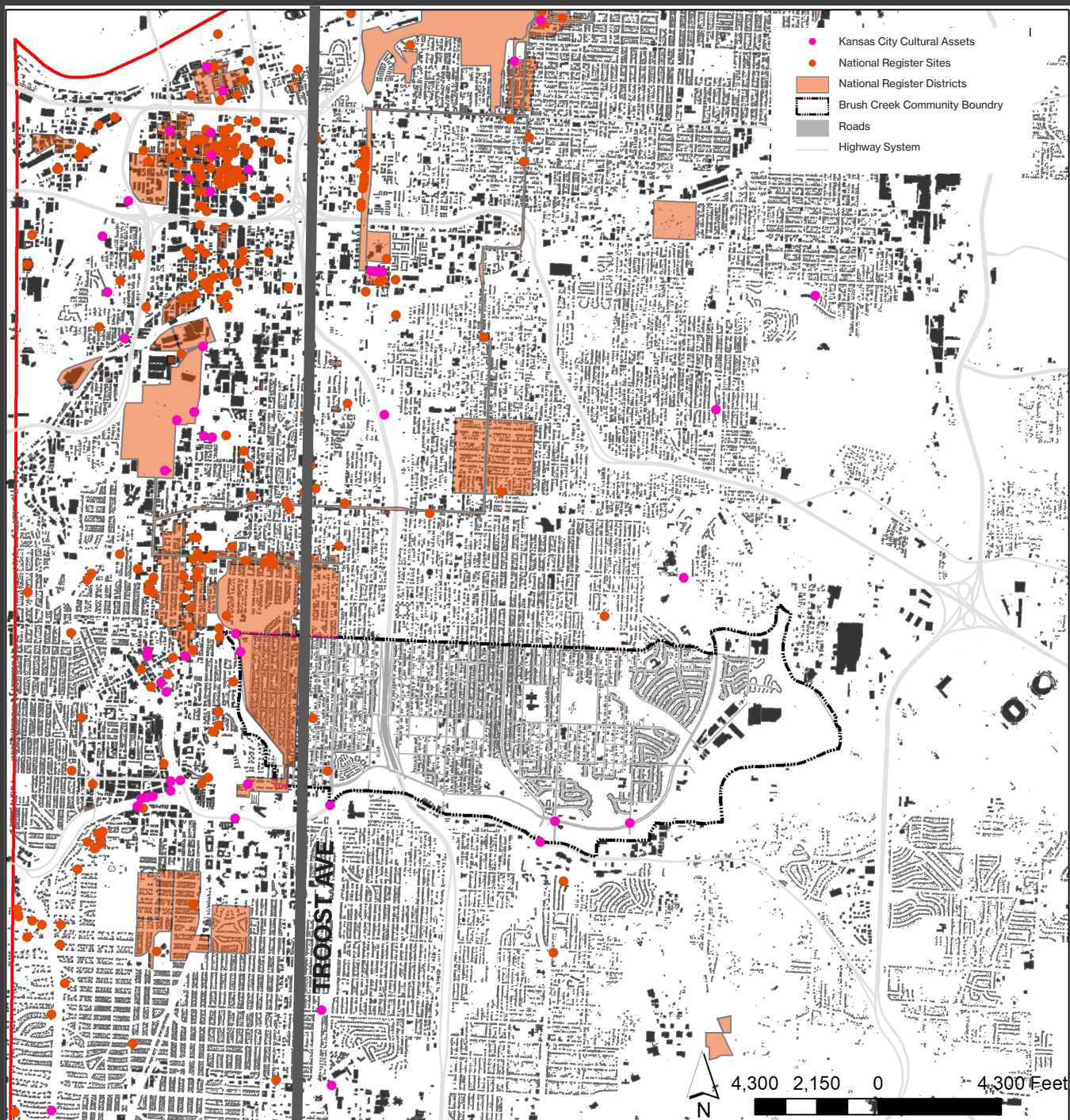


Figure 3-3. Clustering of National Register Districts and Cultural Assets West of Troost (Huerta, 2021)



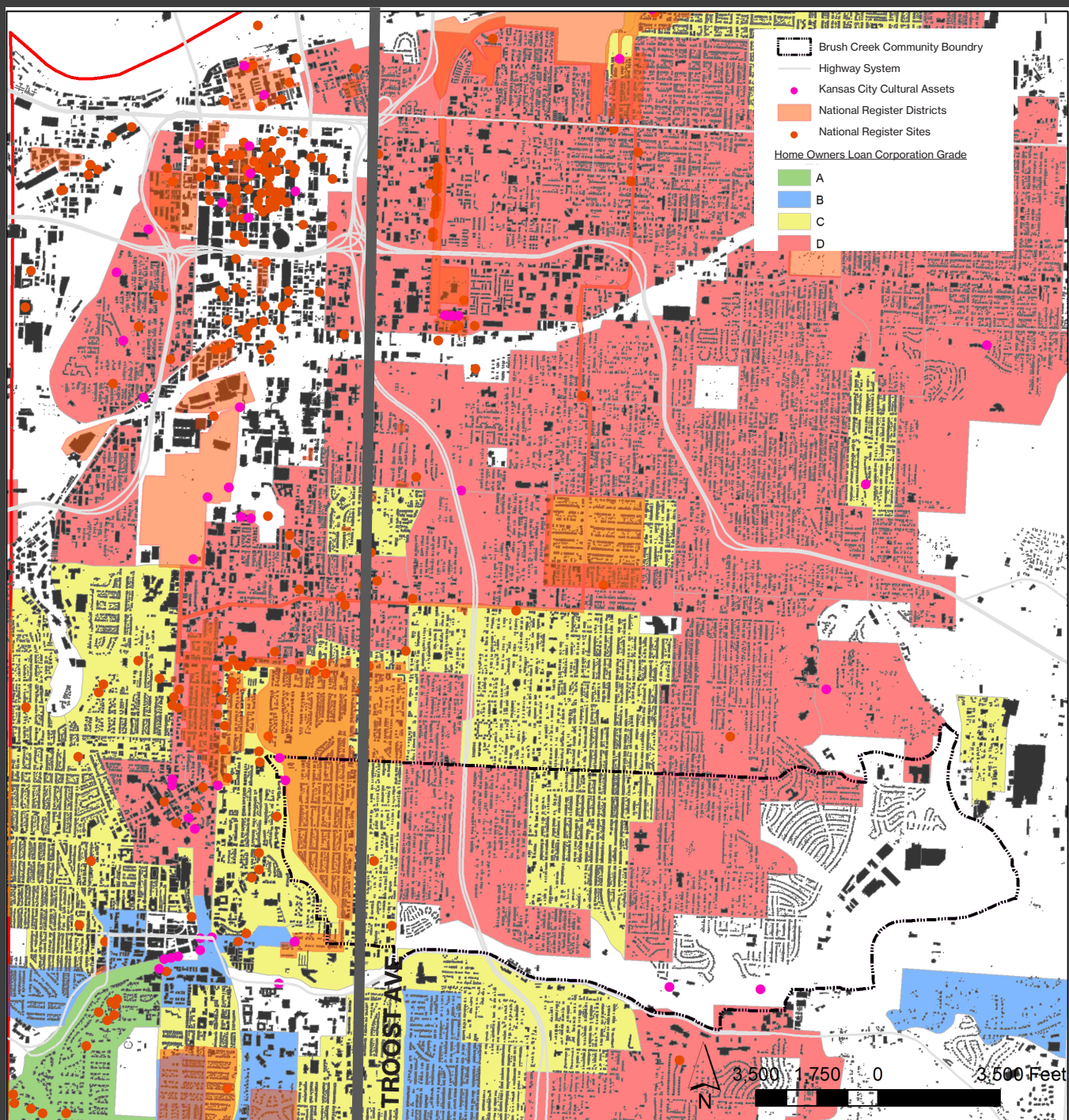
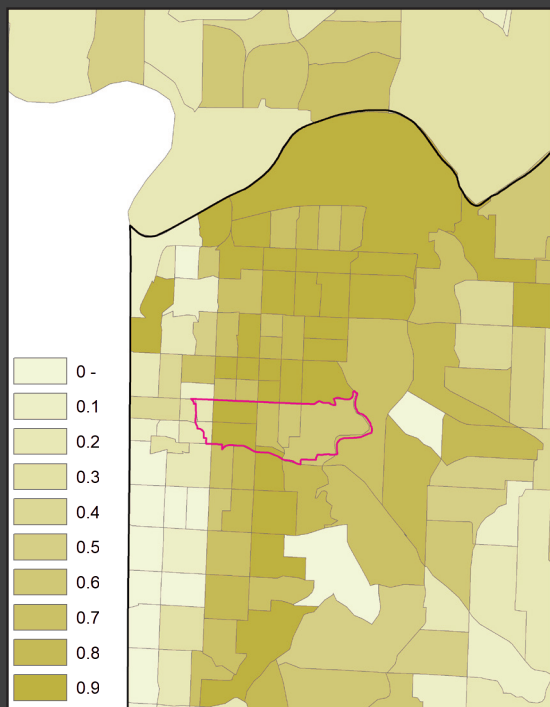
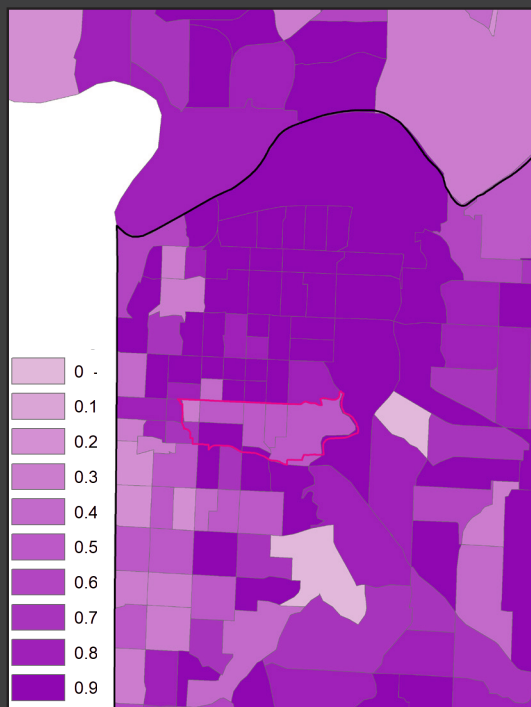


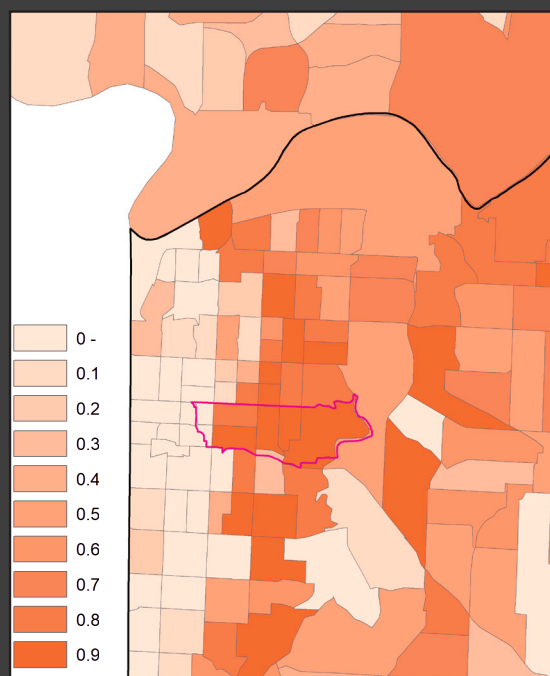
Figure 3-4. Representing Home Owners Loan Corporation Grades of Kansas City. The Poorest Grades (Yellow and Red Grades) were Given to Neighborhoods East of Troost Ave (Huerta, 2021).



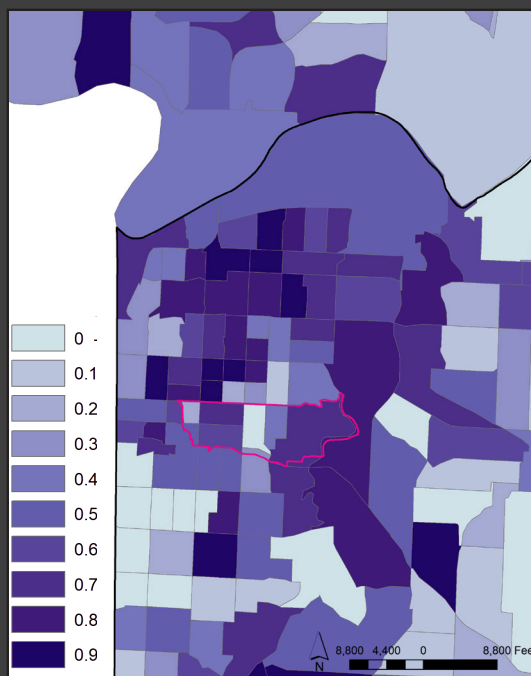
SOCIO-ECONOMIC STATUS



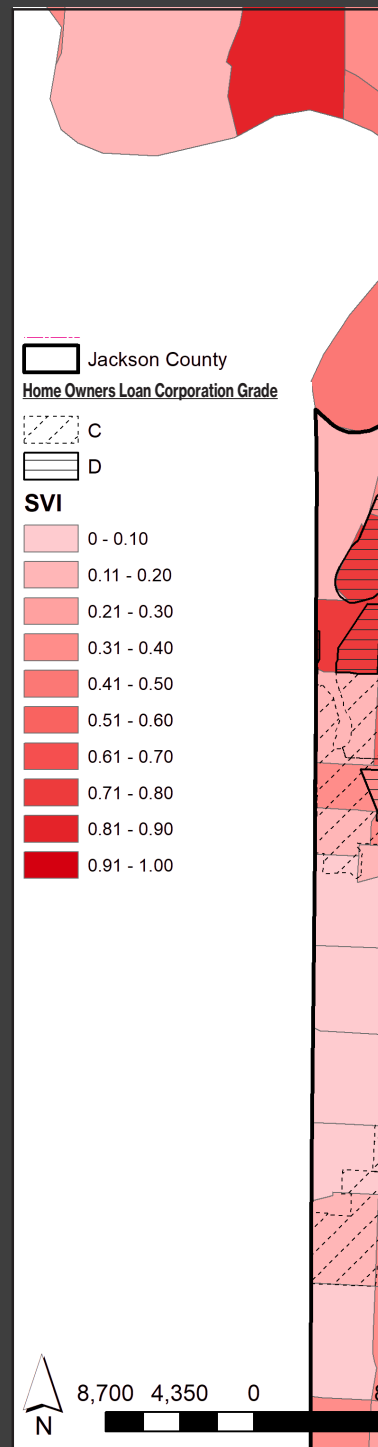
MINORITY STATUS + ESL

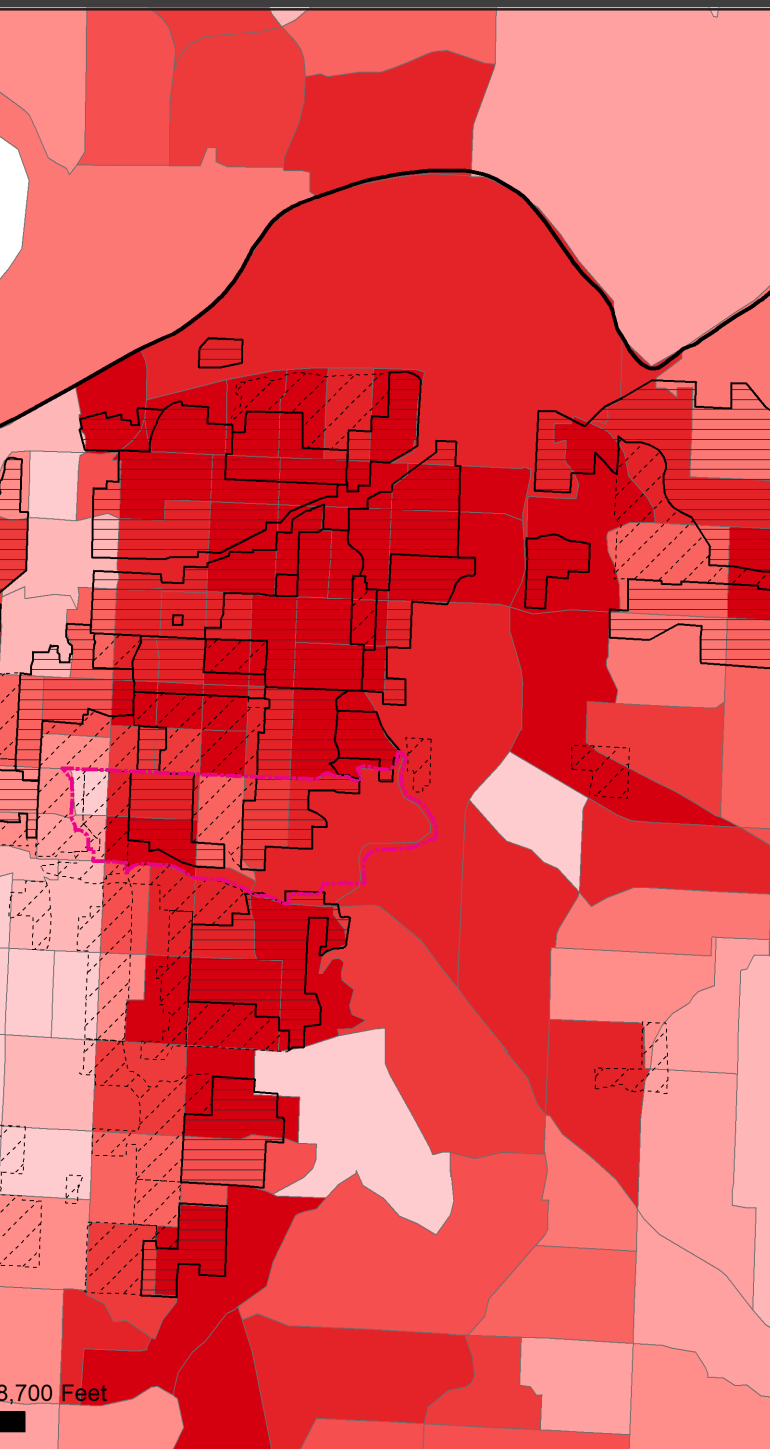


HOUSEHOLD COMPOSITION + DISABILITY



HOUSING TYPE + TRANSPORTATION ACCESS





SOCIAL VULNERABILITY INDEX

### 3.2.2 PRESENT: VULNERABILITIES OF CONCERN

Today, Troost Avenue is still divided between east and west. The disparity of each side is evident in the census block data. On the east, the Social Vulnerability Index shows very high vulnerability scores (between 70%-99% of the population). On the west, the scores are very low (mostly between 0% - 30%). The only exceptions are a few census blocks that were historically redlined on the west of Troost that received moderate vulnerability scores (30%-70%) (see Figure 3-9). Troost still carries many negative connotations to Kansas City residents. Among them are segregation, crime, poverty, inequality and more recently, displacement (Frese 2018). Rapid urbanization has created two significant problems for these highly socially vulnerable neighborhoods. First, urbanization could increase the impervious surface area that would cause hazardous conditions that the existing infrastructure cannot handle. With most of the vulnerable neighborhoods being located at the base of urban streams, the risks and damages caused by stormwater runoff are amplified see (Figure 3-13). Outdated degraded infrastructure, pollution and water quality, flooding, erosion, and disinvestment in redlined neighborhoods have worsened socially vulnerable communities (see Figure 3-12). Significant investments within the neighborhoods are needed to address the threat of stormwater runoff. Secondly, there is the risk that residents could be displaced because the property values have increased from gentrification. It has already been a growing threat on the west of Troost and could displace its poorest residents.

[LEFT]

Figure 3-5. Socio-Economic Status

Figure 3-6. Household Composition + Disability

[MIDDLE]

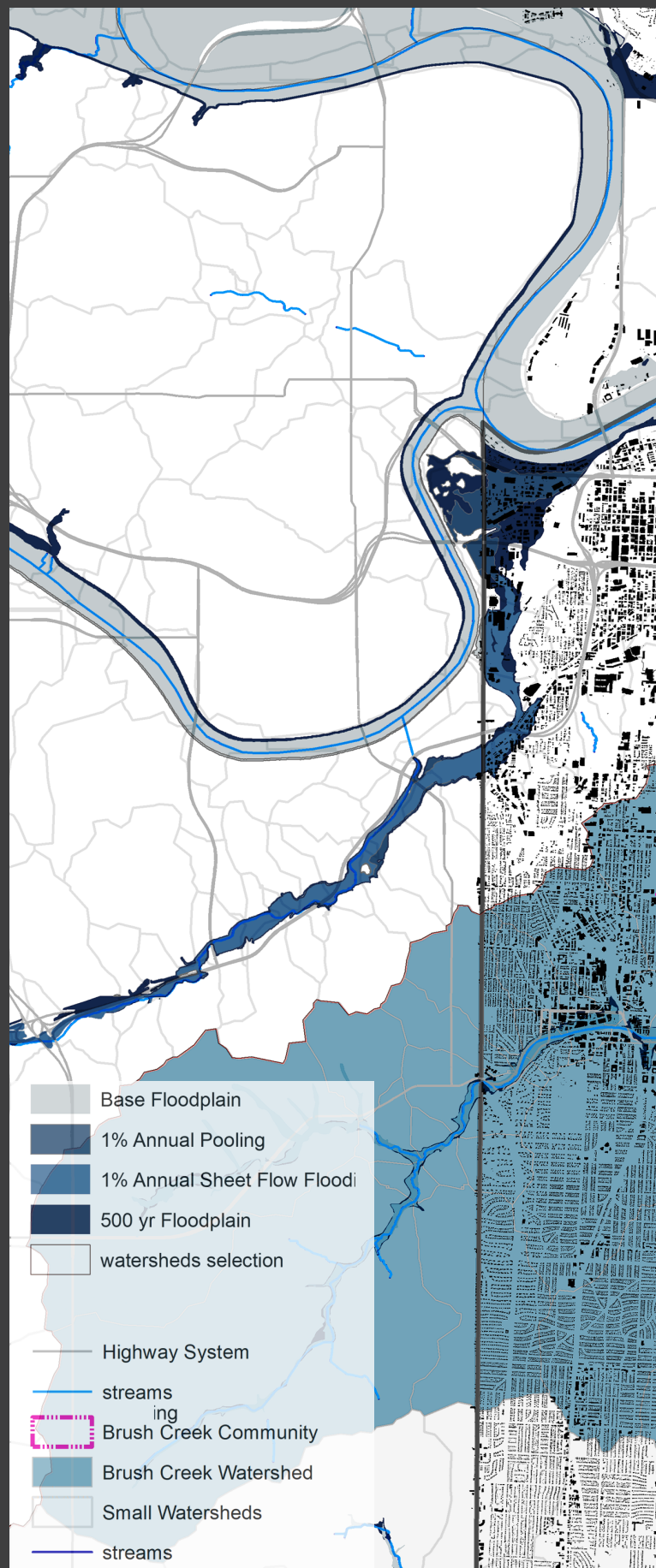
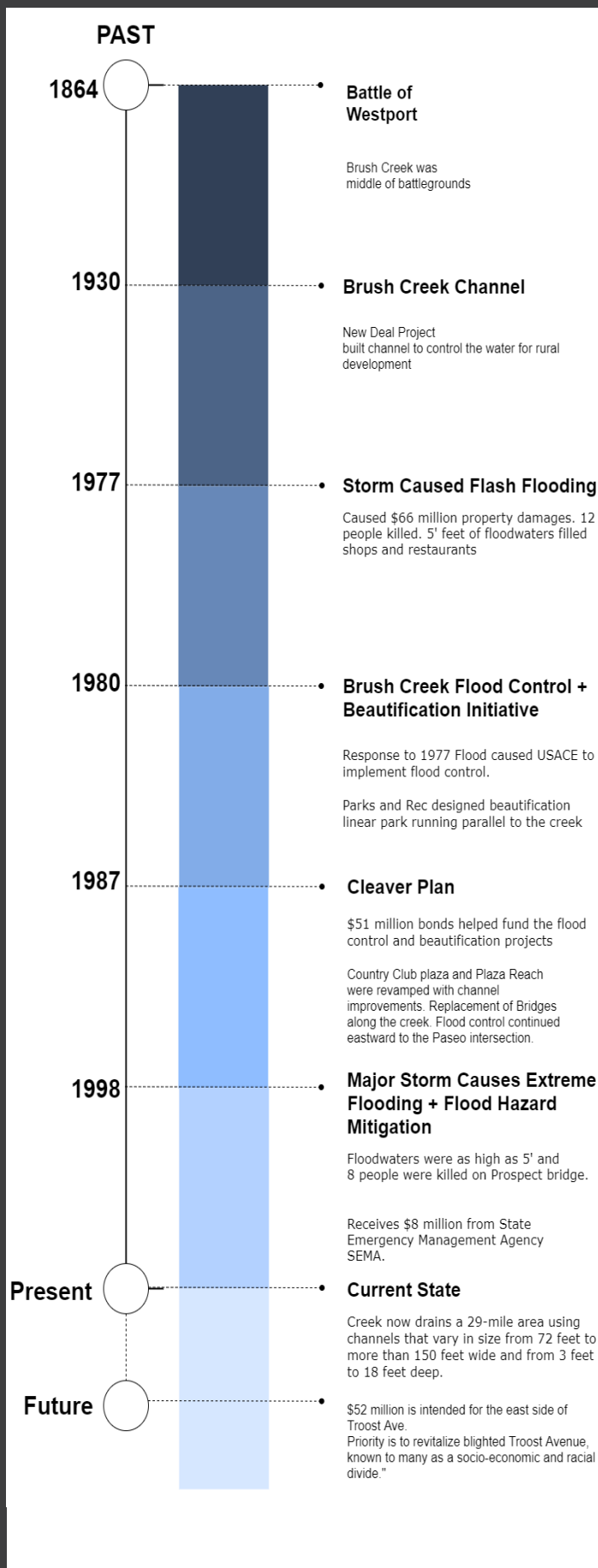
Figure 3-7. Minority Status + English as a Second Language

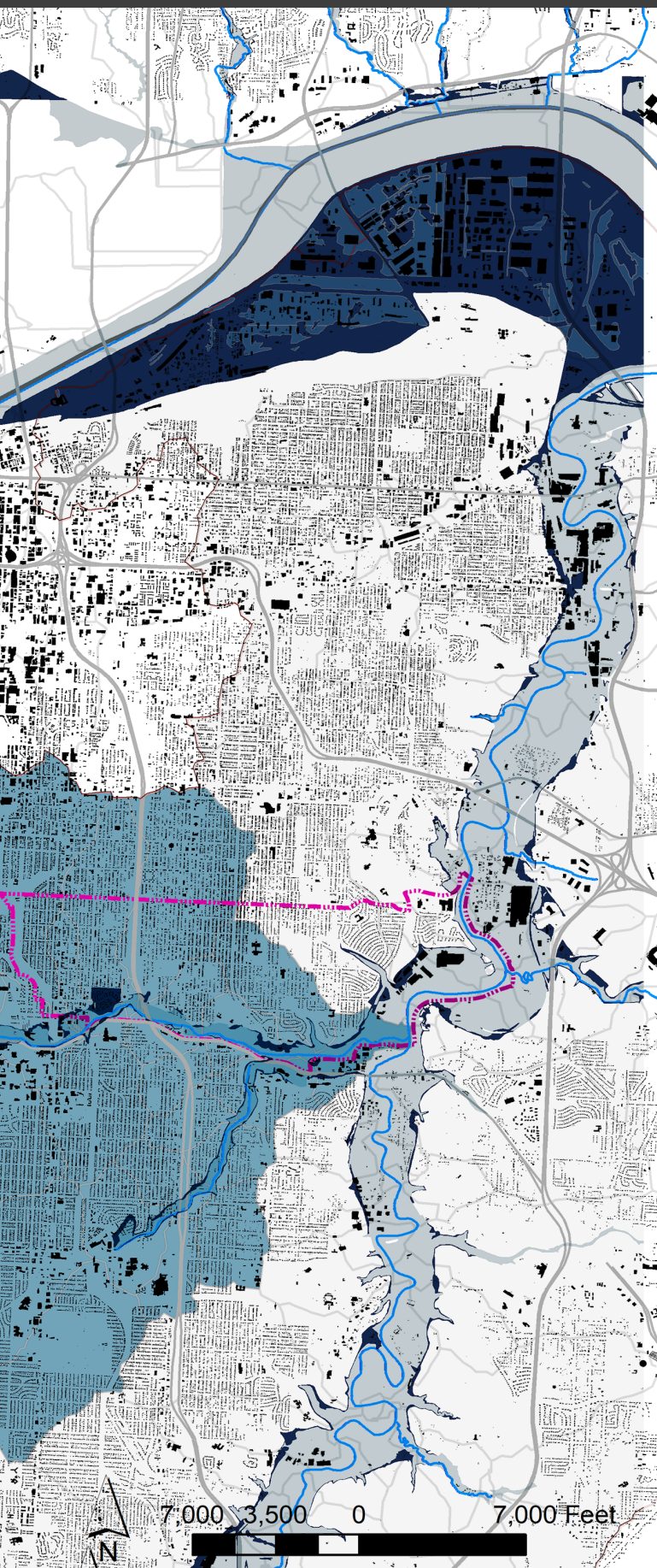
Figure 3-8. Housing Type + Transportation Access

[RIGHT]

Figure 3-9. Current Socially Vulnerable Index Scores Showing Alignent with Historically Redlined Neighbourhoods







### 3.2.3 FUTURE: RESEARCH TOPIC AND CITY INITIATIVES

There is a need to combine environmental benefits of stormwater infrastructure with equitable development practices so that the community with a longstanding legacy of discrimination can thrive in their neighborhoods, build generations of economic, cultural, and spiritual, wealth and grow community assets and personal values. Kansas City Overflow Control Program has allocated \$400,000,000 to projects included in the Smart Sewers Adaptive Management Plan to rebuild outdated sewers and build green infrastructure. These projects aim to improve urban watersheds throughout the city and include vulnerable communities adjacent to Brush Creek. This condition presents the city with an opportunity to build ecological resilience capacity.

Rather than focusing only on ecological resilience, this project aims to build social resilience within the community through green stormwater management. Therefore, this report aims to understand how equitable green stormwater infrastructure can mitigate the threats of stormwater runoff of socially vulnerable communities while ensuring that the socio-economic threats (increased in-migration of wealthy educated residents) do not displace them. Instead, the introduction of green infrastructure presents an opportunity to increase residents' sense of place through inclusive and equitable placemaking to increase their capacity to build ecological and social resilience.

[LEFT]

Figure 3-10. Brush Creek Flood History

[RIGHT]

Figure 3-11. Context of Flood Vulnerability Zones



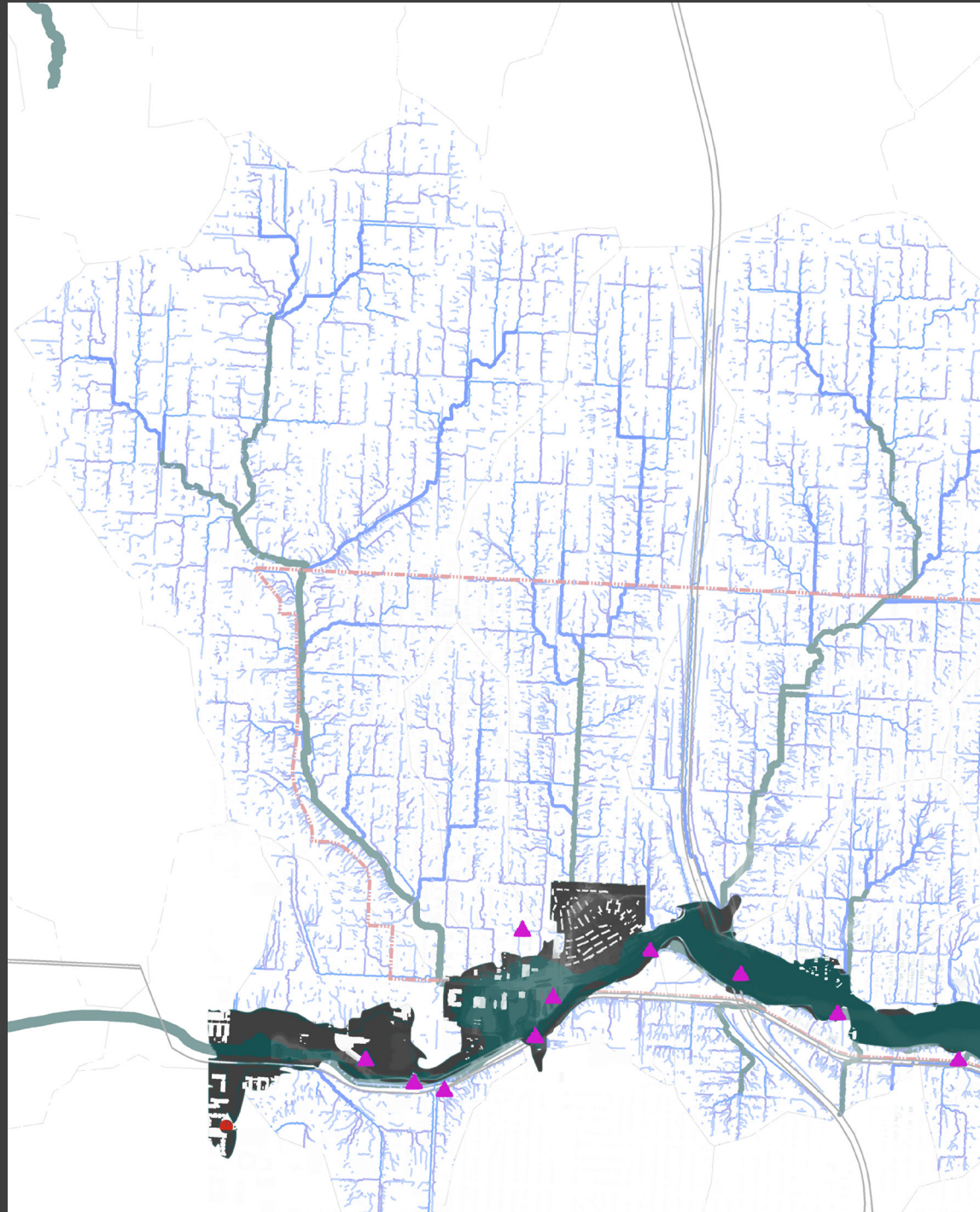
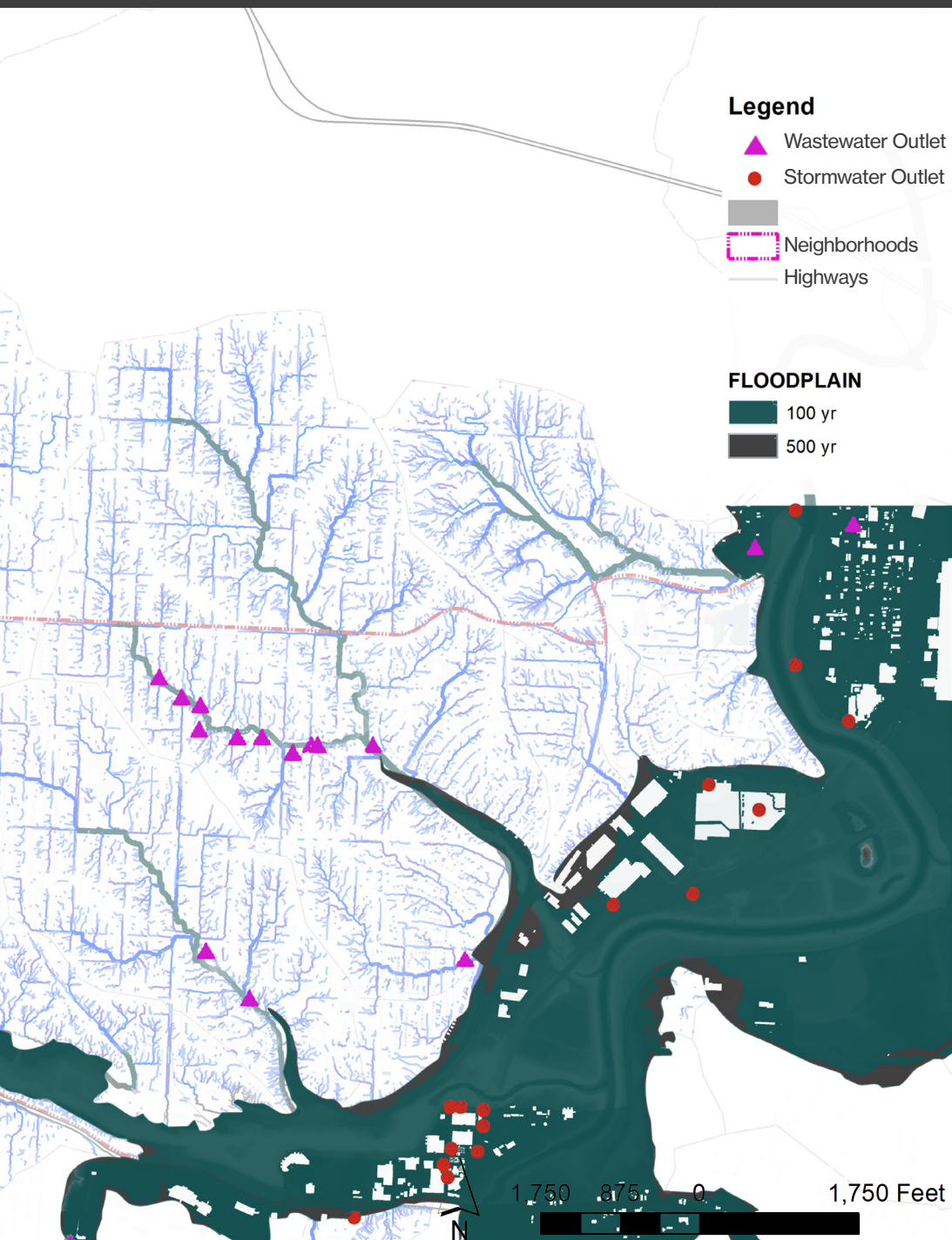


Figure 3-12. Map showing stormwater outlet points with 100% of the site containing outdated wastewater overflow system outlets.





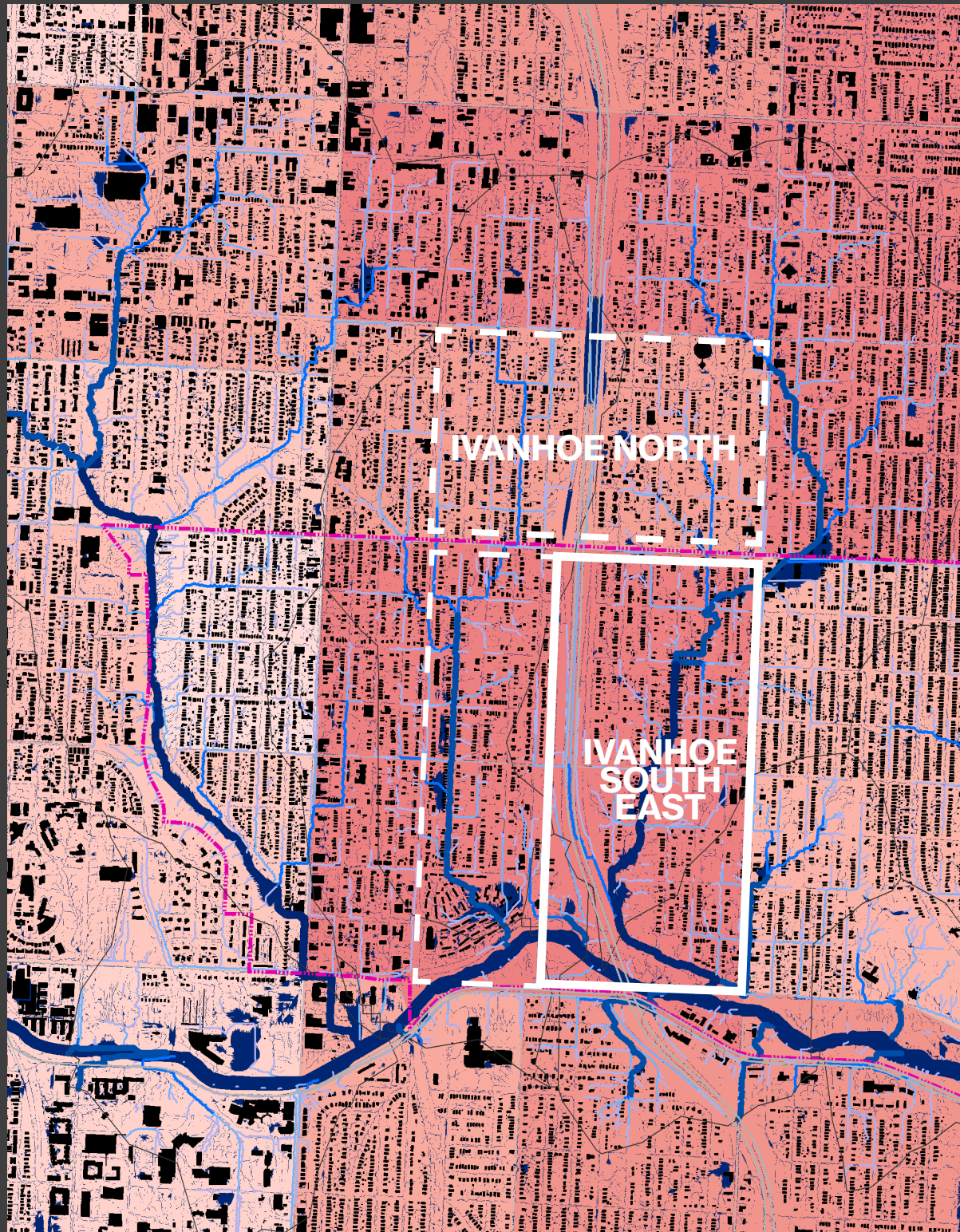


Figure 3-13. High Social-Ecological Vulnerability Disparities between neighborhoods adjacent to Brush Creek



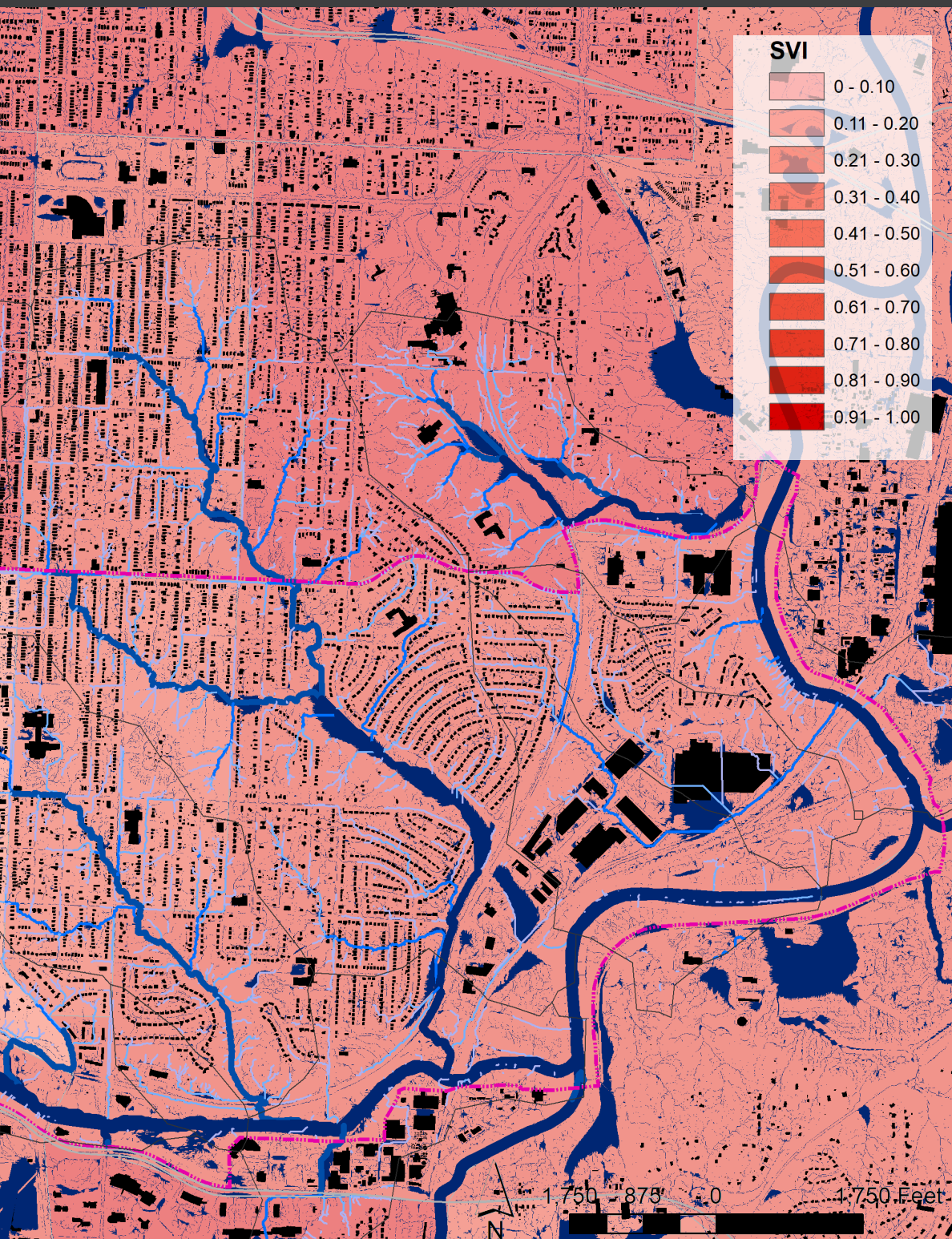






Figure 3-14. Study Site Within Larger Context of Kansas City



### 3.3 SITE SELECTION

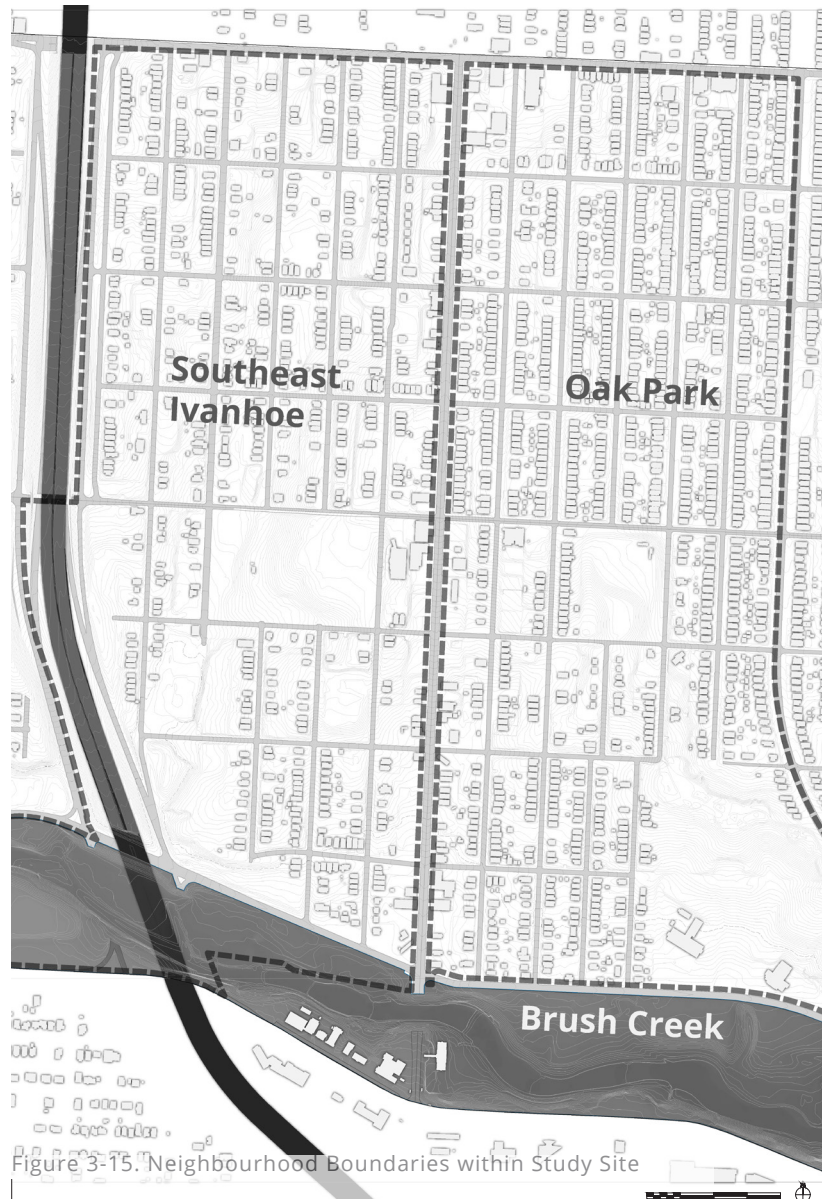


Figure 3-15. Neighbourhood Boundaries within Study Site

#### 3.3.1 WHY IVANHOE NEIGHBORHOOD?

The target location is the Ivanhoe neighborhoods south of 39th Street and north of Emanuel Cleaver Boulevard. The disparity of social vulnerability is 75% between east and west of Troost Ave. The southern portions of the Ivanhoe neighborhoods have the highest social vulnerability score of 0.9292, and the neighborhood just west of Troost receives a score of 0.1806 (see Figure 3-13). Additionally, it has the highest potential for gentrification,

highest concentration of vacant lots, and least amount of permeable surfaces along the urban runoff stream corridor (See Figure 3.13), the least amount of accessible green space; largest surface area of impervious surfaces that flows into Ivanhoe South from other neighborhoods. Forman's (1995) Patch-Corridor-Matrix model was applied in the process of selection that corresponds with the study site conditions.

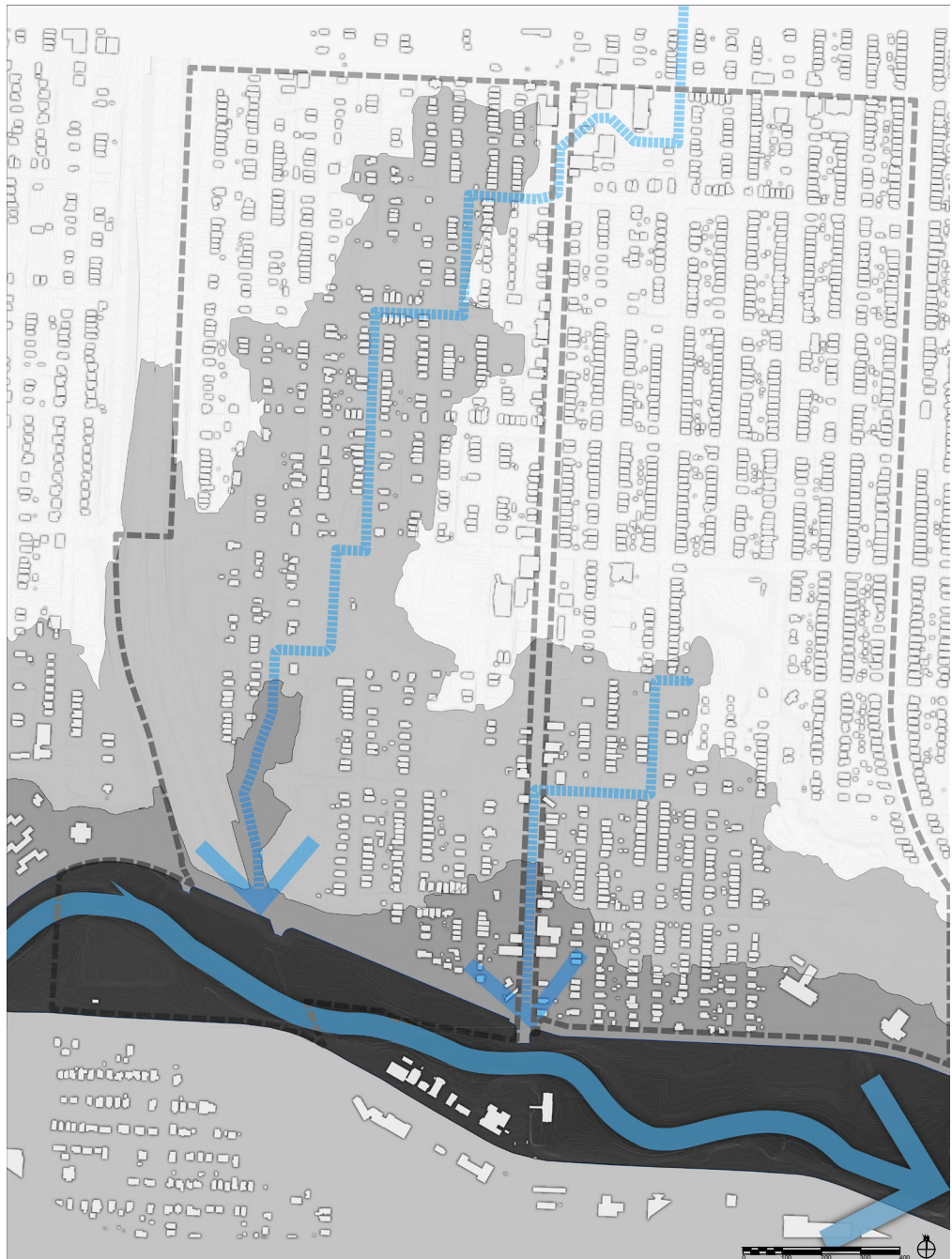


Figure 3-16. Movement of Water in Sub-watersheds into Brush Creek

The major hydrological corridors (see Figure 3-16) and the major vehicular corridors (see Figure 3-17) have further defined the space. They range in scales from a high accumulation of water in the Brush Creek greenway that branches off into the sub-watershed ephemeral stream bed, which then branches off to points of lesser accumulation and stream power. Similarly, the vehicular

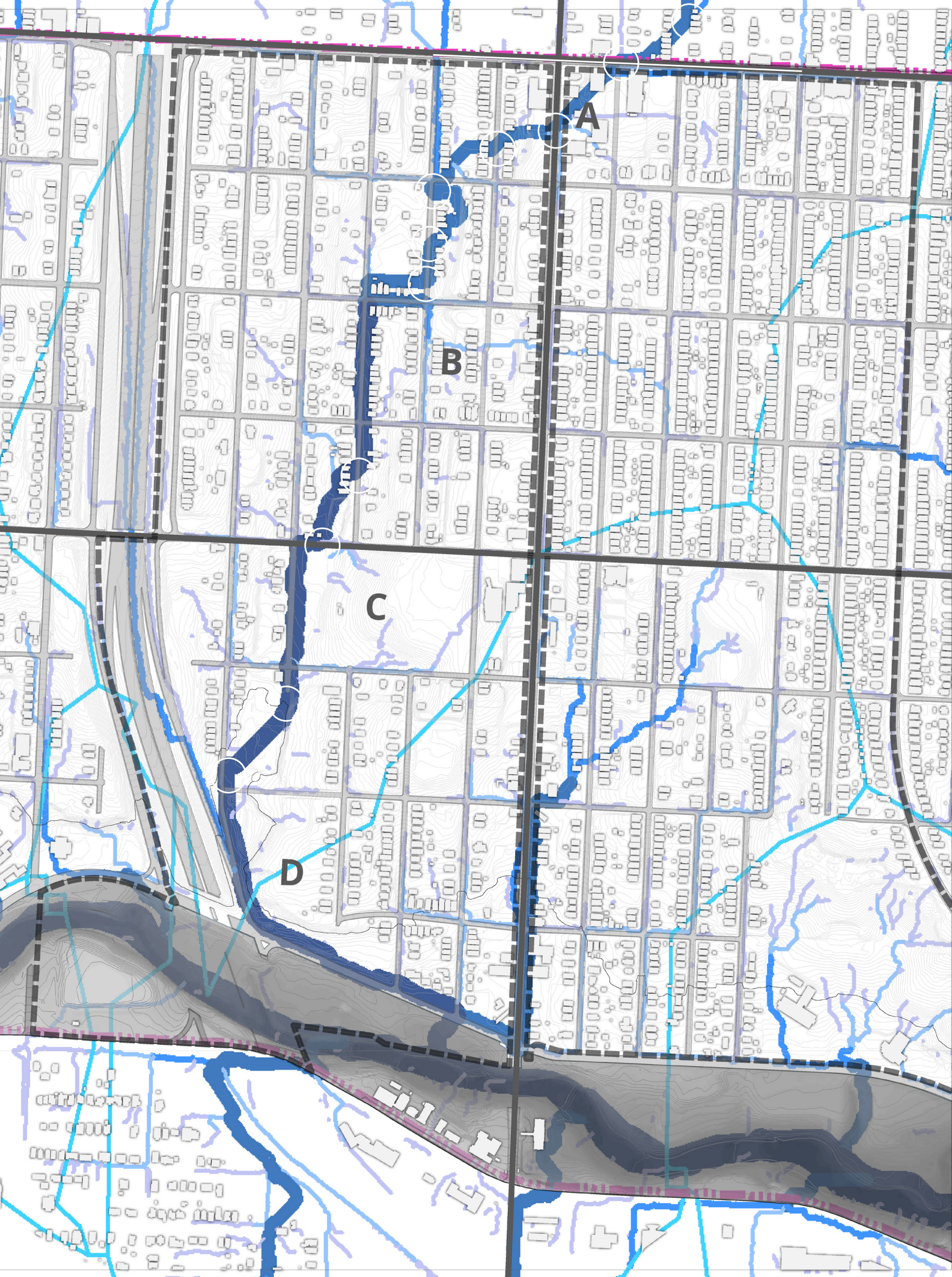




Figure 3-17. Street Hierarchy Map Showing Major North-South and East-West Vehicular Movement.

corridors range in scale from an eight-lane highway to a four-lane thoroughfare on Emanuel Cleaver Boulevard to a significant two-lane commercial corridor on north-south street Prospect Avenue. These two corridors are often incompatible. With the watershed cutting diagonally through the neighborhoods and the streets running east-west, there is potential for conflicts.







### 3.3.2 Topographical Water Studies

This watershed is highly varying in its topography with steep slopes. So, it was necessary to know where water accumulates, and where it pools. Using a high resolution ( 3 meter per pixel) Digital Elevation Model (DEM) two key maps were created to understand how rain water runoff accumulates on the site: the Stream Power Index and the Compound Topographic Index.

#### Stream Power Index:

Using DEM and raster data, the Stream Power Index (SPI) was calculated to determine the locations of high erosive power. Stream Power Index takes into account raster data on catchment area and slope gradient:

SPI is defined by the following equation:  $\ln [a \cdot \tan \beta]$ , where:

$a$  represents the catchment area per pixel

$\beta$  refers to the slope, in degrees]

(Danielson 2013).

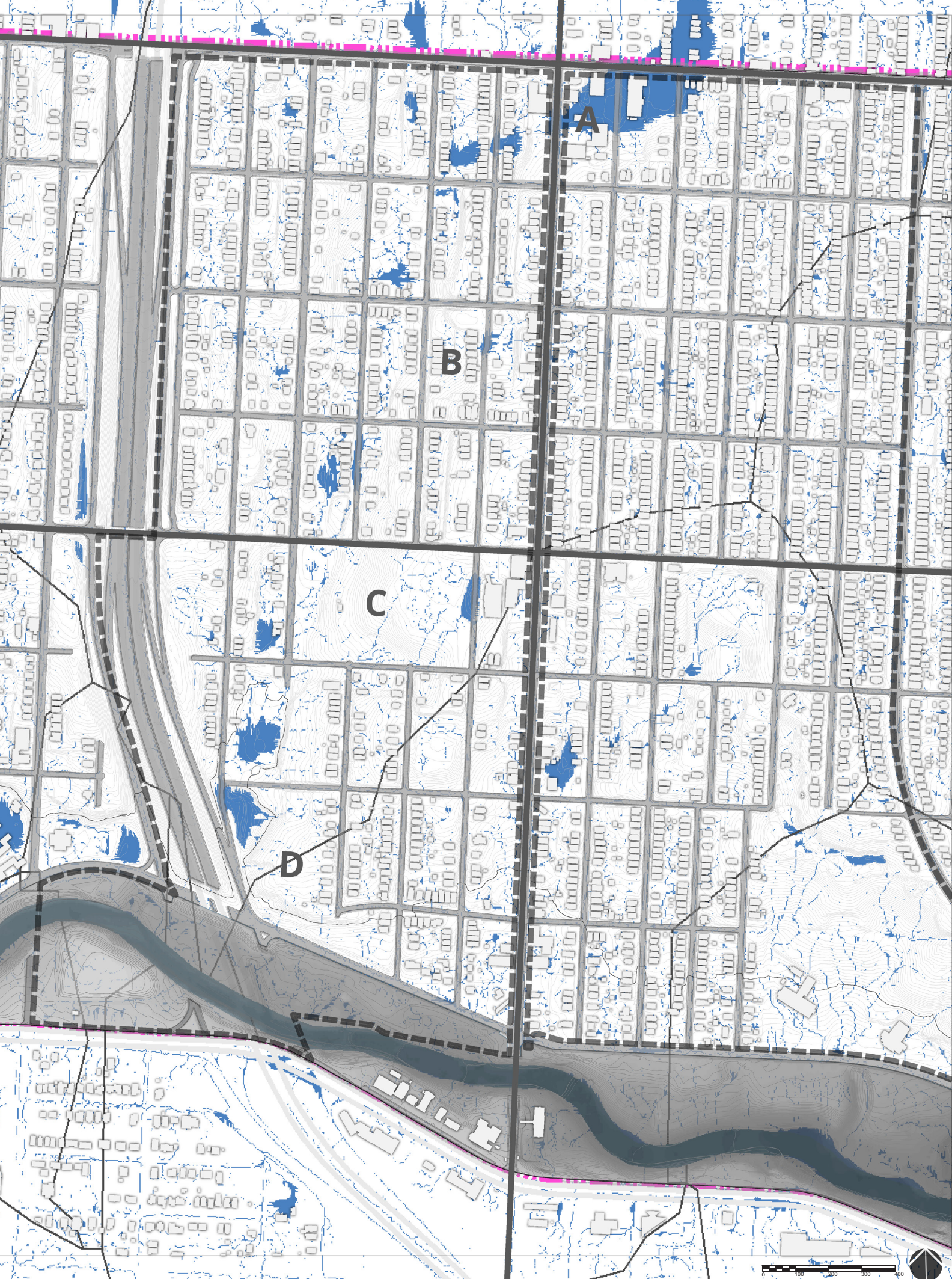
For this data to be presented graphically, it was then reduced to the .0004 percentile and then classified into 8 levels. Each level was distinguished by a gradient of color and the pixel grid area was exaggerated in scale two times the value of each level.

The Stream Power Index indicates that the majority of the highest .0001 percentile of this sub-watershed conforms to the street grid of inorganic formation and runs diagonally to the cardinal organization of the street matrix. Given this organization, the street crisscrosses through the sub-watershed stream bed, creating points of erosion debris and sediment accumulation.



Figure 3-18. Stream Power







## Compound Topographic Index

In a similar map the Compound Topographic Index calculates the soil wetness based on the elevation points of every three square meters throughout the watershed. Areas with low CTI values represent places with small catchments, and steep slopes or hills. Areas with high CTI values represent places with large catchments, and gentle slopes.

CTI is defined by the following equation:  $\ln [a/\tan \beta]$ , where:

$a$  represents the catchment area per pixel

$\beta$  refers to the slope, in degrees

(Mattivi, 2019).

These areas located along streets or other impervious surfaces are vulnerable to pooling or even flooding if they are not controlled and drained properly. Draining these areas in natural ways can reduce stress on stormwater sewers and mitigate the chances of stormwater overflow during major storms. They are used in this study to find locations where green stormwater infrastructure management strategies may be best implemented to protect the Southeast Ivanhoe residents from damages to their properties. Thus, making them more resilient to the increased development.

CTI

Very Wet

Figure 3-19. Compound Topographic Map (The data in the CTI data altered for visibility to only represent the soil wetness above the 75th percentile).





- Permeable
- Permeable [Park]
- Permeable [Vacant Lot]
- Impervious Surfaces





Figure 3-20. Stream Classification by Land Use

Figure 3-21. 39th and Prospect

Figure 3-22. 41st and Park Ave

Figure 3-23. 43rd and Brooklyn Ave

Figure 3-24. 44th and Garfield Ave



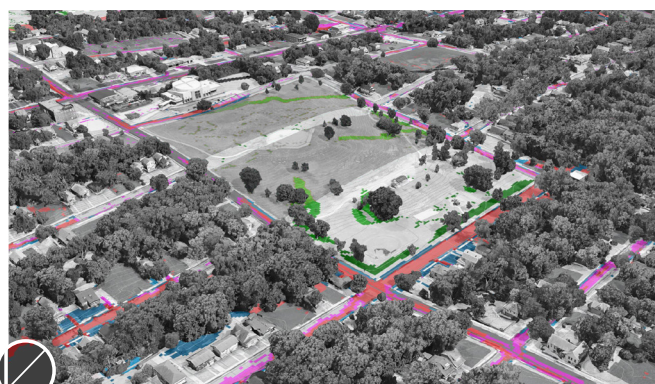
### 39TH AND PROSPECT

This portion of the sub-watershed is identified by containing the highest amount of impervious surfaces areas not on a street. Containing large areas of concrete and a clustering of large sized buildings. It also has been classified as very wet by the Compound Topographic Index. It shows high erosion vulnerability as rainwater flows through the site from steep slopes on all sides. This site has high potential to reduce overflow downstream by minimizing the amount of impervious surface, and catching, slowing, infiltrating and filtering stormwater on-site.



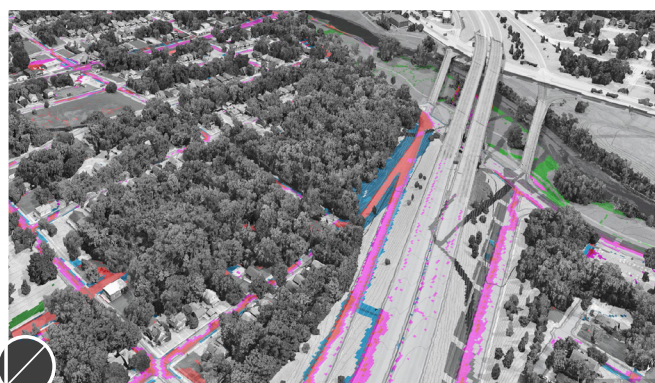
### 41ST AND PARK AVE

This intersection is a point of transition from a block with the highest amount of vacant land to a block with the lowest land vacancy. Topographically it is at the low point of the watershed, but the elevation changes drastically within three blocks. The homes and streets create terraces that make narrow catchment areas for runoff to accumulate. Vacant lots help slow down the water and allow it to infiltrate into the soil before running into grassed swales (or naturalized bioswales) along the back yards of homes in one of the most densely developed streets in South Ivanhoe.



### 43RD AND BROOKLYN

This intersection is at the low point of the watershed where street runoff meets open green space. This park has the opportunity to capture, infiltrate, and filter the water running off the street slowing it down before it enters the Brush Creek.



### 44TH AND BROOKLYN

This site is a critical point for stormwater infrastructure because it has two major intersection points of stormwater runoff: the Southeast Ivanhoe street runoff and the other from Highway 71 street runoff. This site is also the final stretch of land before the stormwater runs off into a major water body. This strategically located site has the opportunity to protect and restore water quality by slowing infiltrating and filtering stormwater before it enters Brush Creek.



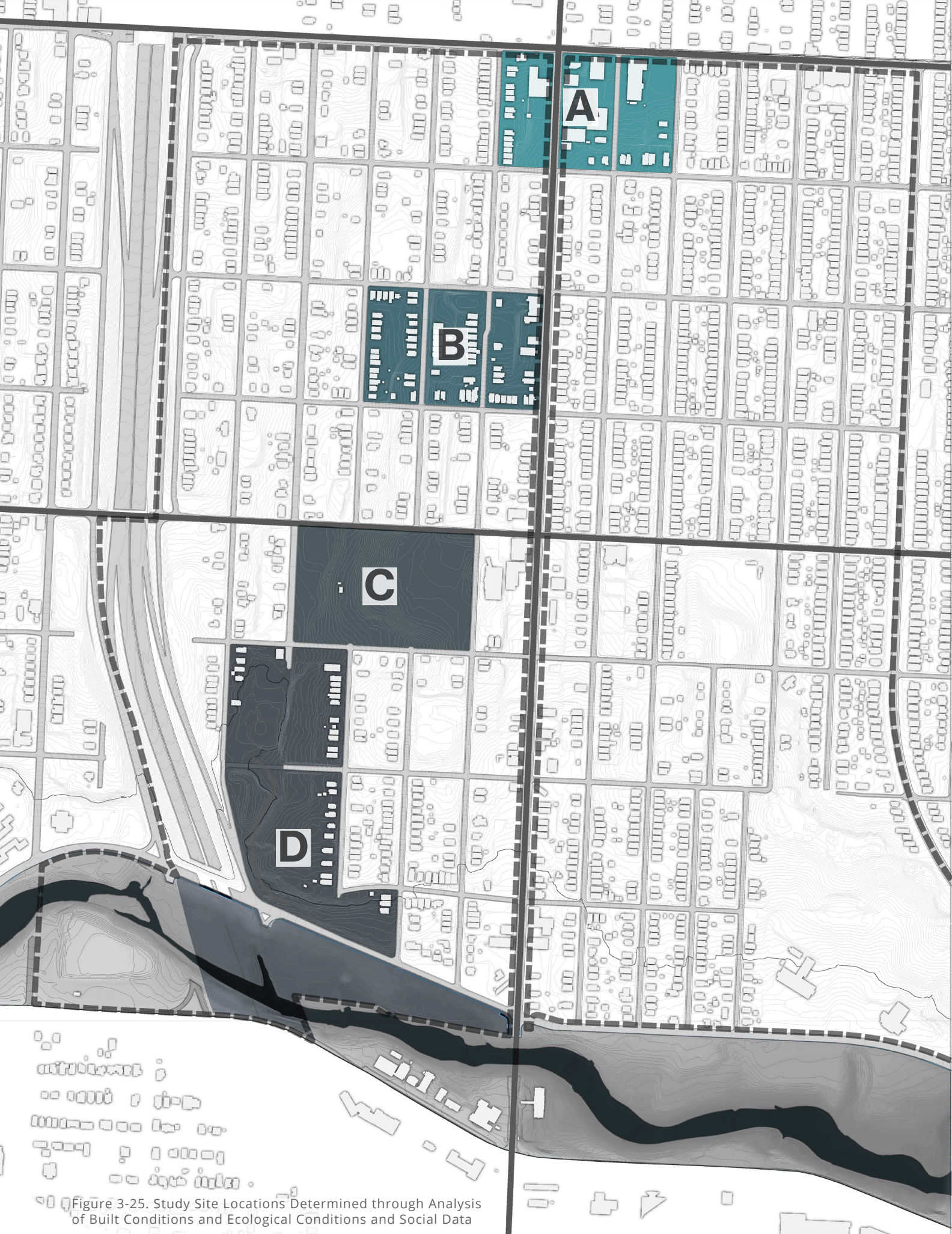


Figure 3-25. Study Site Locations Determined through Analysis of Built Conditions and Ecological Conditions and Social Data

Four types of locations were selected for design based on analysis (see Figure 3-25 ) by the following characteristics:

1. Located within the Ivanhoe community's most vulnerable quadrant, separated by two significant social and physical barriers: Troost Ave and east of Highway 71.
2. Located in a site of high Compound Topographic Index, which is vulnerable to flooding.
3. Located along the Stream Power Index path, which causes it to be most vulnerable to erosion.
4. Located downstream of the largest Brush Creek sub-watersheds east of Troost Ave.
5. Being mentioned frequently by interviewed community members.
6. Adjacency to a street or node with a high volume of traffic.
7. Adjacency to a social asset or landmark that is important to the image of Ivanhoe.
8. Having a range of different types of land use or districts: commercial, residential, park, open space, and vacant.
9. Being either a greyfield, infill site, greenfield, floodplain, or a park.
10. Provides highly attractive public landscape amenities readily accessible to local community members.





# C H A P T E R   F O U R

## 4

### **ANALYSIS + FINDINGS**

## 4 ANALYSIS + FINDINGS OVERVIEW

A framework for designing for place attachment and green stormwater management is laid out in this chapter. Findings from the literature review and the precedent studies are united with insights from the Ivanhoe Neighborhood, gathered from the interviews and site analysis. By unifying the foundational knowledge to the study site findings, the third stage of the project is possible: design application. Design criteria and elements that bolster local economies help develop the necessary infrastructure to restore and infiltrate natural water cycles, create healthy water cycles, and preserve and grow exiting residents' attachment to place. Applying these criteria through a projective design demonstrates how greater place attachment can be achieved by protecting and building upon the community's social and natural assets.

### GOALS

#### RESEARCH

Examine and analyze social and ecological vulnerability across urban landscapes, and ensure that green infrastructure not only builds resilience equitably but is justice enhancing by prioritizing neighborhoods with higher social and ecological vulnerability.

#### ANALYSIS

Analyze Ivanhoe community for their vulnerability to gentrification and displacement, identifying drivers of climate injustice.

#### DESIGN

Demonstrate to community leaders how greater place attachment can be achieved in the Ivanhoe neighborhood by applying green stormwater infrastructure using creative placemaking strategies.

## OBJECTIVE 1

UNDERSTAND THE HIGHEST THREATS THAT MAKE IVANHOE RESIDENTS SOCIALLY, ECONOMICALLY, AND ECOLOGICALLY VULNERABLE TO DISPLACEMENT.

## SOCIAL DEMOGRAPHICS

1. Socio-economic Status
2. Disability status
3. Household
4. Transportation Accessibility

## STORMWATER MANAGEMENT

1. Watershed Studies
2. Erosion Potential
3. Flooding Potential
4. Vacant land

## OBJECTIVE 2

UNDERSTAND WHAT SOCIAL PROCESSES, SOCIAL CAPITAL, AND ASSETS EXIST IN THE CITY AND HOW TO PROTECT AND SUPPORT THEM THROUGH DESIGN AND PLANNING.

## SOCIAL PROCESSES

PROCESSES THAT ARE CONSIDERED INCLUDE CHANGES THAT HAVE BEEN OCCURRING IN THE NEIGHBORHOOD.

## SOCIAL CAPITAL / ASSETS

SOCIAL CAPITAL IS WHAT MAKES THE NEIGHBORHOOD MORE CONNECTED. SOCIAL ASSETS INCLUDE PLACES, ORGANIZATIONS, AND PEOPLE THAT ARE VALUED BY THE COMMUNITY.

## OBJECTIVE 3

UNDERSTAND WHAT HYDROLOGICAL PROCESSES, NATURAL CAPITAL, AND ASSETS EXIST IN THE CITY AND HOW TO SUPPORT THEM THROUGH DESIGN AND PLANNING STRATEGIES.

## ECOLOGICAL PROCESSES

ECOLOGICAL PROCESSES THAT ARE STUDIED ARE HYDROLOGY, THE WATER CYCLE, AND ISSUES RELATED TO CLIMATE CHANGE THAT COULD LEAD TO THE DISPLACEMENT OF THE COMMUNITY AND CAUSE DAMAGES TO THE PROPERTY.

## NATURAL CAPITAL / ASSETS

NATURAL CAPITAL INCLUDE OUTDOOR SPACES THAT ARE VALUED BY THE COMMUNITY OF IVANHOE.

## OBJECTIVE 4

EXPLORE POSSIBLE DESIGN APPLICATIONS THAT RESPOND TO SOCIO-ECONOMIC PROCESSES BY SUPPORTING ABIOTIC, BIOTIC, AND CULTURAL FUNCTIONS AND IMPROVING IVANHOE'S SENSE OF PLACE.

## SOCIO-CULTURAL SERVICES

APPLY DESIGN STRATEGIES AND CRITERIA FROM THE FRAMEWORK TO THE SITE.

## ECOLOGICAL SERVICES

APPLY DESIGN STRATEGIES AND CRITERIA FROM THE FRAMEWORK TO THE SITE.

# 4.1 SOCIAL DATA ANALYSIS

Each interview went through three phases of analysis. First, the audio was transcribed with key ideas in bold text. Secondly, the main ideas and keywords were extracted from the transcript (see Figure 4-1). Third, common or shared ideas and words were compared with other interviewees' responses to find overlapping ideas. Direct quotes were transcribed to supplement synthesized information and emphasize important points (see Appendix B). Once all interviews were analyzed and the main ideas from the responses extracted, the synthesized data was organized into a framework that helps guide the projective design.

## SUBJECT BACKGROUND

SUBJECT 1

Ivanhoe Community Leader and Longtime Resident of Ivanhoe

SUBJECT 2

Second Generation Ivanhoe Resident, Small Business Owner, and Property Owner

SUBJECT 3

Non-Resident, but Lives in Adjacent Neighborhood. Ivanhoe Church Member and on Staff Worker

SUBJECT 4

Longtime Staff Member of Daycare Center in Ivanhoe, and grew up in the neighborhood.

SUBJECT 5

Ivanhoe Community Leader and Recent Resident of Ivanhoe Neighborhood

Figure 4-1. Semi-structured interviews and frequent words

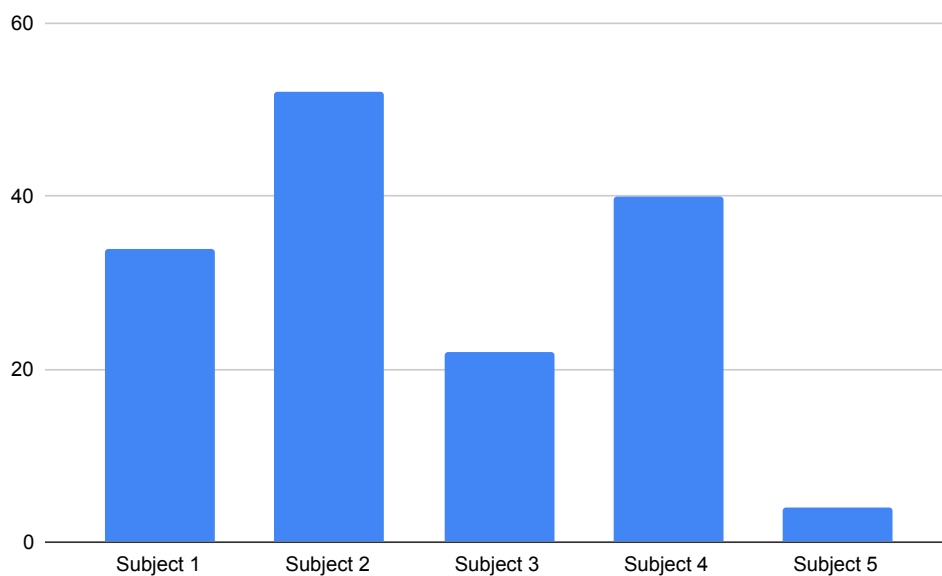


Figure 4-2. Subject Involvement with Ivanhoe

#### FREQUENT KEYWORDS

PROPERTY VALUE IVANHOE PARK IMPORTANCE OF COMMUNITY	<div>Top 5 of 1282</div> <div>BRUSH CREEK</div> <div>LYNWOOD</div> <div>IVANHOE PARK</div> <div>VACANT HOUSE</div> <div>39TH STREET</div>
PROPERTY VALUE HARRIS PARK BAD NEIGHBORHOOD	
BUS LINE BUILDING LACK OF VISIBILITY	
HOUSE BUILT NEW HOME OLD HOME	
NEW HOUSING SENSE OF COMMUNITY TRANSFER OF INFORMATION	

# 4.1.1. Interview Responses Categorization

Interview responses are orgnaized under five major catagories ( See Figure 4-3) that are listed below:

## IDENTITY

### FAVORITE CHARACTERISTICS OF IVANHOE

- 1. Location and Proximity:
- 2. Change and New Development:
- 3. Parks and Social Spaces

#### Discussion:

Residents frequently mention the proximity, location, or overall access of the neighborhood to surrounding assets in Kansas City as their favorite characteristic. The location of Highway 71 was mentioned as both an asset for access but also a feature that has caused much devastation and division of the neighborhood. Further, the residents tend to view the Ivanhoe community and its social cohesion as a significant asset. It is not static but is evolving, developing, growing, and is poised for future opportunities and success. This progress and development is clear to the residents of the neighborhood and has gained “visibility” or prominence by the rest of the City. Third, beyond these social and community characteristics, specific social spaces like parks and churches were highly valued.

### LEAST FAVORITE CHARACTERISTICS

- 1. Rising Property Values
- 2. Stigma Associated with Conditions of Vacant, Old, and Neglected Homes Lots, and Infrastructure
- 3. Lack of Walkability

#### Discussion:

Subjects' responses of their least favorite characteristics tended to be linked to the previously mentioned assets. They tended to focus on the things that could threaten these assets. The most frequently voiced concerns were related to the characteristics that negatively contributed to the neighborhood's reputation. Subjects frequently mentioned a stigma that the neighborhood is not a good or safe place to live and raise a family. The neighborhood is also considered to be located in a "bad" school district that further deters prospective families from moving to the neighborhood. Common themes that support this stigma are neglect (such as neglected and blighted properties, vacant lots, vacant homes, and city property) and unlawful activity (such as vandalism, dumping of waste, crime, violence, squatters occupants within vacant properties).

The third characteristic linked to the communities' assets is associated with circulation and connectivity. The high volumes and speed at which vehicular traffic flows through the site as arterial roadways diminish the neighborhood's quality and character. The vehicular traffic coupled with deteriorating and disjointed pedestrian sidewalk and pathway infrastructure have made Ivanhoe challenging to walk through.

## IMAGE

### POSITIVE CHARACTERISTICS

- 1. Parks + Community Gardens
- 2. New Developments
- 3. Visual Sense of Community

### NEGATIVE CHARACTERISTICS

- 1. City Community Neglecting Vacant Lots + Homes,
- 2. City Allowing Deterioration + Illegal Activity + Dumping
- 3. Neglected Lots are Negatively Representing Community

#### Discussion:

Neglect is associated with the image of the neighborhood and contributes to the stigma of the neighborhood. The city neglects vacant lots and homes, allowing them to deteriorate (letting the grass grow + letting residents illegally dump their trash there). Neglect causes a visual deterrent + reflects badly on the community.

## DEPENDABILITY

### CHARACTERISTICS THAT **STRENGTHEN** IVANHOE IDENTITY

- 1. Pride in Neighborhood
- 2. Sense of Community
- 3. Families

### CHARACTERISTICS THAT **THREATEN** IVANHOE IDENTITY

- 1. Stigma
- 2. Neglect
- 3. Crime
- 4. Lack of Walkability

## CHANGE

- 1. Community wants Diverse, Inclusive, and Equitable Growth
- 2. Excited or New Diverse Residents +New Diverse Housing
- 3. Concerned about Affordability for Lower-Income Residents
- 4. Concerned about Loosing Sense of Community

#### Discussion:

Residents are mostly optimistic about the future of the community. They believe it is possible to preserve the community's identity if there is an effort to grow with the community as a whole. This growth means inclusive of everyone and creates an environment that promotes diversity “across the board”.

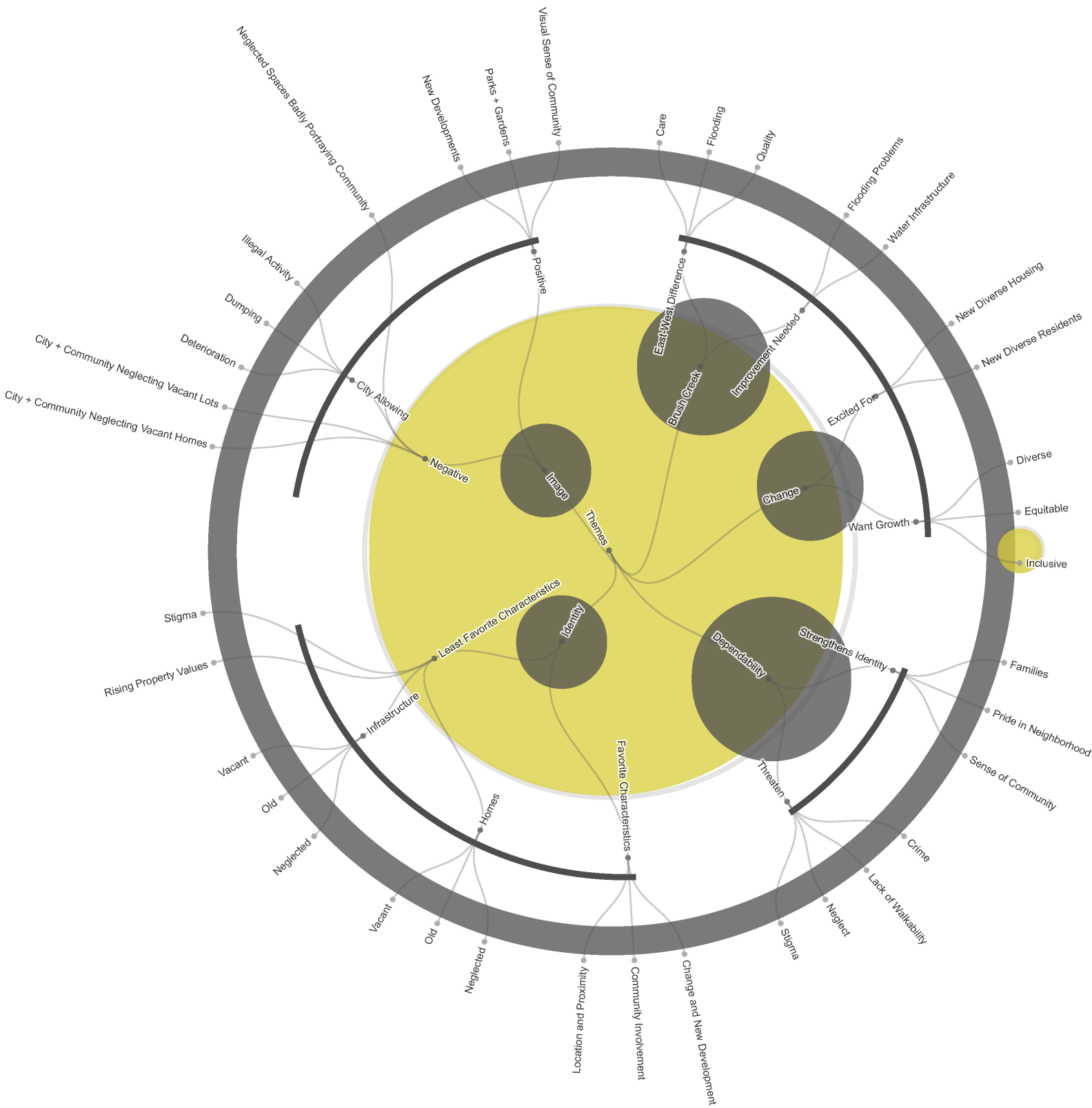


Figure 4-3. Subjects Responses Organized by Place Attachment Themes



## 4.1.2. Extracted Themes

Organization of interview responses helped with extracting major themes that could lead to more tangible concept that are translatable to planning and design solutions. The themes are listed below. See Figure 4-4 for making the linkage between place attachment and the extracted interview themes.

### **SOCIAL PROCESSES + CONCERNS**

#### **SENSE OF COMMUNITY**

COMMUNITY INVOLVEMENT  
COLLECTIVE POWER  
SENSE OF COMMUNITY + COLLECTIVE ACTION  
VISUAL SENSE OF COMMUNITY

#### **STIGMA OF NEGLECT**

VACANT + OLD + NEGLECTED: HOMES, LOTS, INFRASTRUCTURE  
CITY NEGLECTING VACANT LOTS + HOMES,  
CITY ALLOWING DETERIORATION + ILLEGAL ACTIVITY  
NEGLECT CAUSES VISUAL DETERRENT + REFLECTS BADLY  
ON COMMUNITY.  
EAST WEST OF TROOST DIFFERENCE IN CARE, QUALITY, AND  
FLOODING.

#### **CHANGING LOCAL ECONOMY**

RIISING PROPERTY VALUES  
ECONOMIC JUNCTURE: FLUX OF WEALTH  
CHARACTER + AFFORDABILITY OF HOMES  
AFFORDABILITY FOR LOWER-INCOME RESIDENTS  
LOOSING SENSE OF COMMUNITY

#### **DIVERSE + INCLUSIVE GROWTH**

SOCIAL JUNCTURE: FLUX OF DIVERSITY  
NEW DIVERSE RESIDENTS + NEW DIVERSE HOUSING  
DIVERSE + INCLUSIVE GROWTH  
INCREMENTAL + BALANCED GROWTH

#### **STIGMA OF CRIME + ILLEGAL ACTIVITY**

VIOLENCE + CRIME  
CRIME + BAD NEIGHBORHOOD

#### **PRIDE+RESPECT**

PRIDE IN NEIGHBORHOOD  
INCLUSIVENESS + PRIDE

### **PHYSICAL BUILT ASSETS + CHALLENGES**

#### **HOUSING + PROPERTY**

#### **CIRCULATION + CONNECTIVITY**

LOCATION + PROXIMITY  
POOR WALKABILITY + CONNECTIVITY, TRAFFIC

#### **PARKS+SOCIAL SPACES**

#### **WATER INFRASTRUCTURE**

#### **NEW DEVELOPMENT**

CHANGING + DEVELOPING  
NEW DEVELOPMENTS

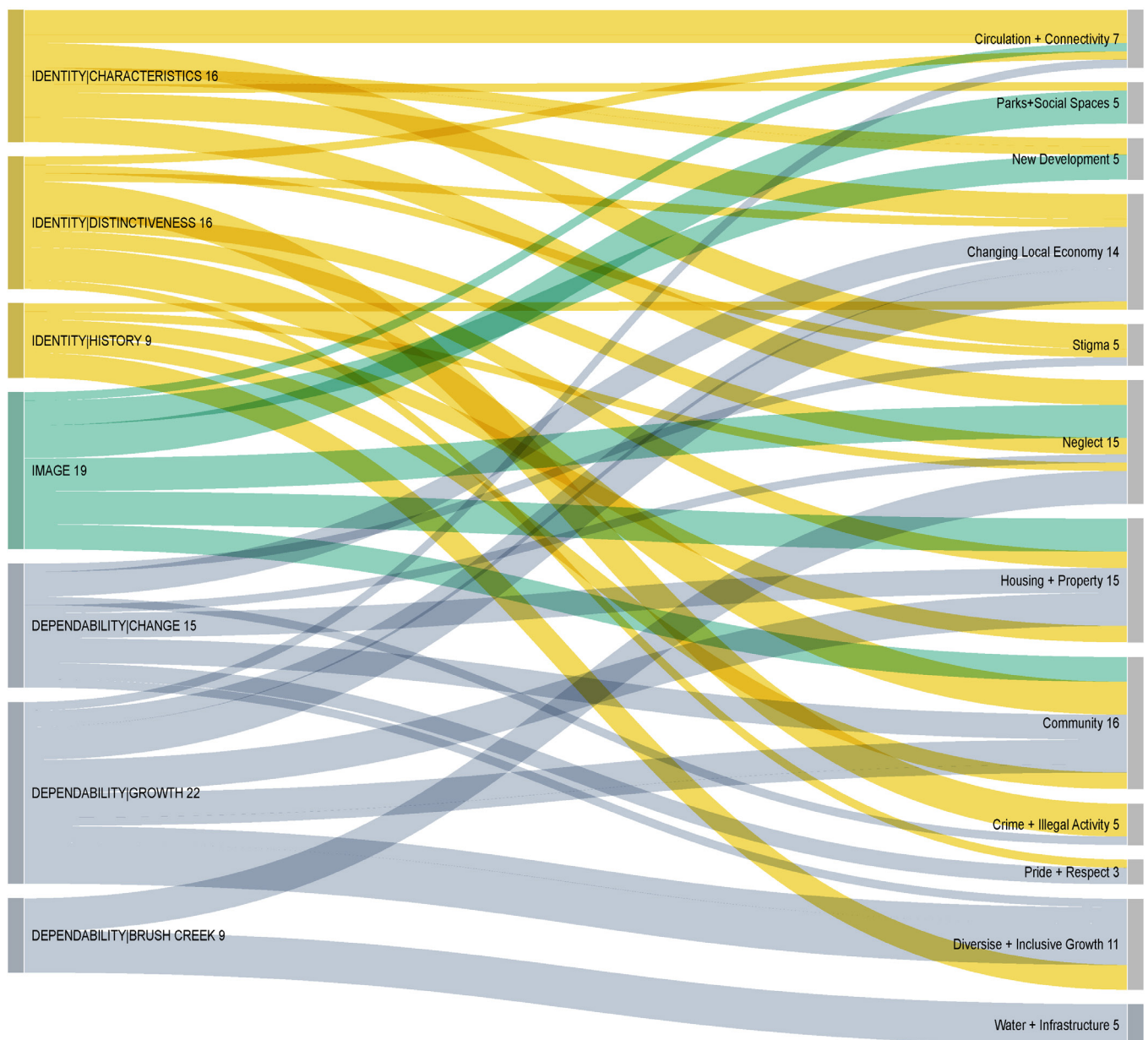


Figure 4-4. Associations Between Place Attachment Criteria and Interview Themes

## 4.2. SYNTHESIS

Through the application of the knowledge gained from the literature review, precedent studies, and interviews of longtime Ivanhoe residents, framework for design was created. The application and criteria in this framework are organized around four objectives to create equitable growth, improve social capital, improve surrounding land and property and bolster economic growth (see Figure 4.5).

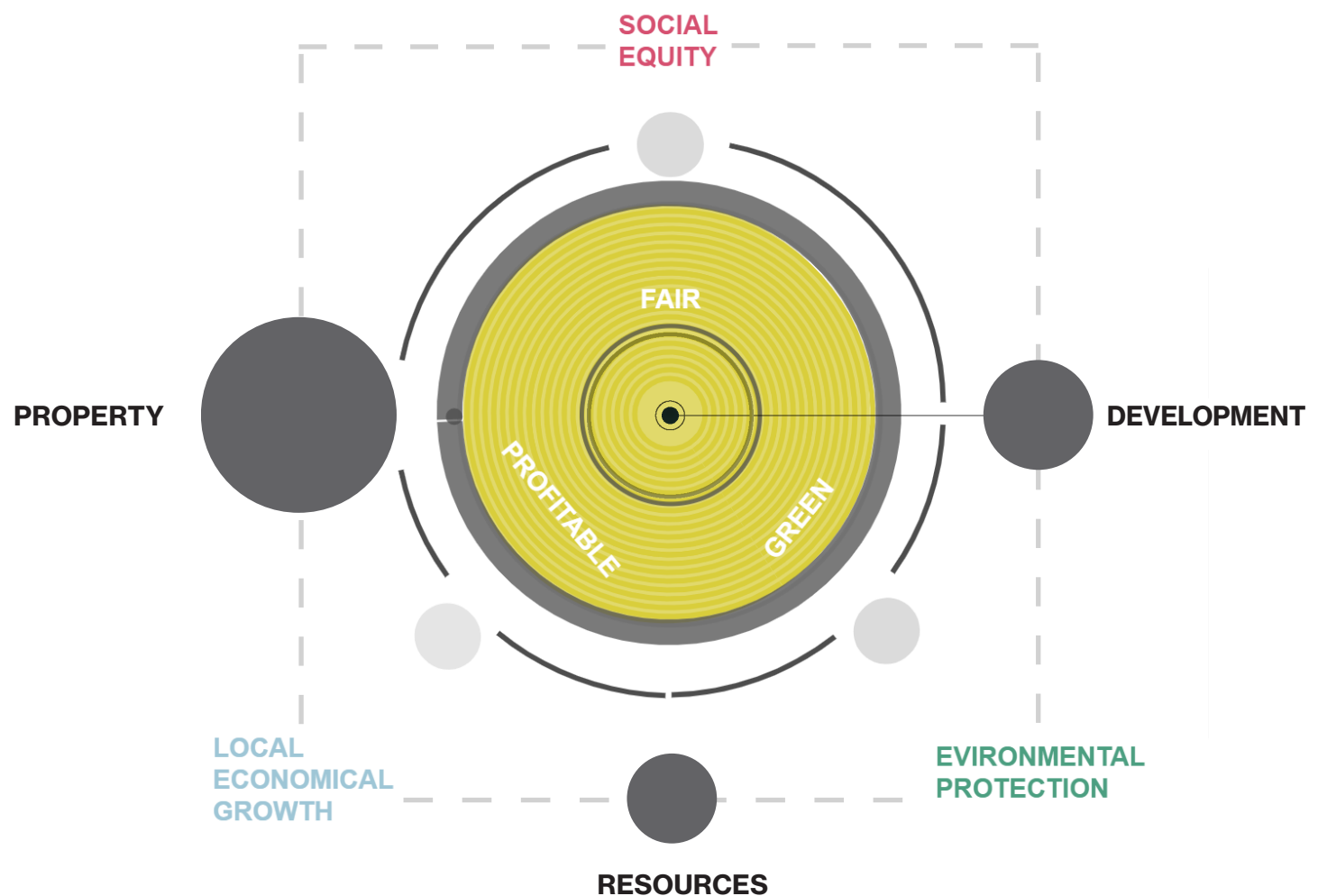


Figure 4-5. Foundational Theory Organizing Design Framework

## 4.2.1 Application to Study

Through the synthesis of literature and precedents, design criteria have been applied to the major themes from the interviews. Co-Benefits provided through green infrastructure and corresponding design interventions to attain these benefits are compiled in the lists below.

### EQUITABLE GROWTH

- Retention/attraction of graduates and a skilled workforce
- Improved access to greenspace for formal and informal recreation.
- Greater tourism and leisure expenditure.
- Reduced cost to health services.
- Improved access to greenspace for formal and informal recreation.
- Investment in public realm and greenspace creation and improvements.
- Provision of improved/new recreational facilities.
- Woodland and other habitat creation and conservation.
- Cycleway and footpath provision.
- Networking of Green Infrastructure to allow for accessibility from residential to employment /service
- Improve quality of greenspace and ecosystems.

### SOCIAL CAPITAL

- Protecting and enhancing the natural environment that reinforces character of place and local distinctiveness.
- Managing roadside/transport corridors for more ecological benefit.
- Habitat creation, increasing opportunities for wildlife for local communities.
- Joining up of communities with greenspace and green arteries linking communities with services.
- Tree planting in strategic locations along road and rail arterial routes.
- Investment in parks, public realm and recreational facilities.
- Greenspace investment.
- Street tree planting.

### ECONOMIC GROWTH

- Added value industry attracted to an area, creating additional employment and increasing income levels.
- Increased occupancy of industrial/business and commercial units.
- Increased property prices and rental values.
- Higher-skilled workers/graduates attracted or retained.
- Reduced land management costs.
- Land values of commercial sites on former brownfield land with high landscape quality exceed those of commercial sites without landscape measures
- Higher value business attracted to an area, stimulating higher gross value added

### LAND + PROPERTY

- Increased investment in neighborhoods.
- Increased land and property prices.
- Increased land values.
- Increased rental incomes.
- Reduced image related investment blight.
- Public realm improvements and maintenance (e.g. urban squares, gardens, and pocket parks).
- Green business parks.
- Habitat creation – woodland, wetland, meadows – adding interest and distinctiveness.
- Better provision for wildlife by businesses – business park environments, corporate social responsibility.
- Better marketing of local values and distinctiveness.
- Greenspace provision /improvement / maintenance.
- Canal-side / waterway enhancement / maintenance.

## 4.2.1 Key Locations

Key locations within the Southeast Ivanhoe study area have been extracted from the interviews for frequently being mentioned for their association with the neighborhood's identity, image, dependence, and experience. Associations with the site have been classified as a positive or negative characteristic by following symbols:

- + **Positive Characteristic**
- **Negative Characteristic**

### A) 39th + Prospect:

- + Historically, this was a thriving corner it held car dealerships, local businesses, and a movie theater until the 80s when "the wealth left the area."
- + The Mount Vernon Missionary Baptist Church, frequently noted as a positive influence on the community in the interviews, owns several buildings within this block for fellowship and religious gatherings.
- + New key developments in this intersection, including the bus stops and the Aldi's, represent the resident's favorite characteristic of Ivanhoe.
- High volumes of traffic flow through 39th Street at high speeds and are used as a thoroughfare street. This has been mentioned as a negative influence on the neighborhood's sense of place and safety concerns crossing the street.

### B) Residential Homes + Properties

- + The unique homes within the Ivanhoe neighborhood give it the character that makes residents attached to this neighborhood. Their uniqueness is characterized by their various colors and materials of homes, their old age (over 100 years), and their unique spatial clusterings within each block.
- Community is neglecting vacant lots and homes which are negatively representing the community. These neglected properties are causes visual deterrent and are associated with the neighborhood's image. They reflect badly on the community as a whole and contribute to the stigma of the neighborhood.
- City is allowing deterioration, illegal activity, and dumping within vacant properties and public land. The city is neglecting vacant lots and homes, allowing them to deteriorate, letting the grass grow, and letting residents illegally dump their trash there.

### C) Ivanhoe Park

- + Ivanhoe Park is associated with the sense of community that exists within the neighborhood. The narrative of this site has created a dramatic change in the neighborhood. The site changed from a park frequented by drug dealers, nicknamed "Brooklyn Corner" in the 80s and 90s, to a community-oriented space mentioned most frequently by subjects as a popular place to gather.
- + Public perception of the park transformed as improvements were made over the last 15 years.
- + It hosts community events with and community organizations that aim to provide support and services for those who need it.
- It was mentioned for its extreme heat during summer months and was proposed as a good location for a splash pad

### D) Brush Creek

- + Recreational uses of the brush creek was found to benefit the community. Bush Creek hosts events and activities like the Fishing Derby.
- Residents who have witnessed significant flooding of the Brush Creek and upland and think water infrastructure is an ongoing issue and needs improvement.
- Most subjects Compared east and west Troost as a significant difference in care along the Brush Creek.
- Although Brush Creek was mentioned for its problems with flooding, subjects are not concerned or less concerned about the security or quality of water. They are primarily concerned about neglect, quality of care, and maintenance. They are also worried about how it reflects on the whole community





Figure 4-6. Key Locations Mentioned in Interviews

C H A P T E R   F I V E

5

# **DESIGN APPLICATION**







## **5. DESIGN APPLICATION**

The Southeast Ivanhoe neighborhood is envisioned as a critical location for social, economic, and environmental vulnerabilities and portentials. The area was studied for its hydrological and social significance in identifying processes and assets that define these neighborhoods. These conditions were classified as opportunities and constraints for equitable placemaking. Through the compilation of findings from the literature, precedents, and interviews, design strategies have been formed that guide projective design. At a master plan, corridor and site scale strategic interventions aim to build the necessary social and ecological infrastructure that can protect and bolster the community for future growth.

## 5.1 MASTERPLAN DESIGN

### 5.1.1 FOCUS AREAS

Four sites are selected for their relevance from the interview with Ivanhoe residents. Each site has specific importance for resident's place attachment. The second consideration is its adjacency to a major street within the community to address traffic calming issues. These sites are ecologically significant because of their location on the lower portion of the watershed along the path of greatest rainwater accumulation, where erosion and flooding are most likely to occur. Economically, these sites can increase the property values of the vacant lots and draw new residents that are influenced by the surrounding land values. This new investment in the neighborhood's ecological and social infrastructure could draw a new income level. That would diversify the area, although the surrounding properties are likely to benefit from the increased pricing.

### 5.1.2 STORMWATER MANAGEMENT STRATEGIES

The four focus areas mitigate stormwater runoff is using strategies recommended by the "Sustainable Sites Handbook" (Calkins 2011). Each of the four focus areas services a critical stormwater function suggested by the "Sustainable Sites Handbook" (See Figure 5-2). Site A, "The Hitch," aims to reduce the impervious surfaces that composite the site. Site B, "The Pockets," encourage evapotranspiration and infiltration through redundant stormwater management systems, including rain gardens, rain pockets, basins, and trenches, minimizing the reliance on pipes. Site C, Ivanhoe Park, aims to control and convey water flowing off streets and into pervious surfaces that slow down the velocity of stormwater runoff. Site D, "The Hitch," is the last stretch of land capable of mitigating stormwater runoff before entering the Brush Creek. It demonstrates various strategies that aim to protect and restore Brush Creek. It acts as a stormwater wetland with emergent aquatic vegetation and a riparian floodplain zone. It accommodates larger flows during peak storm events and controls sediments and toxins running off streets and Highway 71. Each focus area presents opportunities to program amenities that service cultural functions for a variety of user groups. The amenities educate visitors, provide recreation, improve public relations, and enhance aesthetic richness.

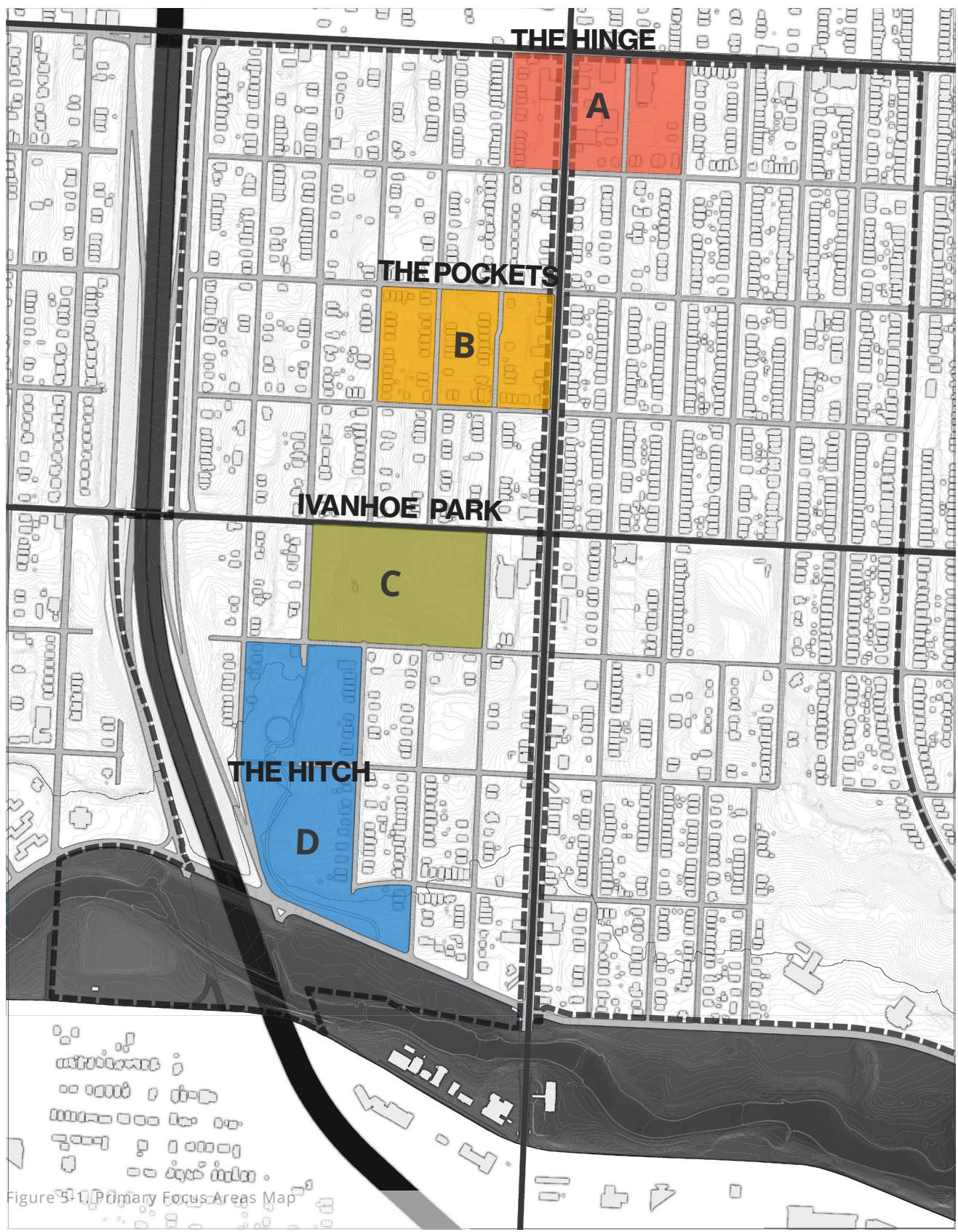
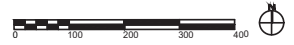
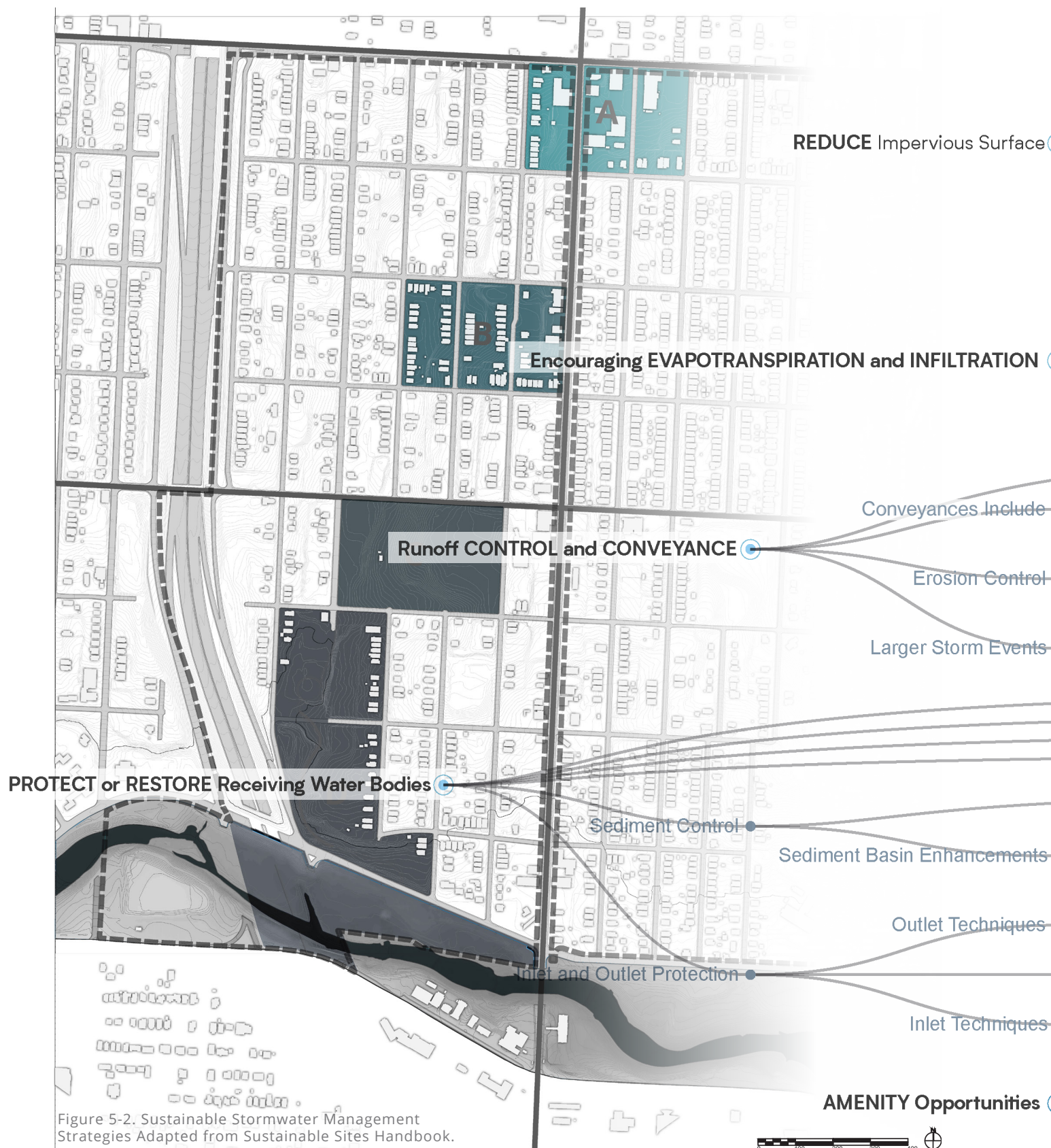


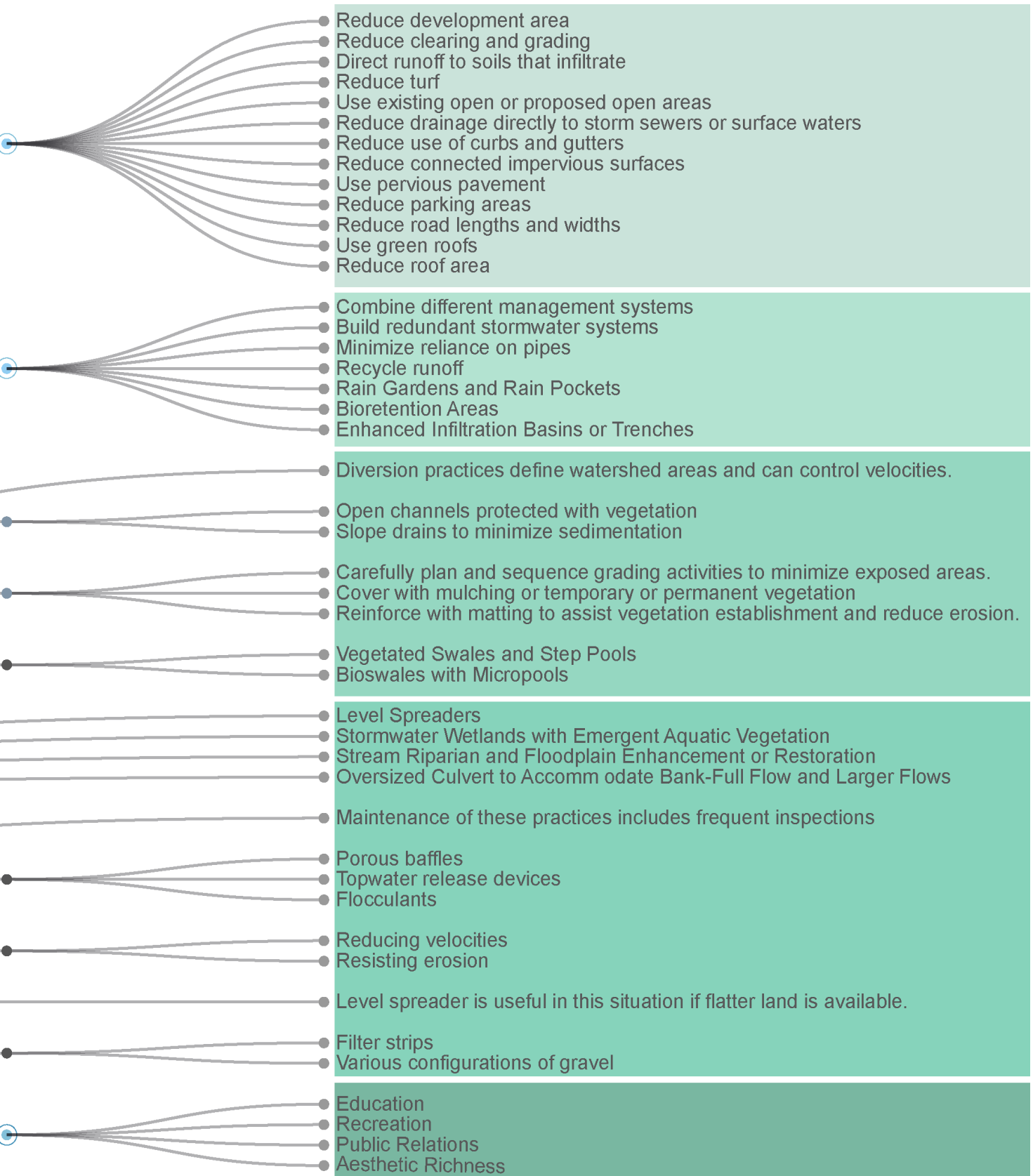
Figure 5-1 Primary Focus Areas Map







## DESIGN INTERVENTIONS



### 5.1.3 DESIGN NARRATIVE

A stigma persists in the Ivanhoe neighborhood that has caused it to become a neglected neighborhood, a place that people do not want to move into, fear of crime, and racial division and class division. Not all these concerns can be resolved by design. Although reimagining the Ivanhoe neighborhood is embedded in strategies and interventions that increase residents' place attachment, Ivanhoe's story can be rewritten as a place where longtime Ivanhoe residents and new families can dig their roots. They can see Ivanhoe as a place to build generations of wealth and social capital, invest in their property, and ultimately create equity in a neighborhood where it is lacking. The residents want diversity. They want to see Ivanhoe become a place that also builds wealth responsibly. Through this neighborhood's equitable design, there is a new potential for these communities to build strong bonds together through social spaces, build the necessary social infrastructure where people find their neighbors, and increase social interaction.

### 5.1.4 PROPOSED STRATEGIES

#### EQUITABLE GROWTH

##### Diversity Inclusive

The location of this neighborhood is within a demographically vulnerable area, receiving a score of .92 on the social vulnerability index (ATSDR 2020). Centering this new amenity in a space where it is most accessible to this demographic will ensure they benefit most from it.

##### Sense of Community

This proposal creates places for the community to access and gather in neglected or underutilized locations. It also is centralized within locations that are most accessible to the residents living in the neighborhood. The interventions change the character of this site into a community asset for every day use.

#### CHANGING LOCAL ECONOMY

##### Housing + Property

The local economy can grow with the design of these sites by increasing property values. This increase can be a good thing for people who own homes in the community because it will increase their assets' value. Their assets are also protected from erosion on their property and are ensured through bio-swales that control the runoff in areas where water is accumulating at high volumes and velocity. They can also be ensured from flooding by installing detention basins that capture and filter water in locations upstream where water accumulates. Rather than allowing water to be conveyed into stormwater drains, the water can naturally be detained and filtered into the soil.

##### New Development

This neighborhood is located in an area with the highest vacant lots. The new amenity of green space can catalyze growth and draws people who want to live near it.

#### FROM STIGMA TO PRIDE + RESPECT

##### Neglected Property

This neighborhood is currently blighted, containing trash and debris. With no programming accessible to the community, it has no value for them. By transforming this site into a space accessible to the community into a properly programmed aesthetic space, the community can transform their opinion of the space and start to value it as they have with Ivanhoe Park.

##### Crime + Illegal Activity

This neighborhood holds the stigma of once being a dangerous site with crime, blighted homes, drug houses, and drug dealings. When it was renamed after the community, and new programming and amenities were added, Ivanhoe Park catalyzed a shift in behavior and attitude towards this area. There is an opportunity to build off this story of transformation and do the same with the adjacent open space.

#### IMPROVE QUALITY OF PLACE

##### Improve Safety, Comfort and Imageability

Improve safety, comfort, and imageability. Activate the spaces that have been stigmatized as illegal to change the identity of this site. Create a new Identity through placemaking. Improve views into the site from the street. Create eyes on the streets and a strong community presence. Create a family-oriented space that attracts children and parents through the splash pad and the nature play area.

##### Parks + Social Spaces

Create a new park and social space that acts as an extension of the Ivanhoe community park and Provides access to Brush Creek. These locations were mentioned most frequently by residents from the interviews.

##### Circulation + Connectivity

This design has improved the circulation of pedestrian connectivity, turning a space undeveloped and overrun with trees into a space that can be accessible to bikes and pedestrians. It is also ADA accessible. The design also improves accessibility to the brush creek for pedestrians by improving the pedestrian crossing across Emanuel Cleaver Boulevard and linking the Brush Creek trail to the Ivanhoe Park, residential streets and the Hinge.





Figure 5-3. Master Plan



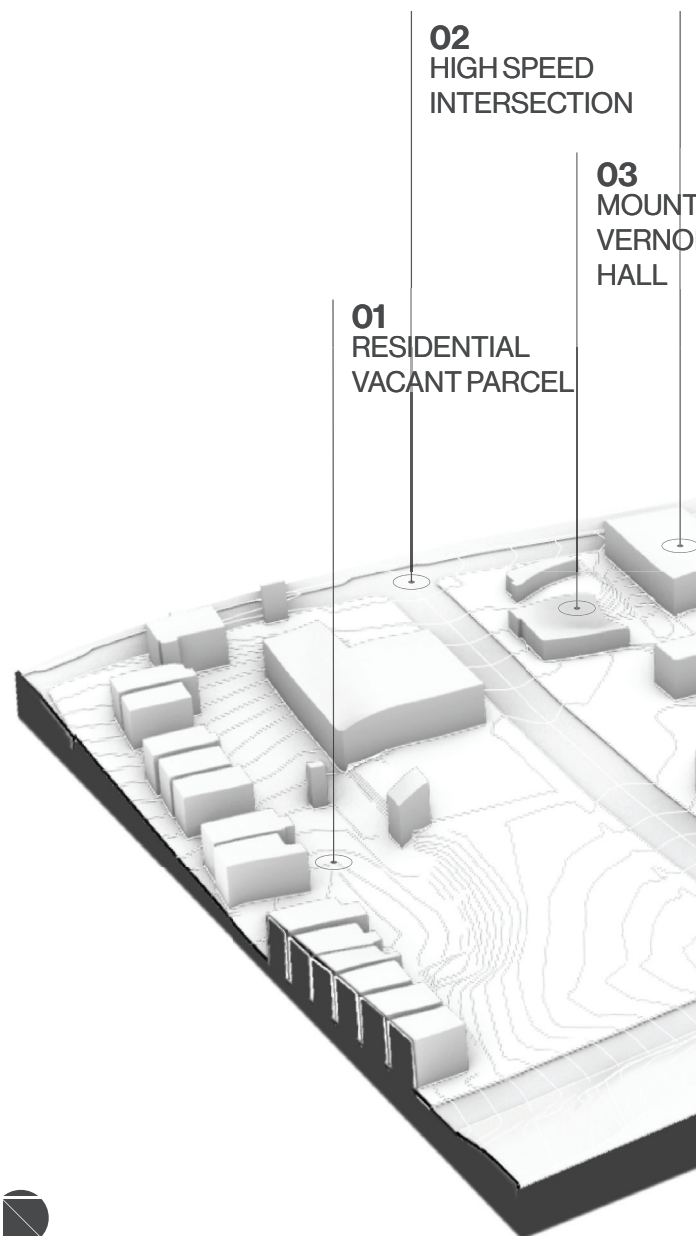
## 5.2 THE HINGE

### 5.2.1 DESIGN INTENT

The Hinge proposal envisions revitalizing a significant intersection for development while reducing the site's high volume of impervious surface. This site is at the intersection of two major streets, 39th St. and Prospect Ave, both mentioned frequently in the interviews. Prospect Avenue, which divides Ivanhoe and Oak Park's boundary lines, is one of Kansas City's major north-south vehicular corridors and is a major commercial corridor for businesses. The bus line improvements on this street intersection are a highly influential characteristic that positively affects the Ivanhoe neighborhood. 39th street acts as an east-west thoroughfare with high volumes of traffic moving at high speeds that have been identified as a threat to the community's sense of place and safety. Street improvements such as green streets or complete streets provide multi-functional infrastructure that creates social, ecological, and economic benefits. Reducing traffic speeds and increasing pedestrian accessibility creates greater benefits for the adjacent businesses and revenue. Streets provide necessary public spaces that can accommodate social interactions and active vitality. Green streets can increase the surface area for vegetation on-site to capture and slow down infiltration at the site sale.

This site was historically a thriving area with local businesses and a movie theater. Much of the wealth left this area in the 1970s as wealthier residents chose to live elsewhere. The area went into decline, and many of the businesses have since left this area. Vacant buildings and large swaths of concrete for parking are currently not utilized, characterizing it as a greyfield. Opposite this site is an Aldi grocery store, most mentioned through interviews as a frequently visited place.

Greening in commercial areas has benefits for local economic growth. It has been shown to increase the occupancy of industrial and business units. It also adds value to an industry attracted to an area that creates additional employment and increases income levels. Therefore, there is an opportunity through green stormwater infrastructure to address the environmental concerns of this greenfield site or the safety concerns for properties and homes downstream, and spur economic growth.



- 04**  
UNPAVED  
DEPRESSION
- 05**  
UNPAVED  
DEPRESSION
- 06**  
MOUNT  
VERNON  
CHURCH
- 07**  
VACANT  
BUILDING
- 08**  
VACANT  
PARKING LOT
- 09**  
VACANT  
PARKING LOT

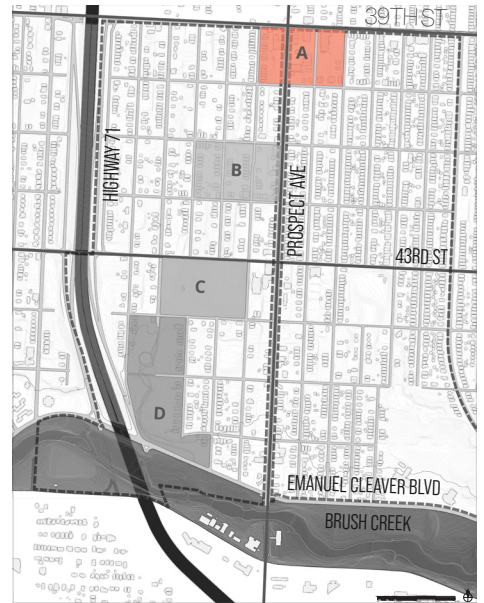
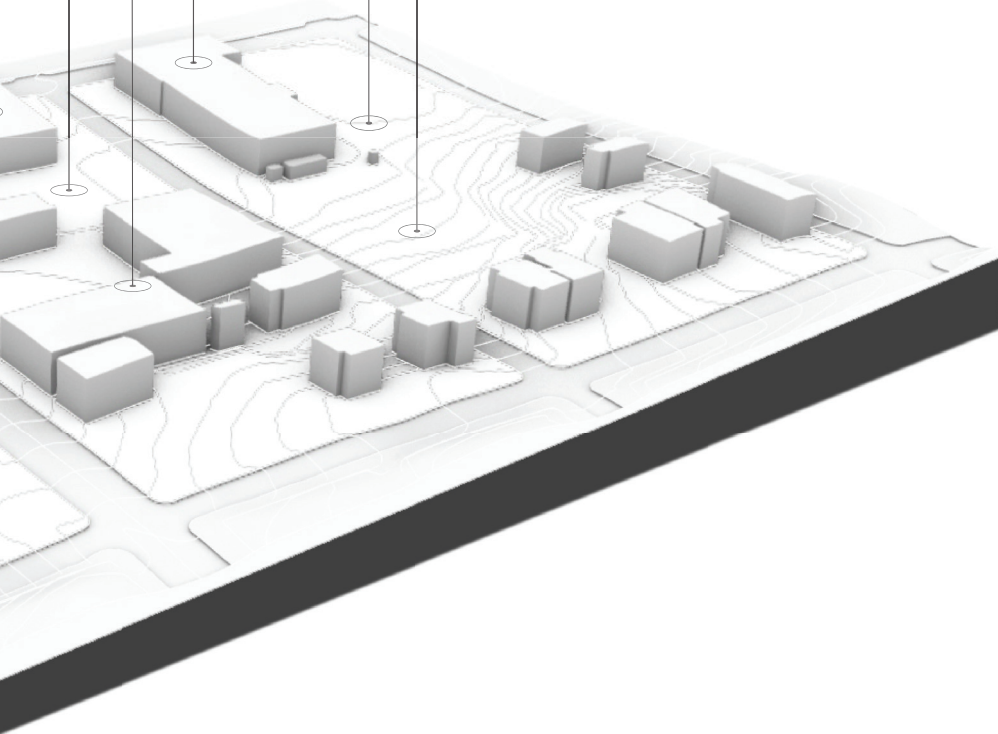


Figure 5-4. Focus Area A "The Hitch"

Figure 5-5. Site A "The Hinge" Site Model

## 5.2.2 PROPOSED STRATEGIES

The Hinge proposal creates a destination where surrounding residents can depend on their daily needs while mitigating the stormwater runoff issues downstream. It aims to address the social, economic, and ecological concerns of the site by creating a public realm that accommodates business owners, communities, and pedestrians.

Critical economic and social needs can be address by retaining affordable housing and local employment as new development happens and increases property values. The new development must support local organizations, community features, and local interests must be retained to ensure social capital can be facilitated and enhanced in this location. The surrounding community and stakeholders must be involved and benefit from the development of the site. Addressing concerns of connectivity and walkability with dangerous traffic speeds and high traffic volumes are essential for its capacity to support the surrounding community and businesses. The proposal aims to transform this space into a vibrant destination, improve the pedestrian experience, and enhance safety and comfort through strategic and landscape planting and design.

Lastly, the percentage of impervious surfaces must be decreased to increase the ecological services of this site and support ABC functionality downstream. Installing rain gardens and bio-retention areas at curb stops and crosswalks captures and infiltrates the soil through sunken planters and tree boxes that increase infiltration, reducing the impervious surfaces. These interventions minimize the stormwater drainage running directly into the storm sewers or surface runoff by reducing the surface area. These planting areas increase the space's functionality for pedestrians, providing shade and spaces to sit and improve comfort throughout the site (see Figure 5-6).



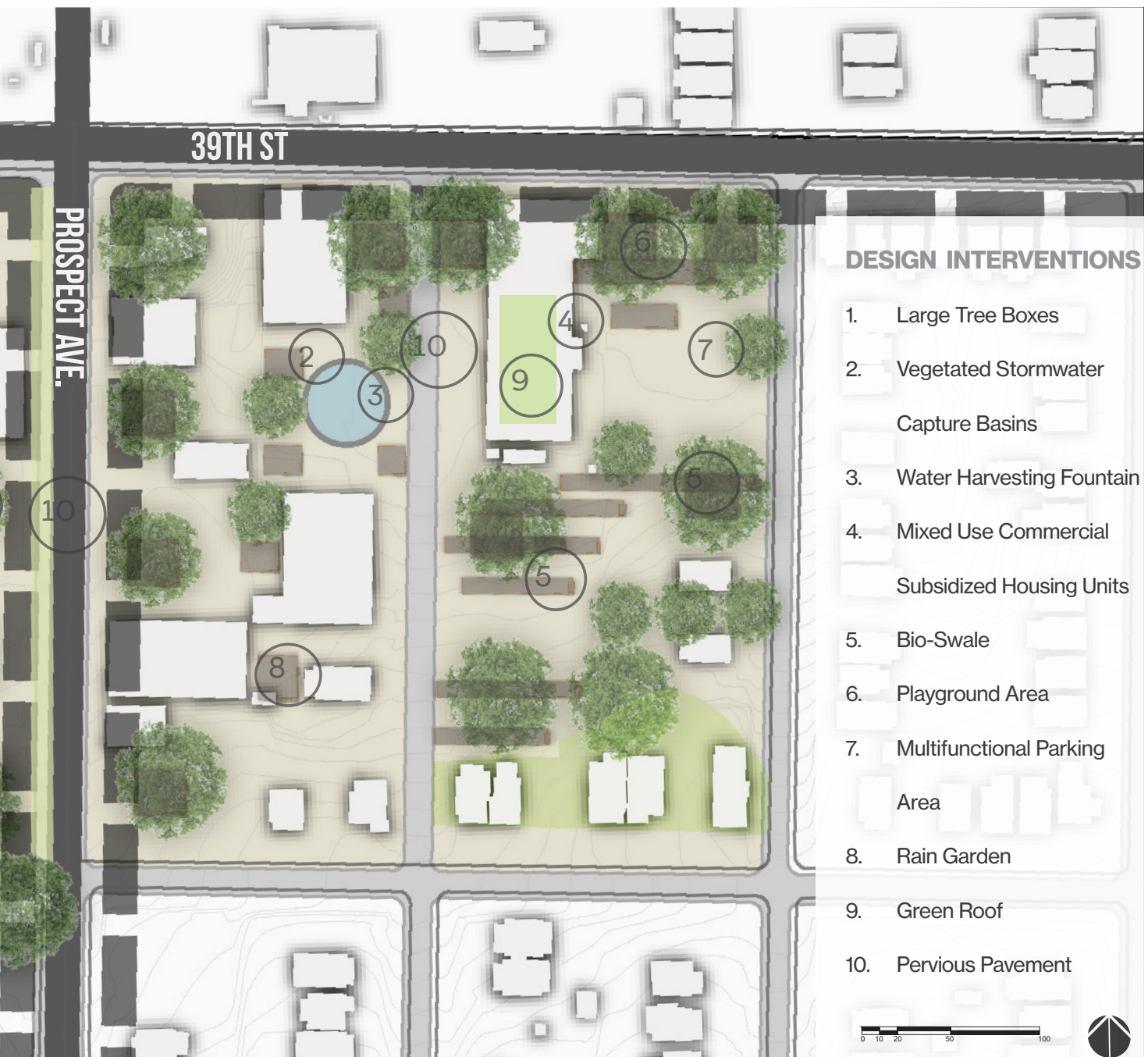


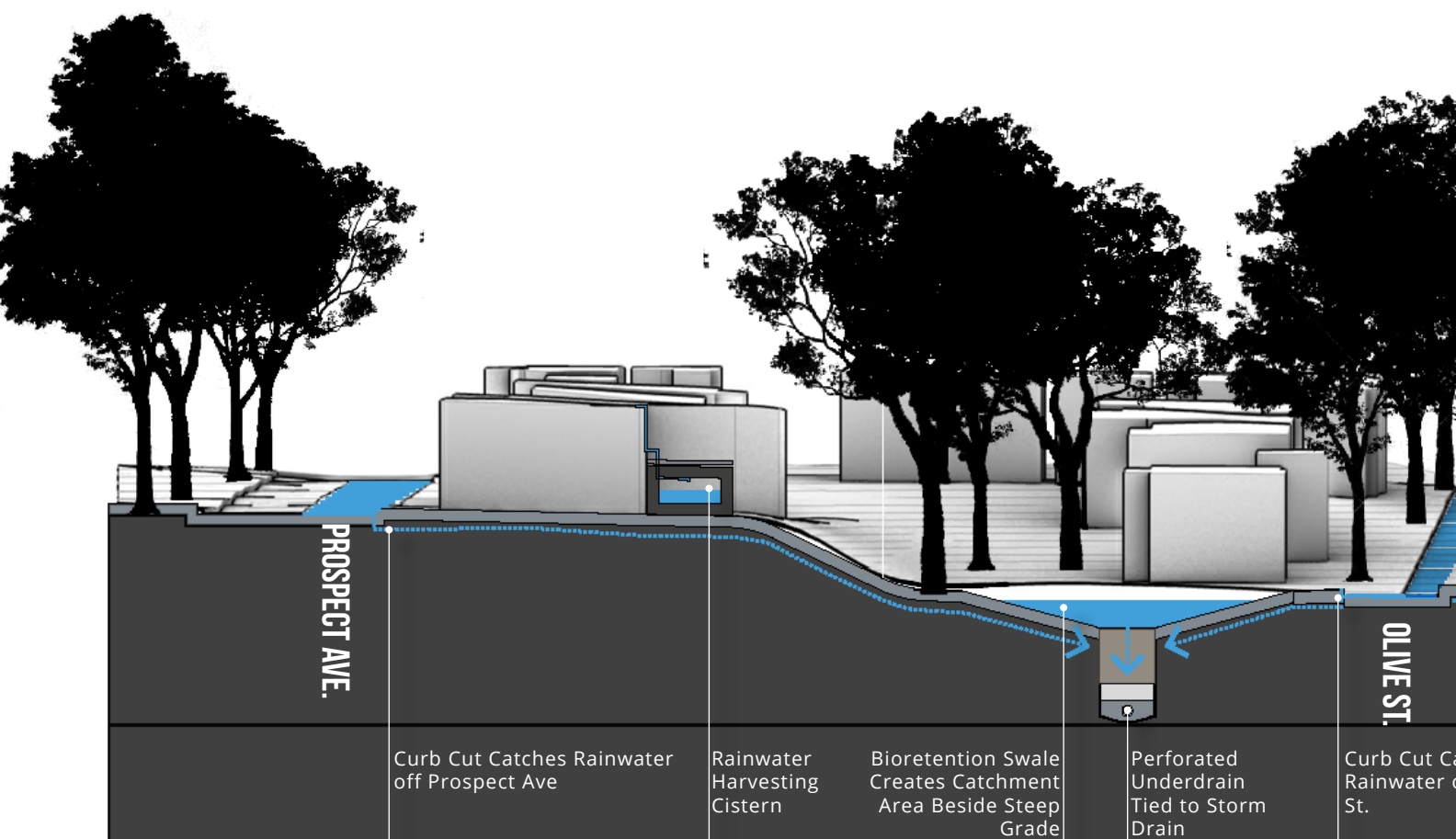
Figure 5-6. Site A "The Hinge" Strategic Plan



## 5.3 THE POCKETS

### 5.3.1 DESIGN INTENT

The Pockets propose parcel scale interventions at key locations that currently hold higher soil moisture with less surface area catchment to prevent erosion. This proposal designs catchment basins that hold water to allow soil infiltration and slow down water flow in this transect with an exceptionally high stream power index. If the vacant lots begin to be developed in these properties with steep grades, they could see higher amounts of erosion or property damage. Vegetation in these key vacant lots will help to absorb the water from the detention, areas while creating aesthetic public space for the surrounding residents. Additional stormwater management strategies on private properties such as rainwater harvesting cisterns attached to roof gutters and rain gardens reduce scoring and damages downstream.



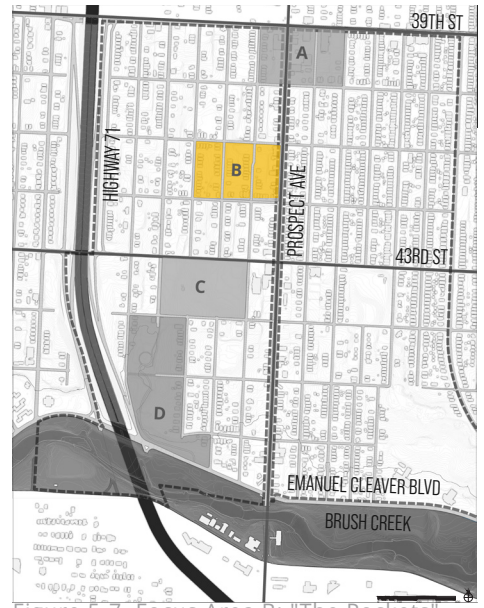


Figure 5-7. Focus Area B: "The Pockets"

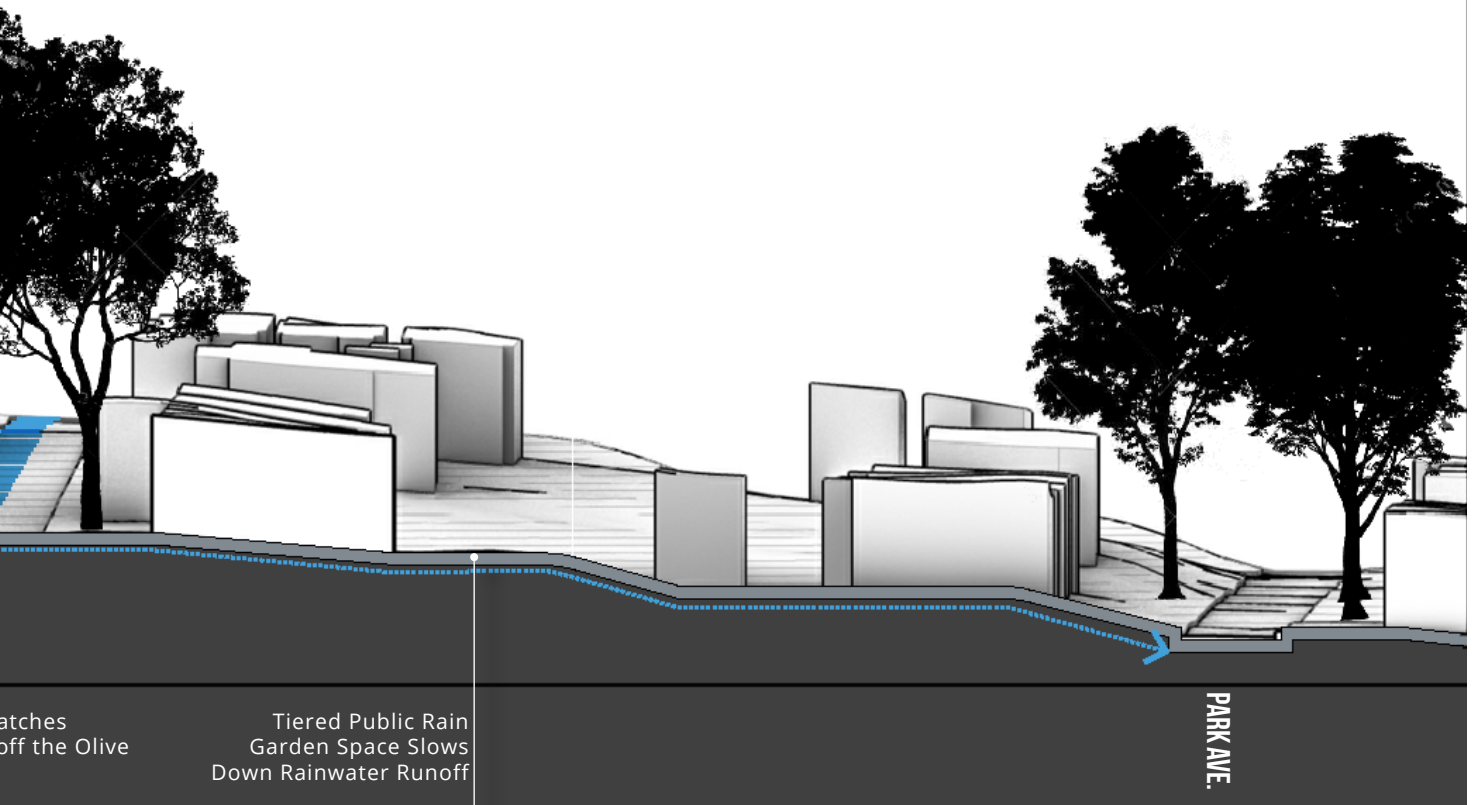


Figure 5-8. Site B "The Pockets" Section AA

## 5.3.2 PROPOSED STRATEGIES

### **Sense of Community**

These spaces become small social spaces for the surrounding neighborhood, where neighbors can meet and interact with each other right outside their door. It can serve the community as a place to gather with family, friends, and neighbors.

### **Housing + Property**

Economically, the surrounding properties' values grow with these public amenities that also protect their properties and homes. The surrounding businesses also profit from being adjacent to a public space accessible to customers and attract more business.

### **Neglected Property**

Some private vacant lots become neglected, allowing crime, illegal dumping of waste, or show signs of neglect with overgrown grass. This site can prevent this by creating a public community space that is shared by the adjacent properties. Creating a sense of collective ownership over a space aims to develop respect and pride in this property and allow the community to participate a process that reverses this stigma of neglected properties.

### **Improve Safety, Comfort and Imageability**

Pockets are programmed with edible gardens, picnic spaces, aesthetic vegetation, and shaded spaces to sit comfortably, creating a space for a wide range of user groups.

### **Circulation + Connectivity**

The pocket park is located between a significant vehicular traffic corridor (Prospect Avenue) and the proposed interior corridor that cuts through the neighborhood. This site becomes a place to stop along these two corridors.

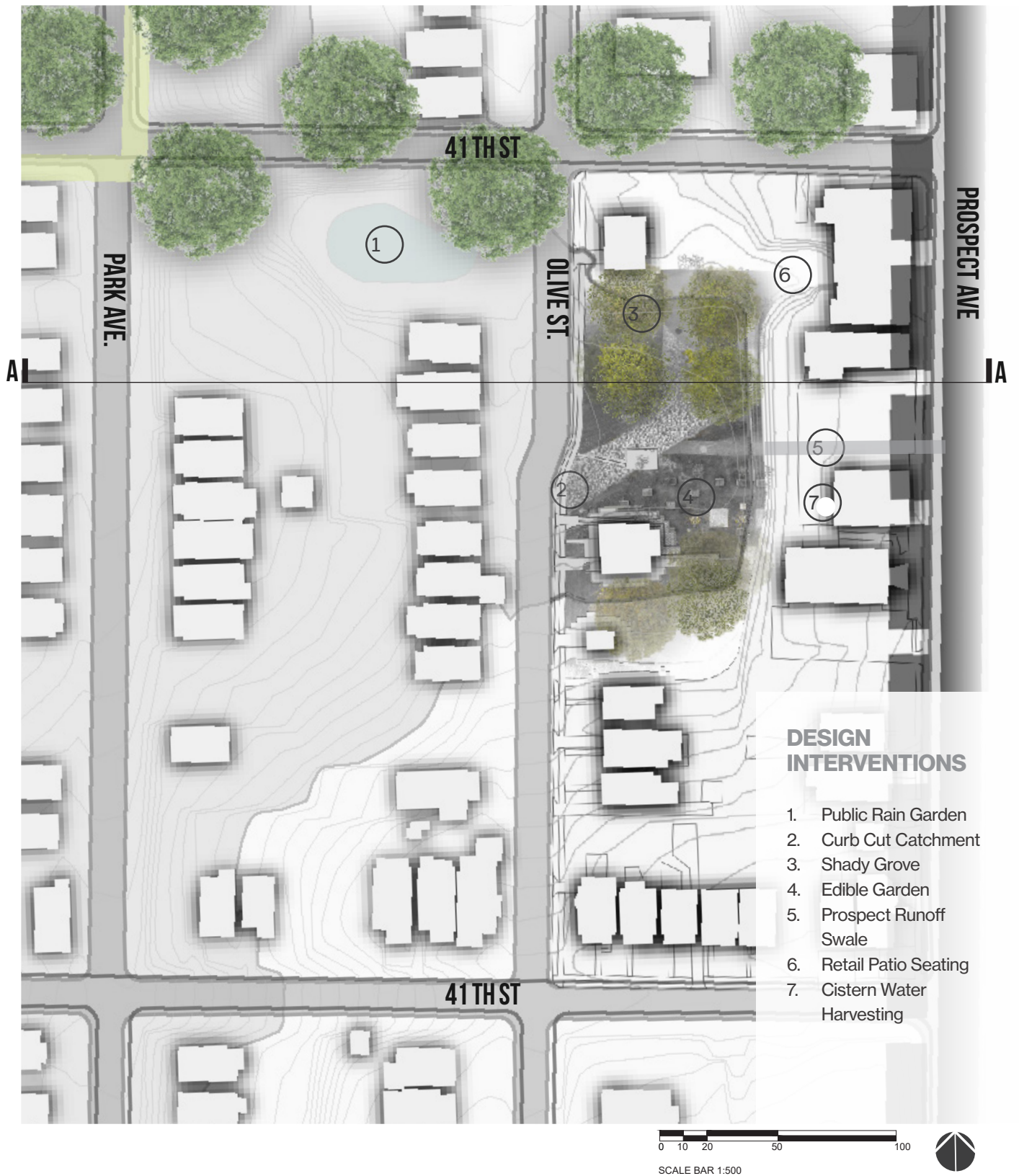


Figure 5-9. Site B "The Pockets" Strategic Plan



## 5.4 IVANHOE PARK

### 5.4.1 DESIGN INTENT

Ivanhoe Community Park's proposal builds off the positive change of the former design interventions in this site. While interviews most mention the site as having a positive association with place attachment, its extreme heat has been noted during the summer as a significant issue. By including this site in the stormwater management plan, space can use plantings to define the space further and build a canopy of trees to shade visitors. A linear arrangement of cultural, biotic, and abiotic functions is created through a corridor of bio-swale vegetation, groves of trees, and community gardens. This space can evolve into a highly functional amenity for the community linked to a more extensive pedestrian and bicycle circuit for recreational and social programming.

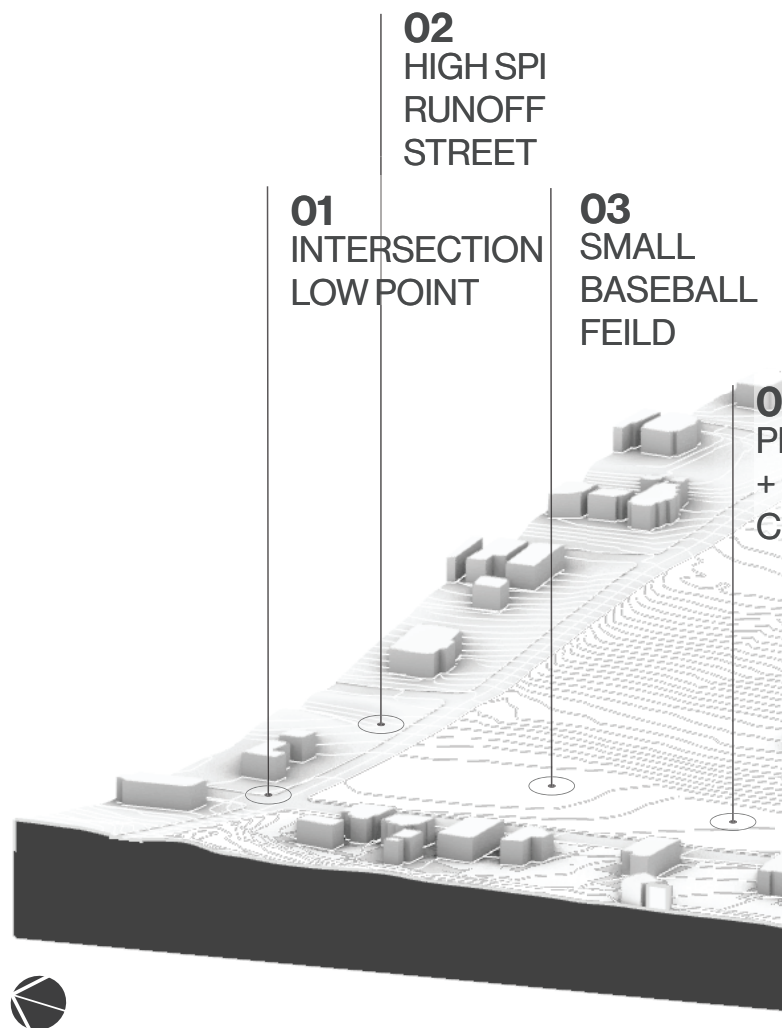




Figure 5-10. Focus Area C: Ivanhoe Park

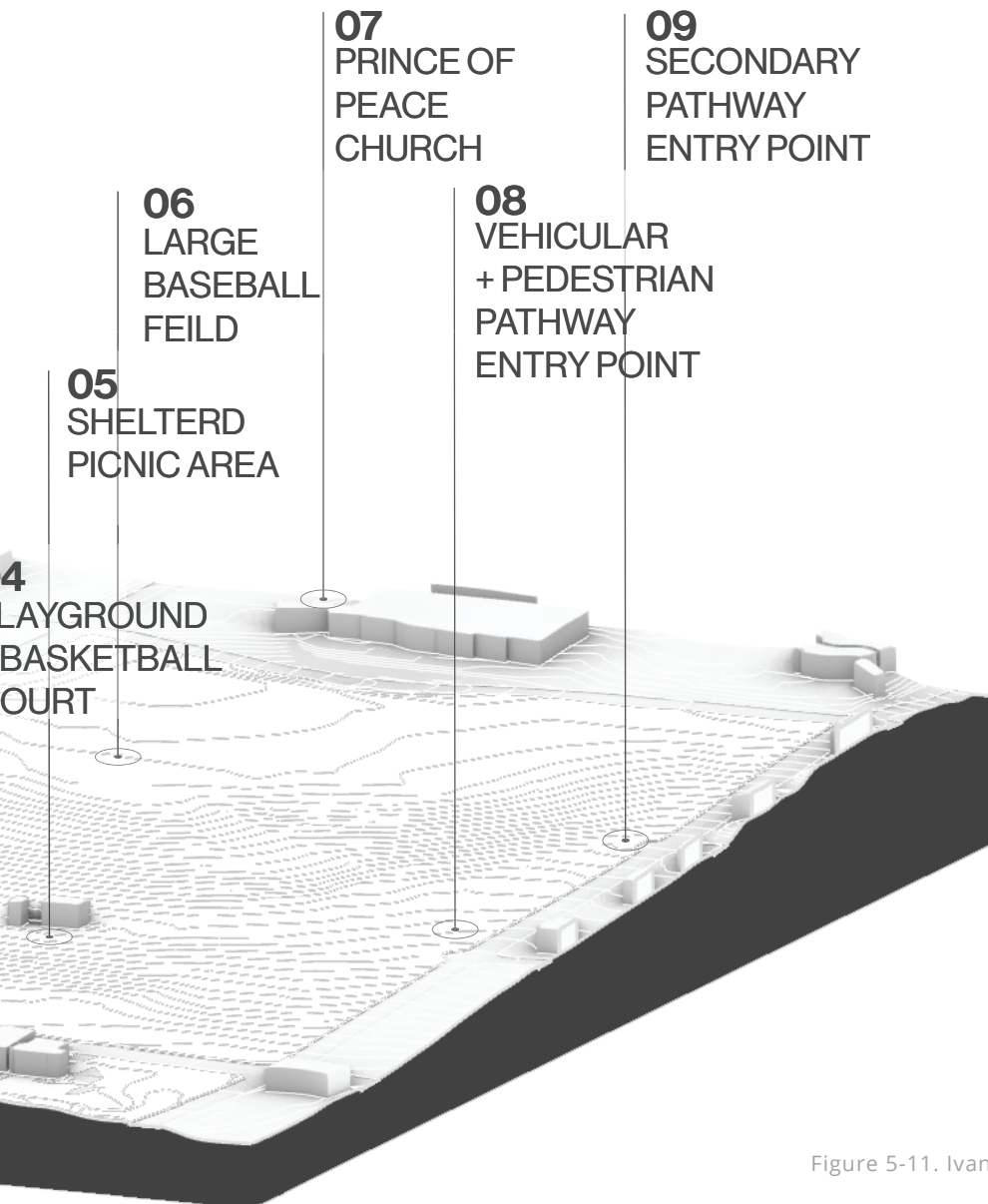


Figure 5-11. Ivanhoe Park Model

## 5.4.2 PROPOSED STRATEGIES

### EQUITABLE GROWTH

#### Sense of Community

This park is often used for hosting community events. It has received a significant amount of improvement over the last few decades. It already serves the community as a social gathering point. Including this site in the master plan introduces stormwater management into the area. It enhances this social infrastructure through green infrastructure co-benefits. Currently, the site hosts highly valued programs for the community. A sheltered picnic area with tables and seating is frequently used for significant community events to serve food. The proposal seeks to expand this use to other portions of the park. With programming for children, such as the two baseball fields and the playground, the site draws families to the area. The design aims to enhance these programs by using vegetation and pathways to create a more unified organization and functionality of these spaces that also serve stormwater functions.

### IMPROVE QUALITY OF PLACE

#### Improve Safety, Comfort and Imageability

This site is uniquely characterized by containing a large (3 block) open space with an elevation change of 80 feet, from the northeastern point to the southwestern point. This elevation allows for panoramic scenic views of the skyline, especially as the sun sets in the west. The site can be built to accentuate this feature and draw in more visitors and uses. During the summer months, this park is known to become very hot. The design addresses this through groves of trees along the pathways. Through the process of evapotranspiration, the trees provide a cooler temperature throughout the park by several degrees while also providing shade and protection from the sun. Lining the pathways with trees allows for a more comfortable experience for pedestrians and users.

#### Circulation + Connectivity

The large park disrupts the north-south grid forcing vehicles and pedestrians to circle the park if they are not willing to walk through the steeply sloped grass. This proposal links the pedestrian trails through the site, providing residents greater access to their neighborhood. The existing programming is fragmented and disconnected. This proposal aims to secure all these amenities through a continuous ADA pathway that traverses down the hill allowing access to all the amenities.

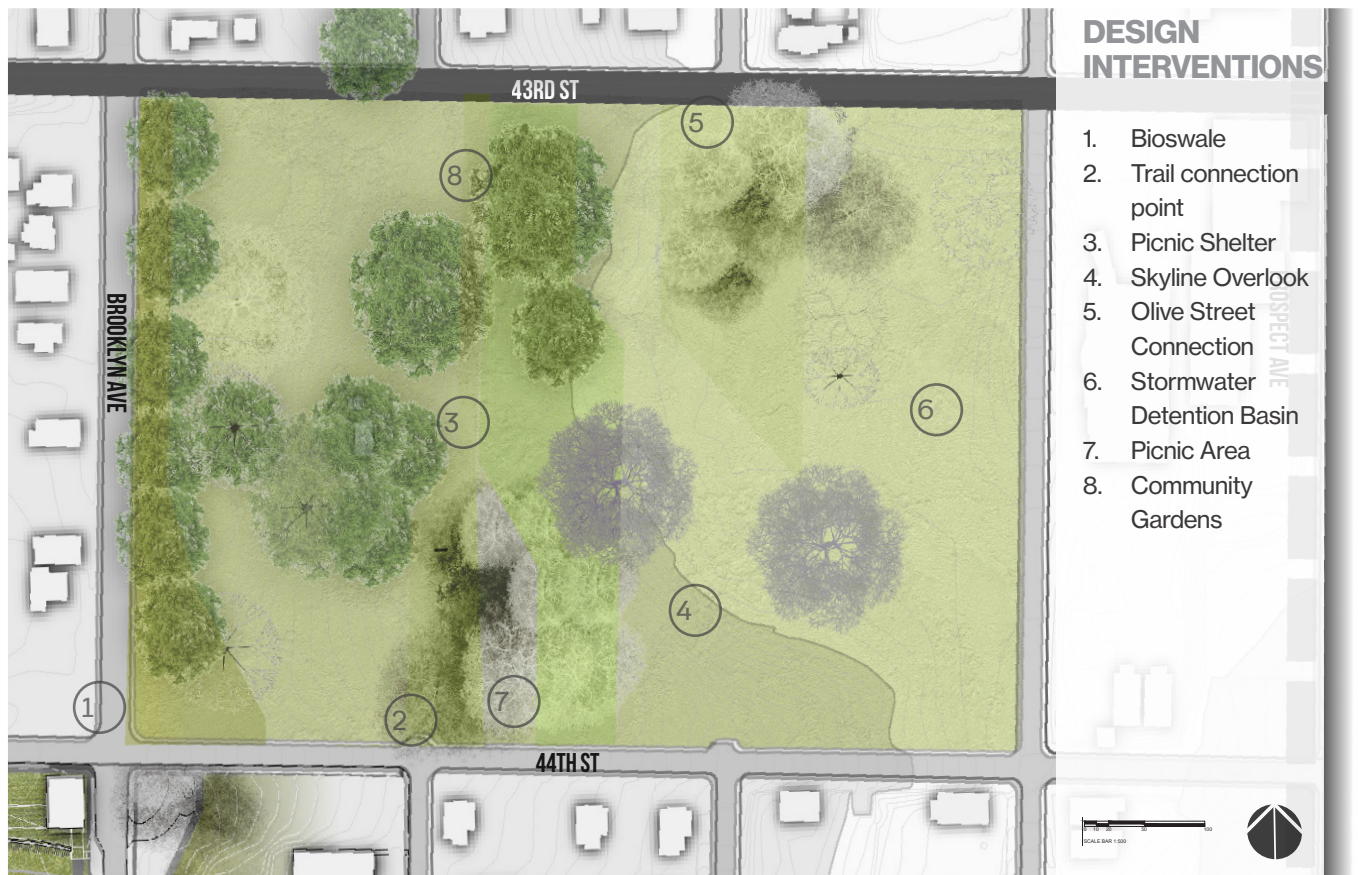


Figure 5-12. Ivanhoe Park



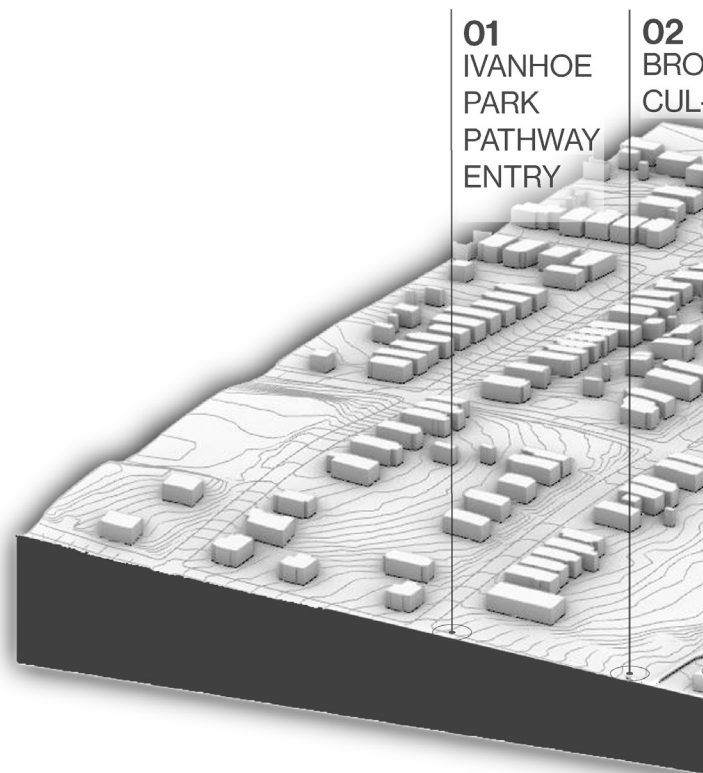
## 5.5 THE HITCH

### 5.5.1 DESIGN INTENT

Site D, “The Hitch,” is located in the watershed outlet into the brush creek. This site is the final destination before stormwater with accumulated sediments, pollutants, and wastes in the watershed can be processed. It is adjacent to Highway 71, and rainwater runoff from the highway runs on the site. This constraint is an opportunity to capture and cleanse this water before it enters the stream. Similarly, this site was historically the last stop of the streetcar in the 1940s. It was the southernmost stop of this streetcar line, ending on Brooklyn Avenue and 44th Street. The design will use this similar idea of the terminal in its water management approach: the last stop before the water enters the brush creek. This site was once a notorious drug spot. Since the park’s renaming to Ivanhoe park, there has been a significant transformation of this location’s image. This corner will be transformed into a high-performing public space that can change this location’s perceptions into an inclusive community asset.

Additionally, this site shows signs of neglect. Much of the land is littered with waste. Illegal dumping is common to occur here. This behavior makes it more critical that the community builds attachment to this place as a public amenity. Through this proposal, the public perception of the site as neglected vacant land can shift into an amenity that they take pride in.

Lastly, this site is highly valued for its adjacency to the brush creek. Although, there are few points of access into the Brush Creek from this property. No parking spaces, few crosswalks, and high traffic volume make it difficult for pedestrians to access the riverfront. Creating better accessibility can make resident’s relationship with Brush Creek a positive one.



THE HITCH  
FOCUS AREA D

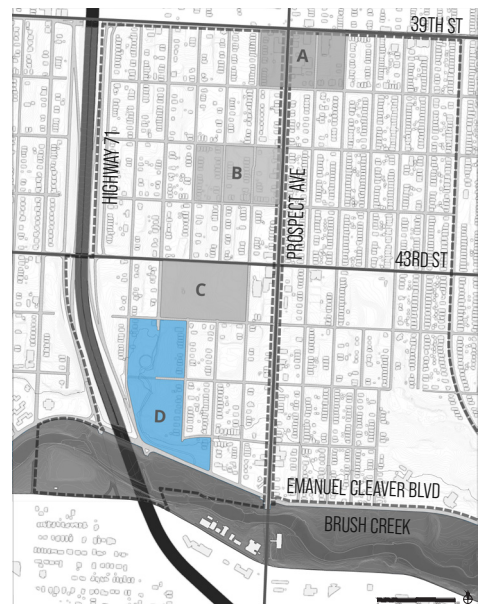
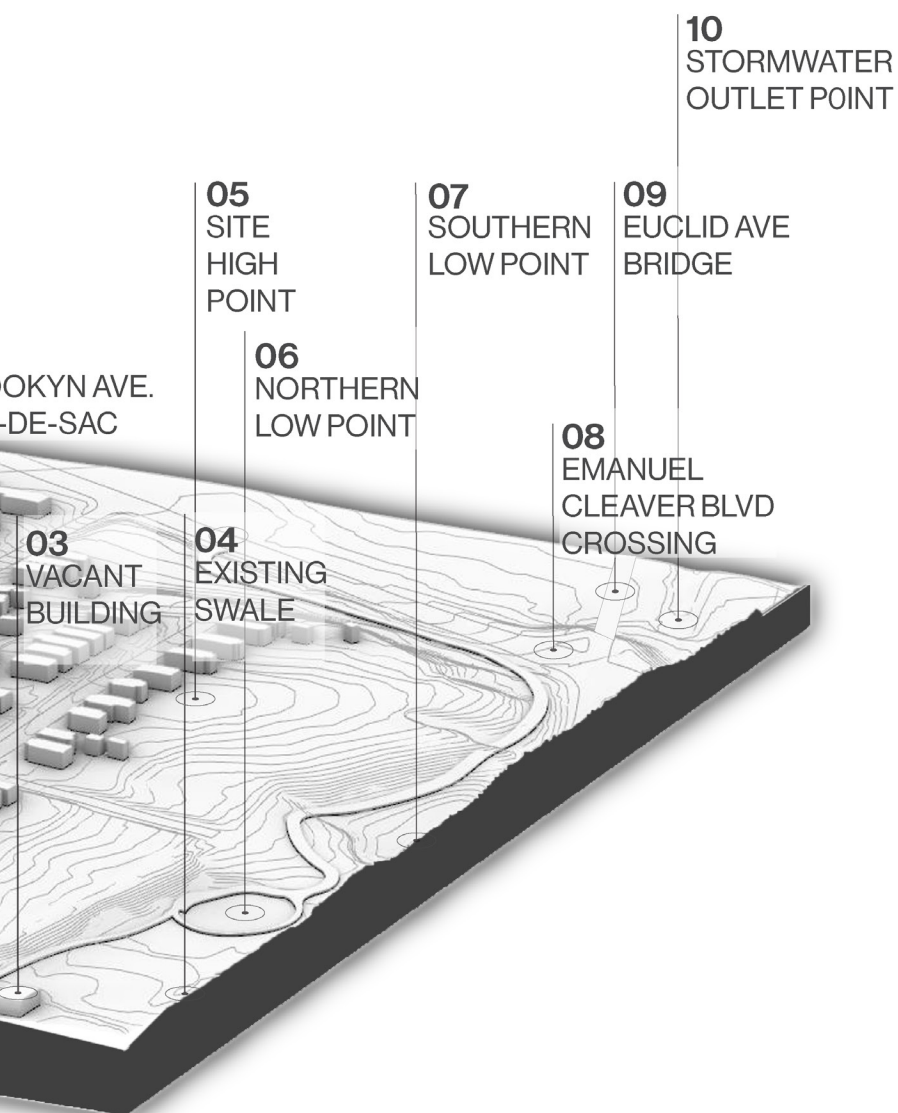


Figure 5-13. Focus Area D: "The Hitch"

Figure 5-14. Focus Area D: "The Hitch" Site Model





Boarded up  
chain-link fence  
to keep public  
out

Existing  
pathway into  
site

Concrete  
bollards  
prevent  
vehicles from  
entering site

Dense canopy  
of trees screen  
residential  
units



Street ends at  
a over grown  
woodland  
area with little  
visibility into it.

Vacant and  
boarded up  
retail building



## 5.5.2 EXISTING SITE

Visually the site shows signs of neglect. The corner of 44th and Brooklyn had a stigma of being a place where people would sell drugs back in the 70s and 80s. This stigma has changed since then with the help of the Ivanhoe Neighborhood Initiative. The improvement they have made to the park have significantly improved people's perceptions of the neighborhood. The two buildings on this block are vacant, one a blighted vacant building. The other a former convenience store with boarded-up windows and the property unmaintained with piles of trash and debris.

The view from 45th street shows a similar level of neglect with scattered piles of trash from illegal dumping and boarded up chain-linked fences to keep people out. Large concrete bollards have been installed to keep cars from driving into the site.

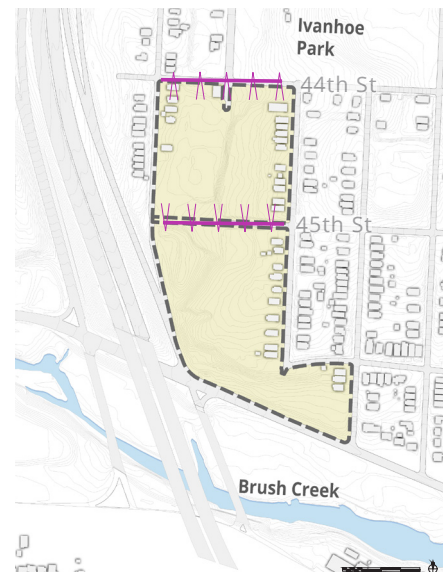


Figure 5-17. Viewpoint Key

[TOP]

Figure 5-15. Current views into 45th St.,

[BOTTOM]

Figure 5-16. Current views into 44th St.



Large heavily wooded open space extends from this point until it reaches Brush Creek.

Accumulated trash on curb

Blighted vacant home



5.5.3 PROPOSED STRATEGIES

This proposal's location is a greenfield site, meaning it has no program and no prior use. This was because it was once a part of the Brush Creek floodplain. Now only the southern half of the site is within a 400-year floodplain. Because of this discontinued street, this site is inconsistent with the urban matrix. Rather than forming a continuous grid that would run all the way south into the brush creek, the undeveloped land has created a buffer space. The undeveloped intermediate area merges the equivalent of four blocks into two large blocks divided by a street running east and west. This sizable portion of land that is undeveloped makes up the size of two and a half blocks.

This proposal finds potential for the undeveloped land to connect two parks that are part of the community's greatest assets: Brush Creek and Ivanhoe Park. While doing so, this proposal aims to create a new community asset and public space. This proposal creates a space where people don't simply walk through but are drawn to linger and rest by installing benches, tables, chairs, shady spots, picnic areas, grassy berms, and hammock spaces. The site also provides recreational opportunities that provide spaces for movement through biking and walking trails that are also ADA accessible. Children-oriented spaces, including a splash pad and a nature playground, create family gathering sites and spaces for social interaction.

The active and ongoing process of ecosystem restoration provides employment opportunities, engagement in learning, and volunteering to care for this local community. This approach aims to build respect and for the site's functionality. Through education, residents may value it more, appreciate its purpose in the community, and not dump waste into it. Educational boards with descriptive images about plants and natural cycles educate visitors on how stormwater management addresses this site. This site design will help serve as a model for visitors to demonstrate how these practices can be applied in their own properties and aims to get people to appreciate natural processes and their role in them.

[TOP]

Figure 5-18. Site takes up large expanse of open space dived by 45th street.

[CENTER]

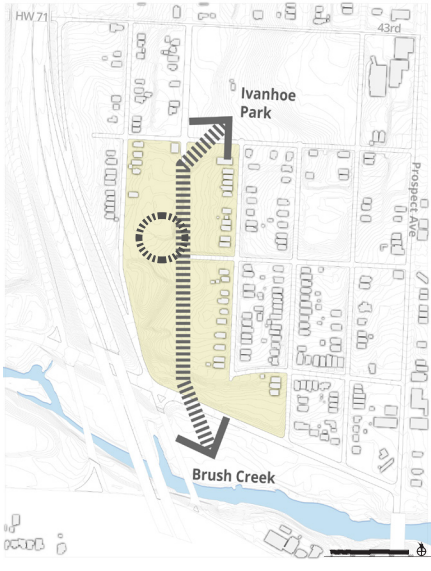
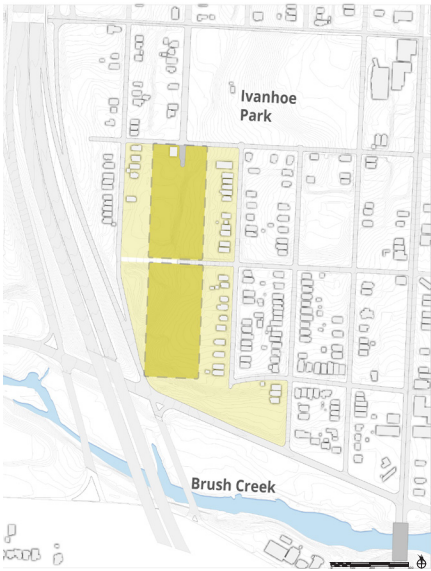
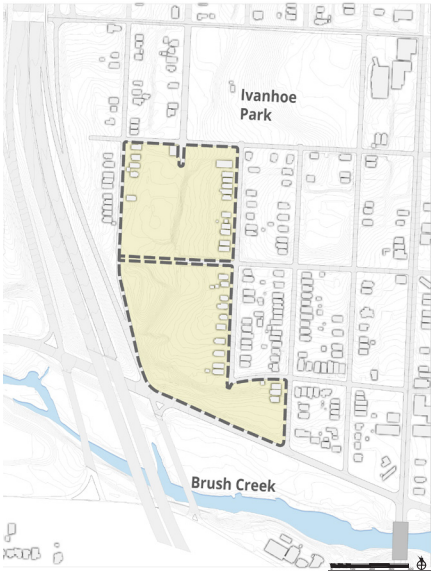
Figure 5-19. Site is organized to fit two blocks of programed space

[BOTTOM]

Figure 5-20. Circulation objective of this site is to connect two highly valued assets in the community by making a new one

[OPPOSITE]

Figure 5-21. The Hitch Plan







**DESIGN INTERVENTIONS**

- 1. Ivanhoe Park Connection
- 2. Cafe and Public Restroom Facilities
- 3. Restroom Facilities
- 4. Patio
- 5. Splash-pad
- 6. ADA Accessible Pathway
- 7. Aesthetic Vegetated Bio-swale
- 8. Immersive Boardwalk Loop
- 9. Woodland Trail
- 10. Nature Play Area
- 11. Observation Point
- 12. Brush Creek Connection
- 13. Pedestrian Walkway



### 5.5.4 STORMWATER MANAGEMENT PLAN

Topographically, the site is shaped to move rainwater water in two ways. The northern half has a centralized flow moving water inward to a central low point. The southern half drains water outward towards the edges of the site from the center point at the highest point of the site. Therefore, the site has been designed in two separate yet connected water management approaches that respond to these two topographical landforms. They capture, convey, detain, and restore water in different ways.

The site captures rainwater flowing off the street into a vegetated bio-swale. Check dams help to slow down and pool water in three points. These dams help prevent erosion and facilitates infiltration into the soil. As the water reaches the central lowland point, it has gone through a series of micro-pools that cleans and filters sediments. If there is a high water volume that fills the site from heavy periods of rainfall, the water will enter an overflow pipe tied to detention Basin 2. Basin 2 captures excess water from Basin 1 and the surface runoff from the highway. Wet meadow and wetland plant species that can handle both wet and dry priods help to naturally treat and cleanse the water before it filters into the ground. An inlet for overflow from Basin 2 is linked to the storm drain outlet point that flows into the Brush Creek.

Street Stormwater Runoff ○ —

Curb Cut Catchment + Level Spreader ○ —

Check Dam ○ —

Micro-pool Detention Basins ○ —

Basin 1 Low Point ○ —

Overflow Inlet ○ —

Overflow Pipe Tied to Basin 2 ○ —

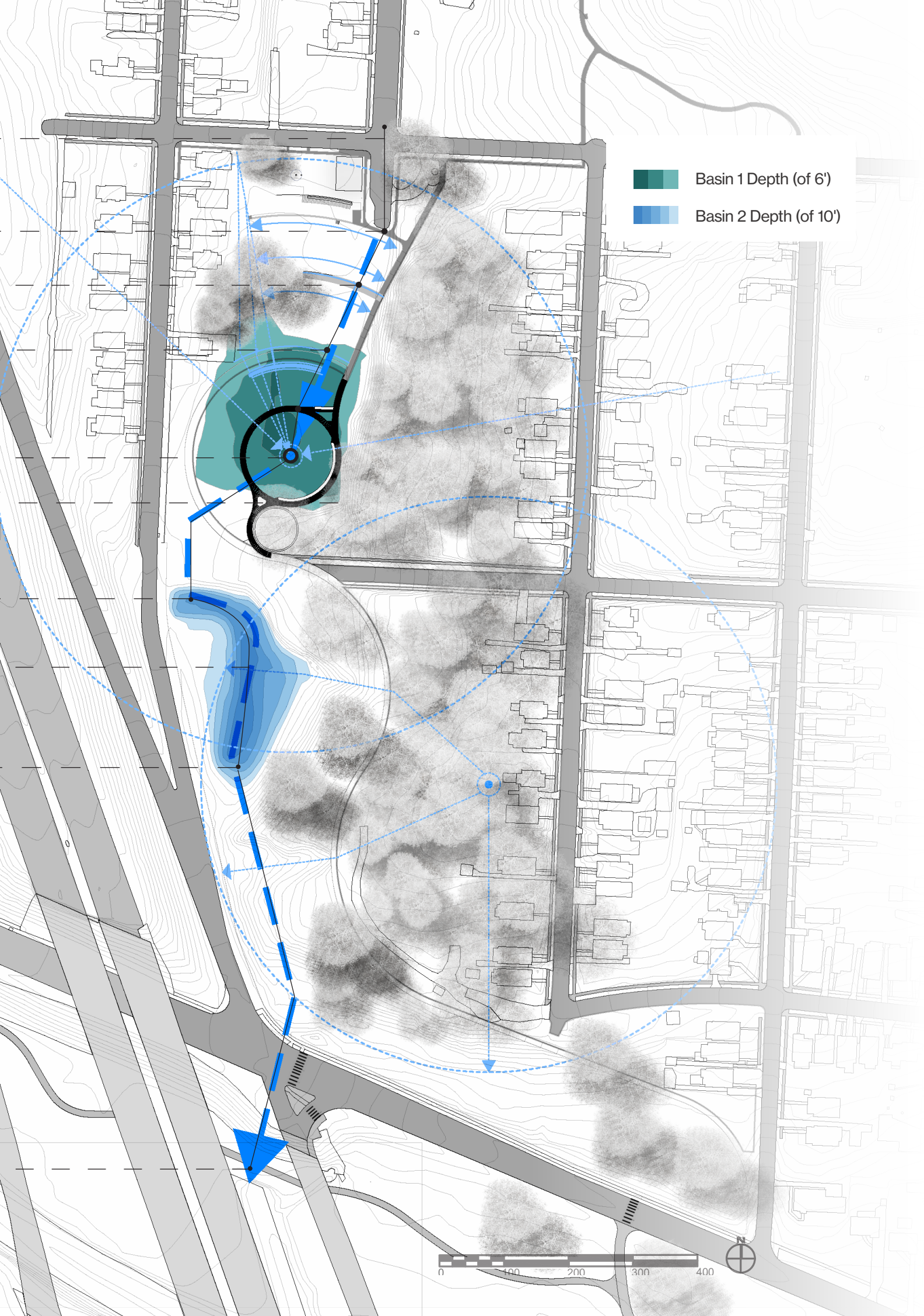
Basin 2 Low Point ○ —

Overflow Inlet For Maximum Holding Capacity ○ —

Pipe Tied to Existing Stormwater Outlet Point ○ —

Figure 5-22. Stormwater Management Plan







### **5.5.5 DESIGN ORGANIZATION**

The northern block of the site has been designed around the vacant building on the corner. The goal is to provide clear visibility from 44th Street to 45th Street. The site is organized by the golden rule beginning from the corner of the site outward. This organization ensures that every 100 ft from the corner of the street, a new layer of activity is added to the frame of view (see Figure 5-25).

The goal is to create juxtaposed adjacencies of activities so that an inviting view of the diverse activities is created. These layers of activity are enhanced with the aesthetics of the vegetated bio-retention zones that divide the site. The layers in the forefront are backdropped with a grove of trees. A clearing in the trees displays the entrance into the woodland trail, sparking the viewer's curiosity to explore the site (See Figure 5-26).

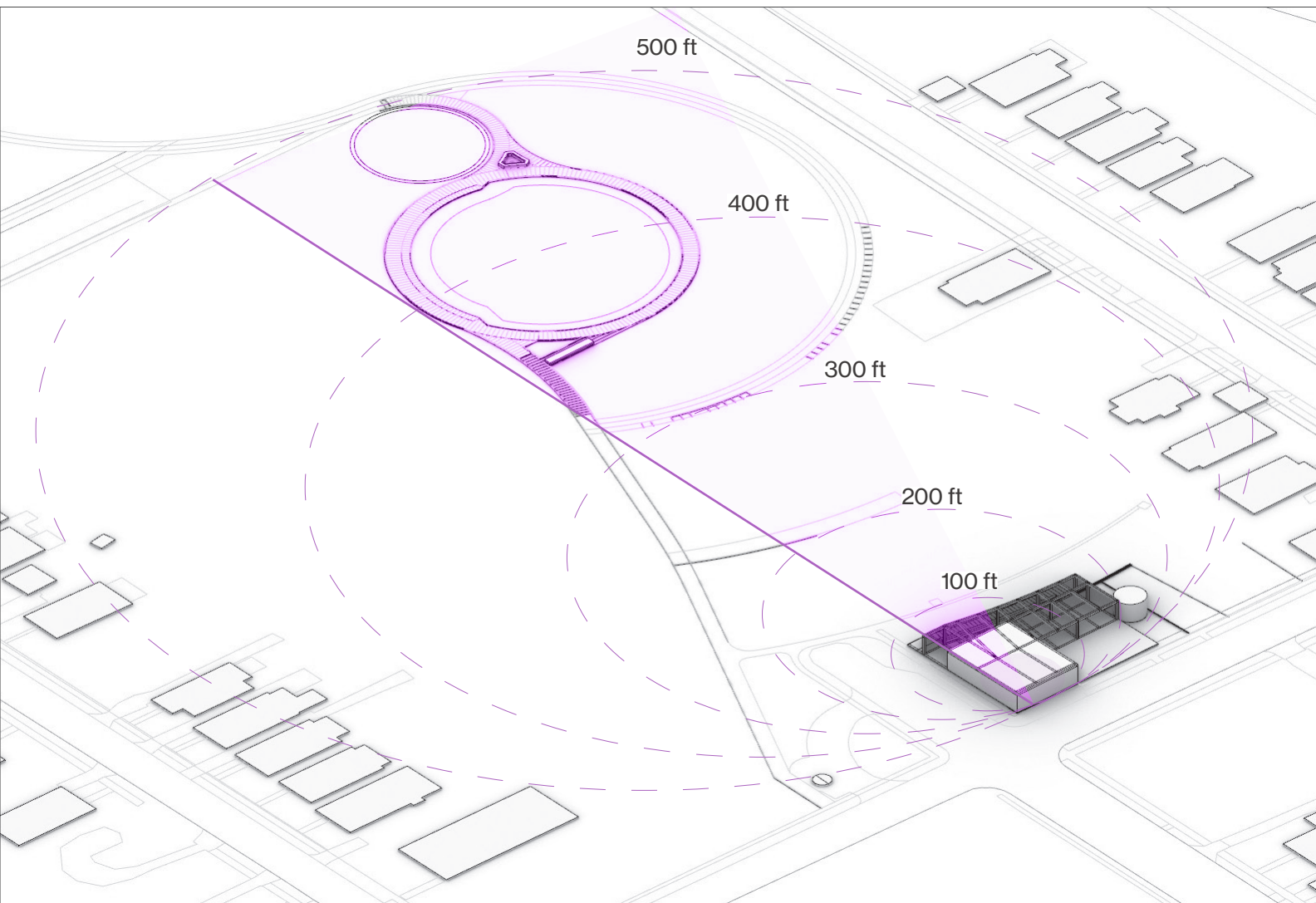
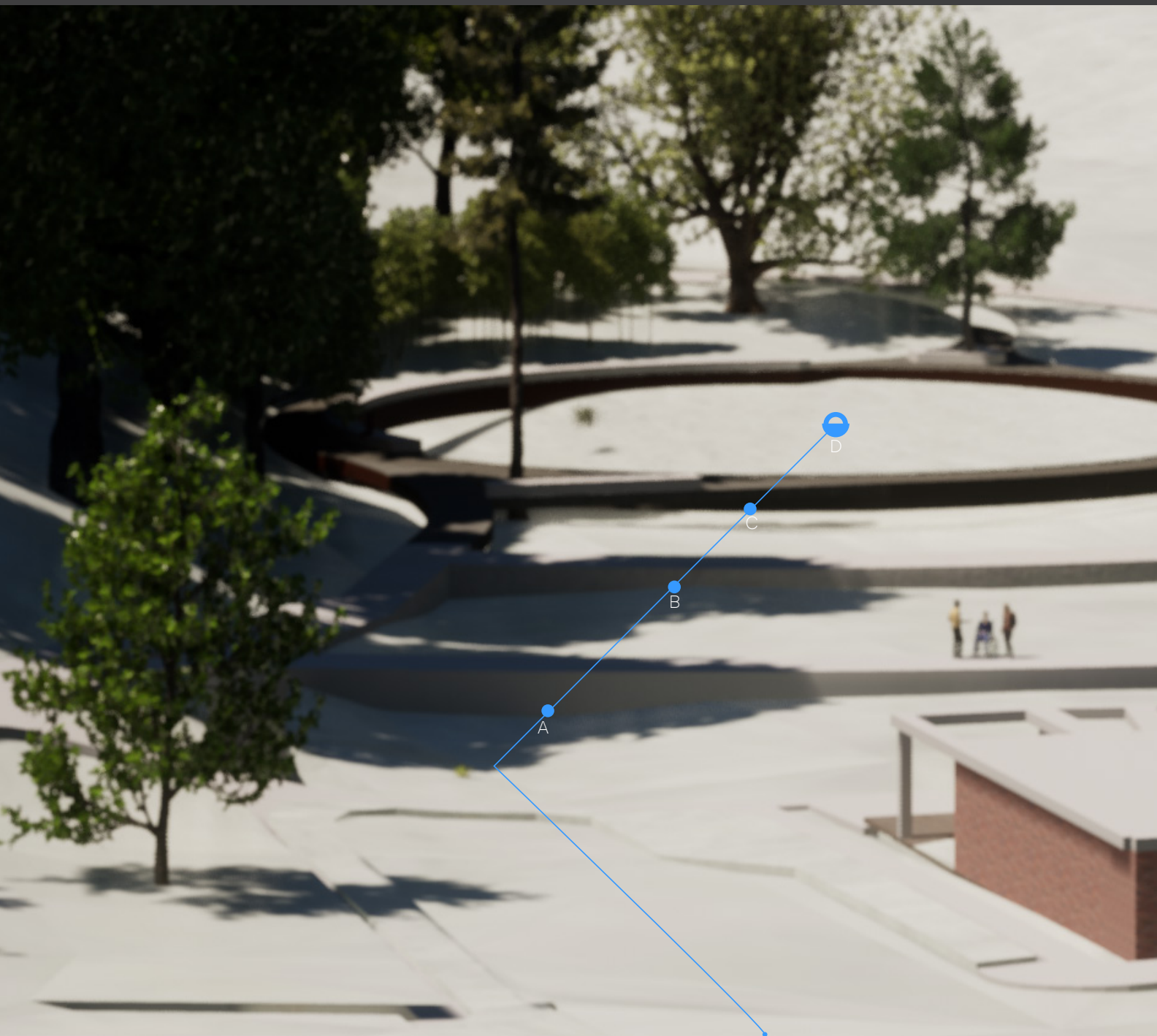
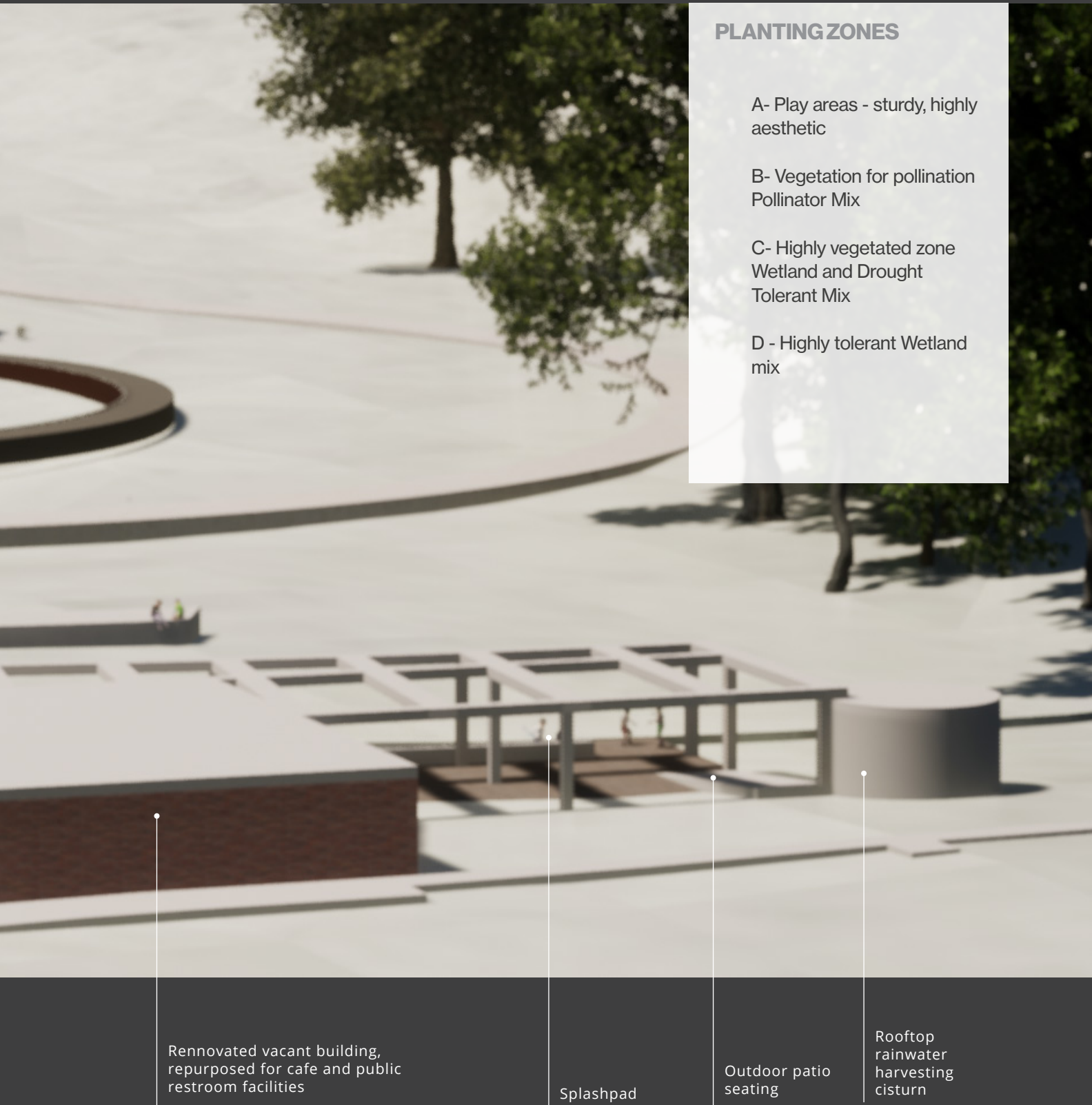


Figure 5-23. Design Organization Concept





**PLANTING ZONES**

- A- Play areas - sturdy, highly aesthetic
- B- Vegetation for pollination Pollinator Mix
- C- Highly vegetated zone Wetland and Drought Tolerant Mix
- D - Highly tolerant Wetland mix

Rennovated vacant building, repurposed for cafe and public restroom facilities

Splashpad

Outdoor patio seating

Rooftop rainwater harvesting cistern

Figure 5-24. Proposed Structures





700 ft

600 ft

200 ft

Wheel chair accessible walkway

Neighborhood

Man walking through



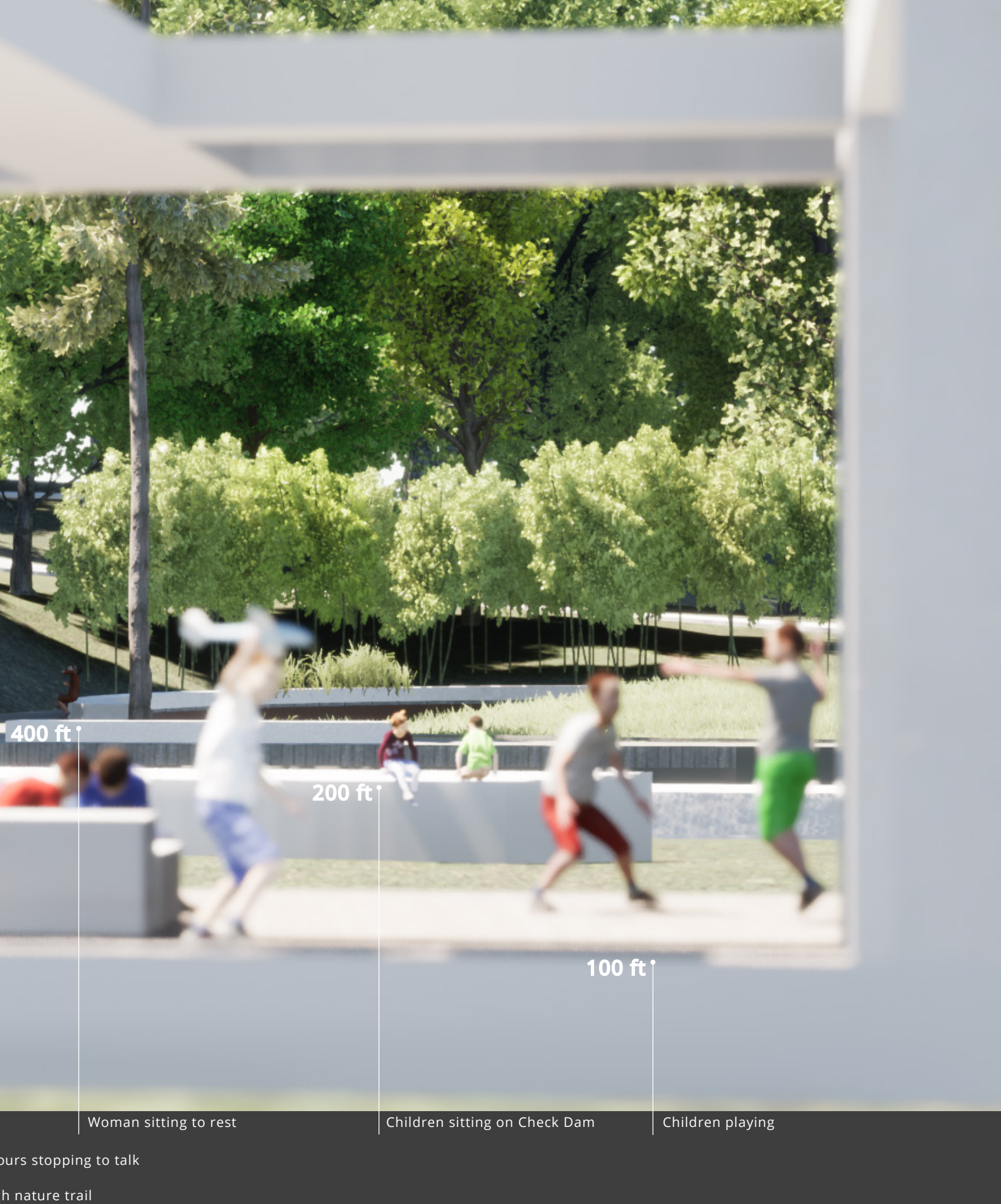
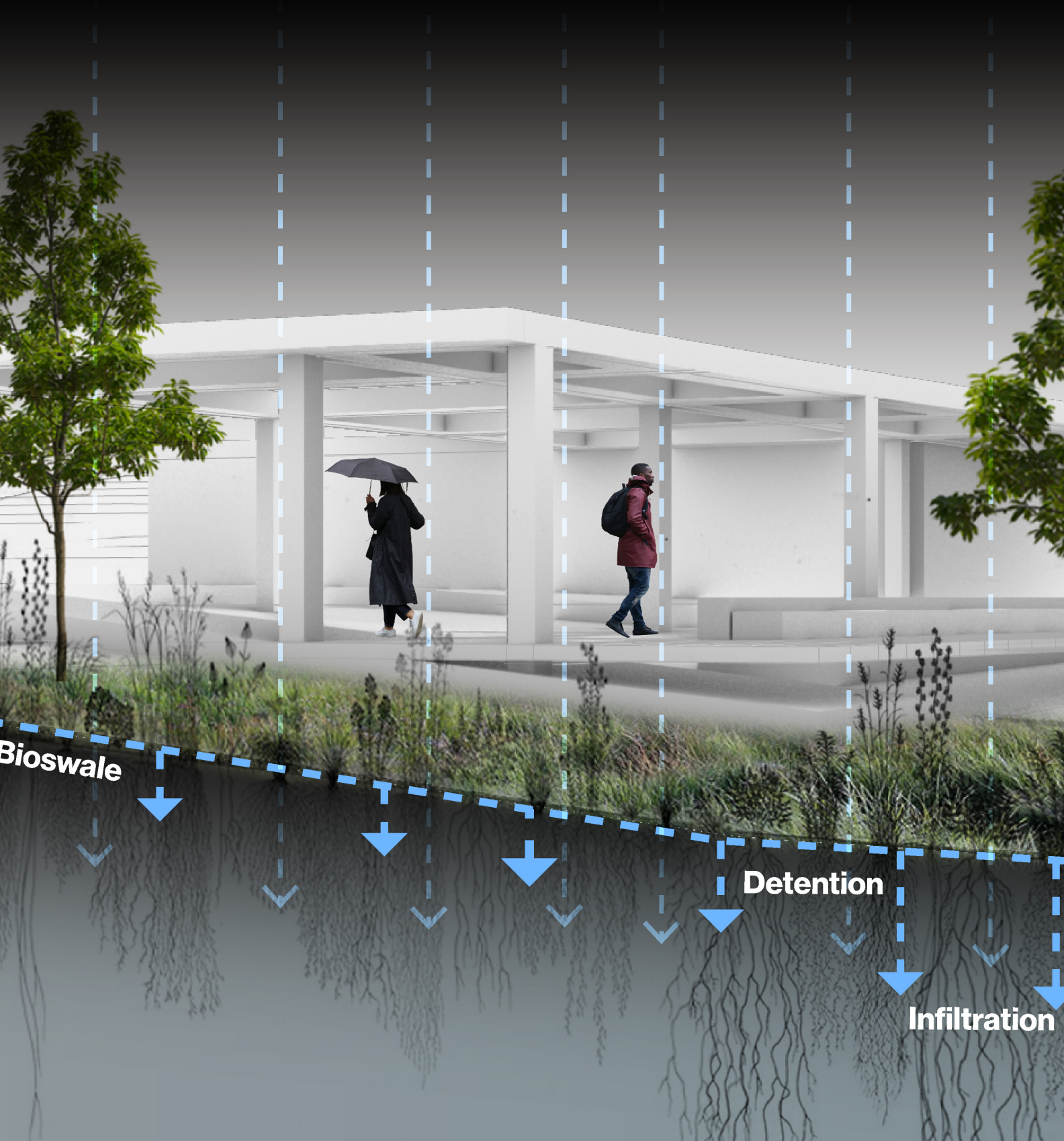


Figure 5-25. Re-imagining Image of Site





## PLANTING STRATEGIES

Water is conveyed through vegetated bioswales, where it infiltrates into the soil through detention basins and check dams. Native plant species are used for their extensive root system, which helps improve soil erosion control. Native plant species often have greater biomass below the surface, enhancing the soil's ability to infiltrate water and withstand wet and erosive conditions.





## CHECK DAM

Missouri Golden Rod

Compass Grass

Head Aster

Big Blue Stem

Lead Plant

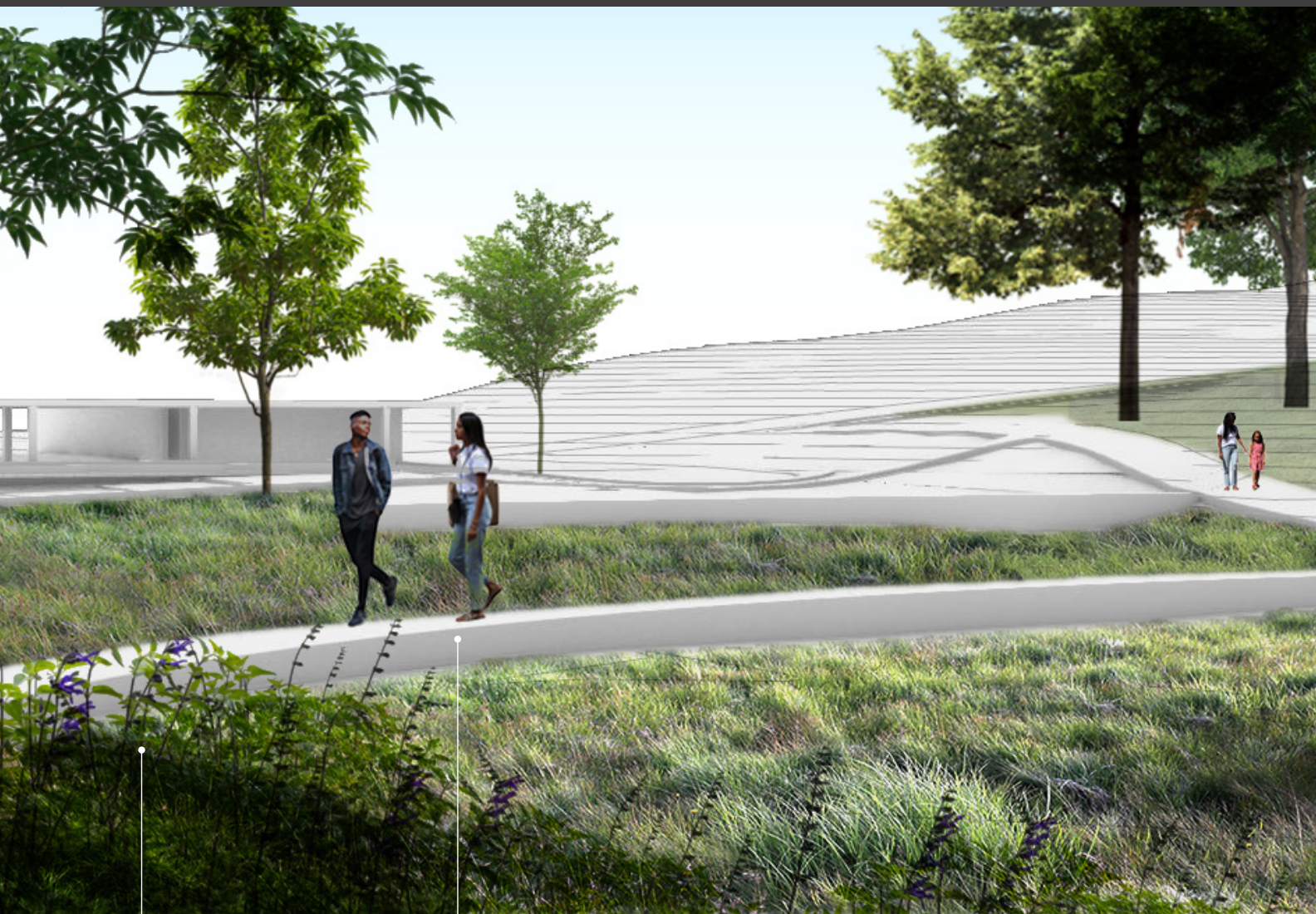
Indian Grass

Porcupine Grass

Prairie Cord Grass

Figure 5-26. Public Shelter Integrates Sustainable Stormwater Strategies





Native plant species

Outer ring pathway

## VIEW FROM THE MEADOW

The view looking north towards Ivanhoe Park is cleared, creating new ways for residents' to experience this site. The boardwalk gives access to a space dense with native planting that floods on occasion. The outer ring pathway allows visitors a more extended experience walking through the site and exploring the nature surrounding them.



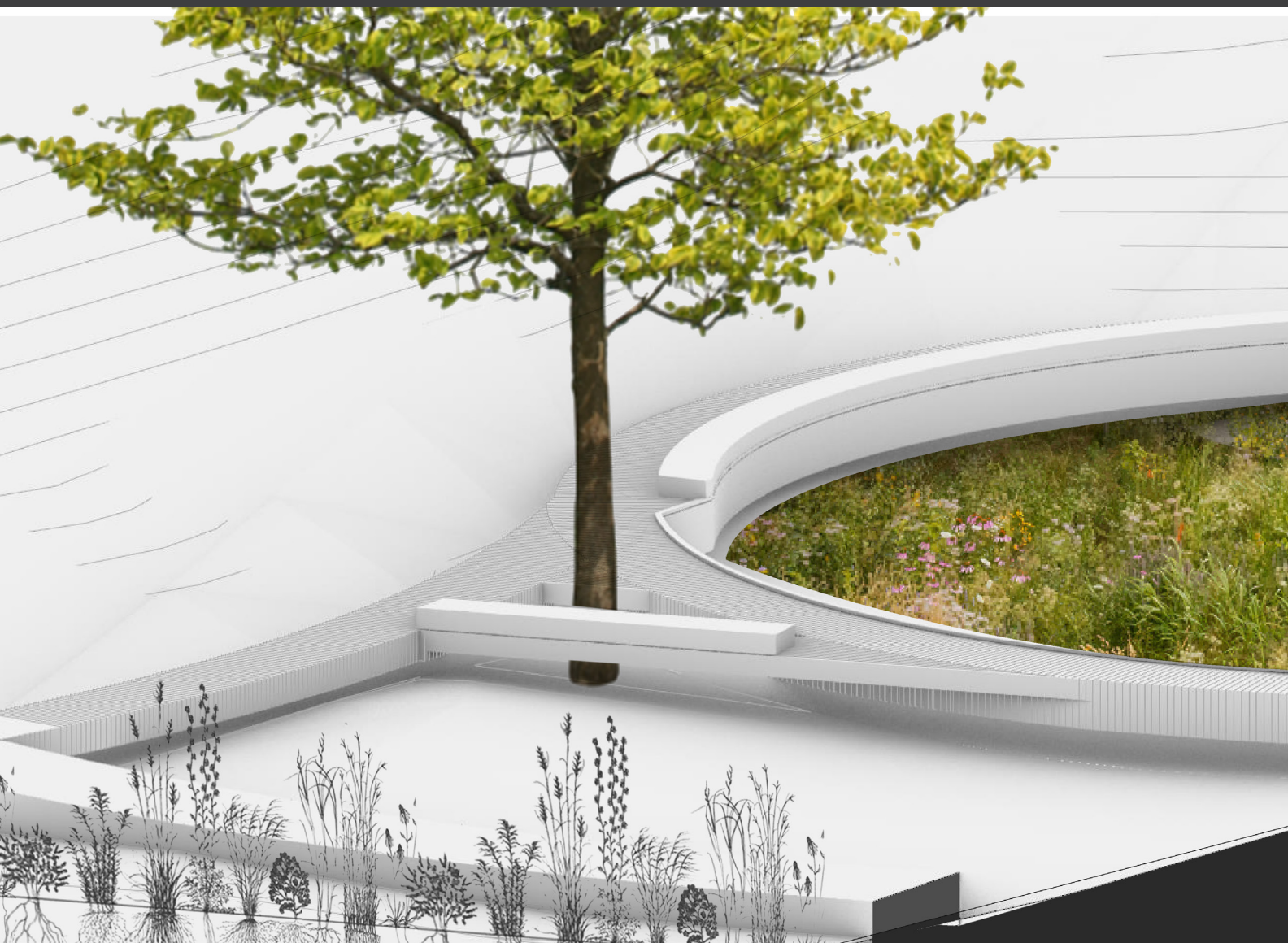


Seating areas

Inner ring boardwalk

Figure 5-27 View from the Meadow





## PLANTING STRATEGIES

The boardwalk draws users into the site to experience the site in a new way. It creates spaces to sit and be immersed in a natural setting. Deep-rooted native vegetation creates a habitat for native species and serves an abiotic function to draw up groundwater and increase the site's capacity for evapotranspiration.

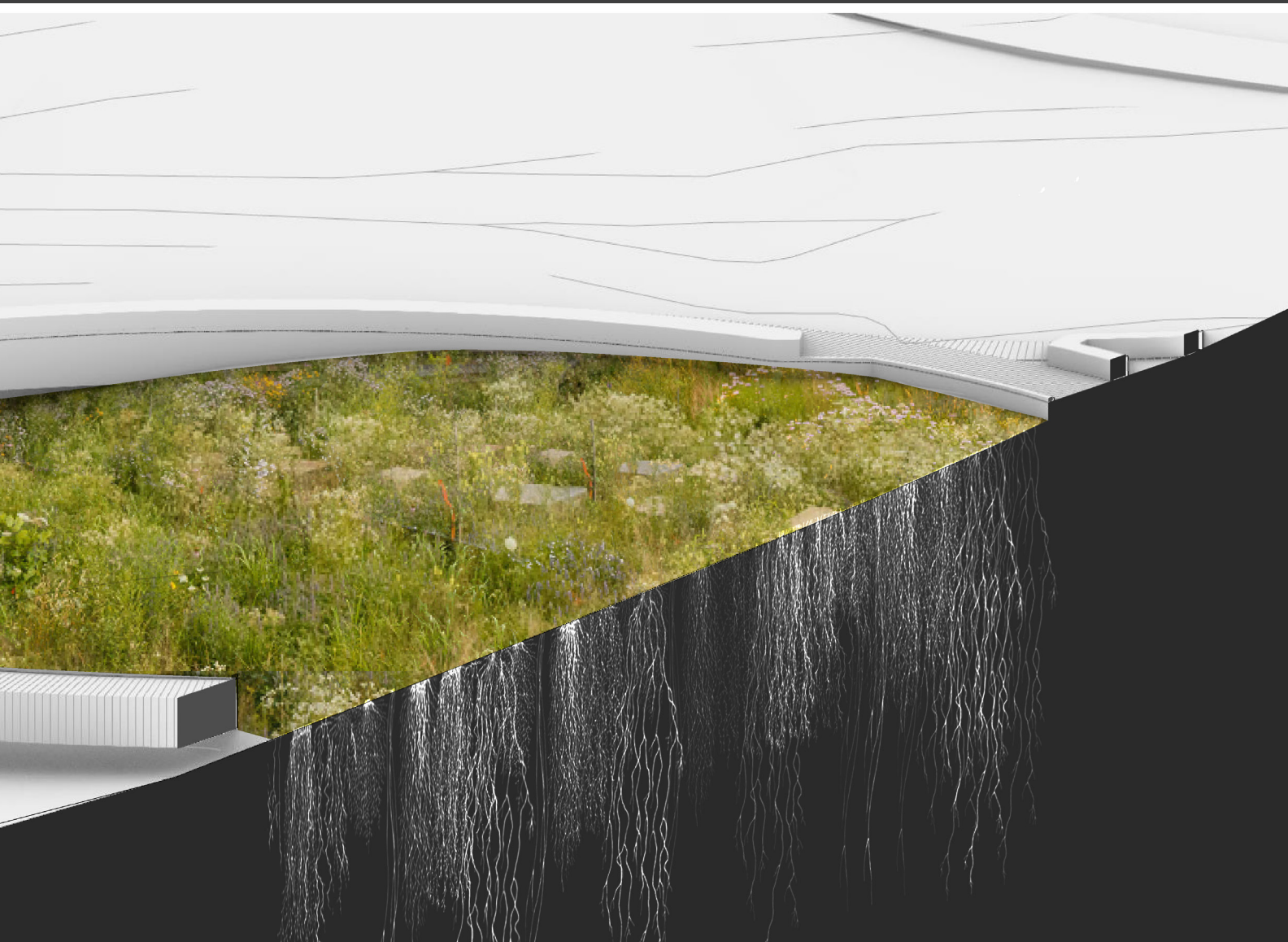


Figure 5-28 Boardwalk Circling Detention Zone



**CONCL**

**USION**

## 6.1 Project Summary

This report has brought together the fields of sociology, ecology, and local economic development together through a shared theme of place attachment to find design solutions to a question that has been gaining a platform in recent years: how to equitably introduce green stormwater infrastructure to low-income marginalized communities threatened by gentrification and displacement? This report set out to answer this research question by studying and extracting themes from literature and recent scholarship to gain a foundational background that helps frame this study's conceptual framework. This research study recognizes that a sustainable and resilient approach to design and planning for marginalized communities requires all three pillars of sustainability: social equity and justice, environmental protection, and (local) economic growth. To do this, the designer must be asking themselves, is a design proposal green, fair, and profitable?

The report has found conflicts emerge between development, resources, and property when all three pillars are not equally addressed. For this report, the question is altered to green, fair, and profitable *for whom*? To address this question, research has taken an ethnographic approach to understand the Ivanhoe community and what makes them attached to their neighborhood, and ensure their community assets are resilient to social and economic change and disturbances through a design proposal. With a clear understanding of the study site's historical background, the inequitable urbanization practices, and spatially segregated communities, the past marginalization is found to be linked to the present disinvestment in social and ecological infrastructure. The progress of rapid urbanization has exacerbated resident's existing vulnerability and caused concern for displacement. This report analyzes what assets are most valuable to the community and what assets are of most significant concern. These findings have helped find solutions to this growing concern.

By applying the research findings through a design solution, a much higher understanding of the connection between stormwater management practices and social equity was achieved. The central part of this research was to understand the social processes that exist in the Ivanhoe neighborhood and understand how to, through design, equitably build upon these processes. This report has integrated these social and ecological concerns into a design that helps protect and bolster community assets.

## 6.2 Project Limitations

Due to the Covid 19 Pandemic, I did not have time to develop trust through regular contact, such as in-person meetings, community events, and gathering in groups, since human contact was considered a safety risk. Additionally, industries, social organizations, and local businesses were often closed for the pandemic or working remotely. These factors prevented typical strategies for finding subjects to interview and significantly reduced the sample size of interviews with residents and business owners. Despite these challenges, community members that participated in the interview discussion were very beneficial and considerably deepened my understanding of the place, people, and design thinking. With more time and opportunities to build connections and trust with the Ivanhoe community members, the report could have built a more holistic understanding of the resident's place attachment, social capital, and assets within the community. Future research of this study would include interviews with residents that would take place in physical study locations to better understand people's attachment to the physical features and organization of the space in order to document resident's sensory experiences within the space. This information could help guide site-specific design strategies to enhance residents' attachment to space from a more personal human scale approach.

### **6.3 Future Design, Management, and Research**

Future research of this study would include interviews with residents that would take place in study locations to better understand people's attachment to the physical features and organization of the space in order to document resident's sensory experiences within the space. This information could help guide site-specific design strategies to enhance residents' attachment to space from a more personal human scale approach. The next step for this project would be to share the design solutions with the community and get feedback. Also, post-occupancy evaluations of such projects is necessary to make sure what was intended in the project has addressed the community's desires and needs and evaluate to what extent the solutions have improved place attachment and prevented gentrification.



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# APPENDIX A

## INTERVIEW QUESTIONS

### INTRODUCTION:

How long have you lived in Ivanhoe?

What brought you to the neighborhood?

How would you describe your neighborhood? Where do you spend time in your neighborhood? Could you walk me through that area?

If not mentioned already:

What are the top 3 favorite characteristics of your neighborhood?

What are the 3 least favorite characteristics of your neighborhood?

What changes have you observed in the neighborhood since you've lived here?

How much turnover have you seen in your neighborhood? Could you give me some examples?

### IDENTITY

What characteristics distinguish Ivanhoe from other neighborhoods?

(What makes Ivanhoe different from other neighborhoods)

What adds or takes away from the identity of the community?

What is the history of the neighborhood? How do you see that history reflected in the neighborhood today? How can it preserve or change the past?

Do you think that Ivanhoe can grow without changing the character and identity of the neighborhood?

### **IMAGE:**

What are the 3 locations within the neighborhood that best represent the positive characteristics of the neighborhood? Could you tell me about them?  
What are the 3 locations within the neighborhood that best represent the negative characteristics of the neighborhood? Could you tell me about them?

### **EXPERIENCE:**

How do you spend most of your time in Ivanhoe? Where do you go on regular basis? Can you think of a day recently when you went to most of those places? Could you walk me through it? How did it start? Then where did you go/what did you do/who was there? Then what?  
When did you last spend time outdoors in Kansas City? Where did you go? What did you do? Who were you with? How did you choose that spot?  
When not at home, where do you spend time in Ivanhoe? Can you list 3 places?  
What type of outdoor spaces in Kansas City do you like to spend time in?

### **DEPENDABILITY:**

When thinking about growth in the Ivanhoe neighborhood, what are you most excited for, and what are you most worried about?  
Are you concerned at all about the water quality of the brush creek or about the security of the neighborhood when there are major storms? Can you recall the last major storm, and can you walk me through what happened?

# APPENDIX B

## INTERVIEW MATRIX OVERVIEW

	Question			
1	Subject 1	Subject 2	Subject 3	Subject 4
2	Subject 1	Subject 2	Subject 3	Subject 4
3	Subject 1	Subject 2	Subject 3	Subject 4
4	Subject 1	Subject 2	Subject 3	Subject 4
5	Subject 1	Subject 2	Subject 3	Subject 4
6	Subject 1	Subject 2	Subject 3	Subject 4
7	Subject 1	Subject 2	Subject 3	Subject 4
8	Subject 1	Subject 2	Subject 3	Subject 4
9	Subject 1	Subject 2	Subject 3	Subject 4
10	Subject 1	Subject 2	Subject 3	Subject 4
11	Subject 1	Subject 2	Subject 3	Subject 4
12	Subject 1	Subject 2	Subject 3	Subject 4
13	Subject 1	Subject 2	Subject 3	Subject 4
Final Synthesis		SubjectWordSynthesis(10/Sum)	SubjectWordSynthesis(10/Sum)	SubjectWordSynthesis(10/Sum)

		Step 1	Step 2	Step 3
		Frequent + Relevant Words	Major Ideas	Major Themes
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
	Subject 5	Word Synthesis (100 )	Key Words and Phrases (1-5)	SharedThemes 1-11
esis(10/Sum)	SubjectWordSynthesis(10/Sum)	Final Word Synthesis (30/1282)	Major Ideas Synthesis	SharedThemes 1-11



# INTERVIEW MATRIX

#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
	Introduction	Ivanhoe Community Council Member, and Longtime Resident of Ivanhoe	Second Generation Ivanhoe Resident, Small Business Owner, and Property Owner	Non-Resident, but Lives in Adjacent Neighborhood, Ivanhoe Church Member and on Staff Worker	Longtime Staff Member of Daycare Center in Ivanhoe, and grew up in the neighborhood.	Ivanhoe Community Council Member, and Recent Resident of Ivanhoe Neighborhood.
1	How long have you lived / involved with Ivanhoe?	34 Years	52 Years	22 years has been member of the church in Ivanhoe.	Grew up for 15 years then started working in Ivanhoe for 25 years. Now lives in Raytown. [Totaling 40 years]	4 years
		34	52	22	40	4
2	What brought you to the neighborhood?	Location	I grew up here [Parents lived in Ivanhoe]	Girlfriend [went to church] [Grew Up in adjacent Neighborhood].	Family [Grew up here] Work.	Work. I used to live up north. But worked in the area ever since I've lived in Kansas City. When children were grown I downsized because it made more sense to live closer to where I worked.
3	What are the top 3 favorite characteristics of your neighborhood?	Proximity to the downtown, Plaza, Crown Center, Stadiums, goods and services	The diversity, changing and welcoming	Aldi's is one of them. It just shows you that they thought about us. The bridges are really nice. The churches in the area are really nice. Another positive thing is what they have done with the bus line. Bringing the curb over at least a little bit. They redid the sidewalks that improves people get around.	I love the idea of the <b>community gardens</b> , especially because people come together and get to work in those areas. <b>"Meals to Men"</b> . So it helps young boys to become men. Focuses on young men in this community in this area. What I like most about this area is that a lot of people that grew up in this area and might have moved out, moved out of the area, always come back to help in this area. Chris Goode, he owns Ruby Jean's Juicery he grew up in this area. Boys and Girls Club. I like when they do <b>events</b> in like the <b>parks</b> within the communities where they have their <b>food giveaways</b> , they're the city does events there for different holiday reasons. Both kind of things are really helpful for the community because the kids are able to get out and meet other kids and see people like themselves doing things in the community. So, it's easier for them to relate.	I would say its becoming an ideal spot to live in the city because of its location. It has high visibility because of the involvement of the residents over the past few years. <b>Visibility? What do you mean by that?</b> Well if you talk to people, in the sort of neighborhood business, development in the city etc. Most of them know of the neighborhood Ivanhoe because of the Friends of Neighborhood Association. So it has a presence Ivanhoe at one time was very crime ridden. Because of the devastation that highway 71 caused. And its been cleaned up over that past few years – its about 21 to 22 years now – not to say there is not still a lot of work to do because there is. So because of the dedication of the residents to not live in the area with a lot of crime, it has a presence in the city. And another characteristic that I think I would say, is again its developing. There has been a lot that has been done, but there is still a lot that needs to be done.
		Proximity to: downtown, Plaza, Crown Center, Stadiums; Access (to goods and Services)	Diversity; Changing; Welcoming	Aldi's; Bridges; Churches; Bus line with Curb and Sidewalks improvements	Community Gardens; Meals to Men; Events in the Park; Boys + Girls Club	Location; Visibility; Involvement; Developing
4	What are the 3 least favorite characteristics of your neighborhood?	Skyscraping property values, that is caused by the gentrification. That is probably the biggest negative that people would face. That we still have a significant number of vacant land in the neighborhood that is still a magnet to illegal dumping. We are still battling that issue. But that will eventually go away when the neighborhood is flipped which is what its doing. And I've already stated one the property values are skyscraping.	Bad neighborhoods, stigma, old neighborhoods	There hasn't been a lot of money poured in to the neighborhood - outside the transit and bus system improvements. Outside they really haven't done much to in this neighborhood. If anything I think they have actually taken money away from the neighborhood... Some of the detractors are the rundown homes. The vacant buildings filled with trash and things like that.	My least favorite thing, and it might not even be because of their age, is that the amount of crime that happens in this area, and they focus on it. It's always on the news, like it's always the focus that this area has crime. It deters a lot of people from wanting to live in this area. There's a lot of great charter schools. Um, but I think if people don't get that information, they're not knowledgeable about the different choices - and they choose not to live in the school district. [Ivanhoe]	The high traffic speed through the neighborhood on Lynwood, 35th st 39th st because people use those as pass-throughs. They are major east west connectors and so people drive on them like they are on the highway. Another least favorite characteristics is the vacant housing. – also the number of old houses. The average home is 75 years old - probably close to 90 to 100 years old. So it takes a lot to sort of re-live those to make them work. <b>Yeah so they must have a lot of problems? Like it wouldn't be a good investment with all the maintenance that is required?</b> Well it can be a good investment, but the reality is that you need to have the money to do that. Our sidewalks. We have side walks that are old and crumbly some that don't exist in some places. It is very hard to walk in one straight mile except for 39th street - which again is very heavy and very fast. But the interior of the neighborhood is very hard to walk one straight mile and not encounter a problem with the sidewalks.
		Property Values Skyscraping; Vacant Land; Illegal Dumping (in vacant land)	Bad neighborhoods, stigma, old neighborhoods	[Disinvestment]; Taking money away from neighborhood; rundown homes; vacant lots with trash	Crime [stigma] (news focus on crime); School District [stigma] (both deters from people wanting to live in area)	High Traffic Speeds (on 39th, Lynwood and 35th); Number of Vacant and Old Housing;
		Changing Local Economy	Stigma	Changing Local Economy	Stigma	Circulation + Connectivity
		Neglect		New Development		Neglect

#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
5	What changes have you observed in the neighborhood since you've lived here?	<p>Community is declining in numbers, and we're seeing new groups of people. Most people are not comfortable with that reality. Property values are skyrocketing, and taxes as well. When the property values go up, it's a great opportunity for the county to sick their hands further down your pockets.</p> <p><b>[What causes this change?]</b> Greed and opportunistic people. <b>[What are the things that attract people to move here?]</b> If you allow an area of the city to degrade to the point at which you can go and buy a vacant house for \$5,000 ( and there are hundreds of them), and you allow this degradation to happen over time, eventually it becomes a hotbed, an opportunity for people to buy land and houses cheap, put a small amount of money into them, and then flip them. It's no different from shorting and manipulating stocks. Same concept, different way to do it. Once you have built enough \$200,000 houses in a neighborhood where the housing costs are \$20,000, you start to change, and you start to create wealth where there was none.</p>	I've noticed cleaning up in the neighborhood and people starting to respect the neighborhood.	<p>Well, I do like that they have lots of churches in the area. There's actually a basketball park on 39th Street going west. I don't know his name, but I know he has put part of his own money into it. It's a community that is trying to deter violence and crime – it's a community that tries. The problem is that we don't have the type of infrastructure, the type of support from the police and I don't know if the police can provide that kind of support really throughout the whole area. I know a lot of people in the area have been in some type of event with the community. <b>I like the area just because of the history there.</b> And our church its important to get the whole park to get the mission to get the whole block to do something to do something to <b>keep our community thriving.</b> There are probably more things that can be said that are more negative.</p>	<p>A lot of people are taking old homes and fixing them up, making them look like if you go on the inside, it looks like those houses that you see in Brookside. But on the outside it might look like the normal neighborhood. Um, well, they have built new homes that are extremely overpriced.</p> <p>But they are gorgeous. Gives you a sense like: I want a house like that, or I aspire to get a house like that. Also, why are they in this neighborhood or why build expensive houses in our neighborhood? I could see from both sides. [Personally]: I think that it's good for people to be able to walk out of their houses and see it, because it gives you a sense of something that you want one day, like a house that you would dream to have one day. And that's for me. But I can't speak for everybody.</p> <p><b>[Yeah I've heard this perspective before. On one side that if the taxes go up then I won't be able to stay in this neighborhood]</b></p> <p>Yeah that's another negative part, yeah. If the taxes go up and everybody is forced to pay more in taxes it could be bad. But another perspective is that people feel like Ivanhoe is a place where people aspire to be in because they are building here. So they are actually attracting people to the neighborhood. <b>So there must be something about the community.</b></p>	<p>New housing. I would say, a stronger input from some of our partners. We have new supportive housing. We have another organization that is going to be building affordable housing. There have been a few vacant houses that have been rehased that are causing a little bit of gentrification as far as I'm concerned, and they are renting for pretty high prices.</p>
		Community Declining in Numbers; New Groups of People; Property Values Skyrocketing; Creates Wealth Where There Was None	Cleaning Up Respect (the Neighborhood)	Churches bring people together for a variety of spiritual & socio-cultural activities; Members help support those in need as well.	Fixing up [old homes]; Extremely Overpriced; Dream to Have One Day; Aspire to be in (Ivanhoe); Attracting People to the Neighborhood;	New Housing; Stronger Input from Partners; Vacant Housing - Rehased - Causing Gentrification; Renting for High Prices
		Community	Pride + Respect	Stigma	Diversise + Inclusive Growth	Community
		Changing Local Economy			Changing Local Economy	Neglect
		Housing + Property	Community	Crime + Illegal Activity	Housing + Property	Changing Local Economy
	<b>Identity</b>					
6	What characteristics distinguish Ivanhoe from other neighborhoods?		We have the comradery to win marketing to distinguish from other neighborhoods and change this neighborhood.	<p>Well, I do like that they have lots of churches in the area. There's actually a basketball park on 39th street going west. I don't know his name, but I know he has put part of his own money into it. It's a community that is trying to deter violence and crime – it's a community that tries. The problem is that we don't have the type of infrastructure, the type of support from the police – and I don't know if the police can provide that kind of support really throughout the whole area. I know a lot of people in the area have been in some type of event with the community. I like the area just because of the history there. And our church its important to get the whole park to get the mission to get the whole block to do something to do something to keep our community thriving. There is probably more thing that can be said that are more negative.</p>	<p><b>Unique</b> looking apartments, unique looking homes that are kind of different from other places, causes a lot of people to be grouped together, so it is kind of different in that you don't find those kinds of living areas in other communities. A lot of duplexes or like the four or five or six places, and they're all grouped together in their area. And there's the townhomes that are standing on the highway, in the heart of the Ivanhoe district.</p>	<p>We have a nonprofit that is staffed with a building. Most neighborhoods don't have that and its payed staff not volunteer staff. So that is one of our strongest identities and again that is because of the participation of the residents that fought for that sort of existence. Another one is that the fact that new housing – other than the supportive housing – all of the other new housing has been sort of built by the Ivanhoe Neighborhood Council, not by developers.</p>
			Comradery; Marketing; for Change	Churches; Deter violence and crime;	Unique looking apartments; homes; grouped together; dont find those living areas in other communities	Have Non-Profit with Payed Staff; New Housing; Supportive Housing; all built by Ivanhoe Neighborhood Community Council
			Community	Crime + Illegal Activity	Housing + Property	Housing + Property

#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
7	What gives or takes away from the identity of the community?	<p>The 80's and 90's was some of the roughest times for the neighborhood, vacant dilapidated land drug houses, drug culture, 80s and 90s were a dark time. Late 90s and up until 2015 was kind of a renaissance for the neighborhood. Through our work we really tried to <b>rebuild the community as far as people getting to know their neighbors and willing to spend their time, and treasure towards making their neighborhood a better place for them and for their kids to live.</b> So, I guess this change that is going on now is probably the second one (identity). <b>It went from a neighborhood where people were afraid to walk down the street, to one where people were taking pride in their lawns, their house, and their community.</b></p>	The stigma of it being a bad neighborhood.	Lack of visibility: the economy; things that are lacking in the area. There are not enough schools in the area. All the kids in the area are having to be bussed to different schools. Even the Martin Luther school was closed. There is not enough being done. You know the biggest thing is the violence. In the summertime there are shootings you don't see them off prospect. It ruins the sense of community. Our senior citizens are really affected by that and tired of it. It ruins the sense of community.	<p>Um, well, they have built <b>new homes that are extremely overpriced.</b> But they are <b>gorgeous.</b> Gives you a sense like: I want a house like that, or I aspire to get a house like that. Also, Why are they in this neighborhood or why build expensive houses in our neighborhood? Could see from both sides. (Personally thinks): I think that it's good for people to be able to walk out their houses and see it, because it gives you a sense of something that that you want one day, like house that you would dream to have one day. And that's for me. But I can't speak for everybody.</p> <p><b>[Yeah I've heard this perspective before on one side that if the taxes go up then I won't be able to stay in this neighborhood].</b> Yeah that's another negative part, yeah. If the taxes go up and everybody is forced to pay more in taxes it could be bad.</p> <p>But another perspective is that people feel like Ivanhoe is a place where people aspire to be in because they are building here. So they are actually attracting people to the neighborhood. So there must be something about the community.</p> <p>And a lot of people are taking old homes and fixing them up, making them look like if you go on the inside, it looks like those houses that you see in Brookside. But on the outside it might look like the normal neighborhood.</p> <p>But they're even yeah, they're remodeling the inside of the houses and they're making a super gorgeous living inside. I know that there was one organization on the news that day. He said he bought four houses on the same block and he's partnered with that, which I want to say he got his own celebrity bank for some reason and that he's which is one of the few black owned banks that's here in Kansas City. And that that he's got most of them to build the houses that he's building. And I want to say they're in the 30s right past that right there at the Ivanhoe area. And he bought four houses on the block. And on the outside, they look like the normal houses that were there. But if you go on the inside, they are very nice houses. So, they're preserving the character.</p> <p>Yes. So, they are keeping the character of the community.</p>	<p>The lack of walkability that takes way. If I am a senior citizen and want to go visit my friend a couple of blocks down because of the sidewalks, then I'm not going to do it.</p> <p>I would say the safety of the streets. From the standpoint- well it is can be grouped into walkability where the people can stay outside. The lack of adequate parking for residents. You see the way that the city was constructed, most people do not have a driveway. So there are a lot of people who park on the side of the street which means its tight when you go down the street. And to me that is ugly. I don't know if it's the majority. Some houses have driveways and some don't, there really isn't any rhyme or reason. I think that is a little strange.</p>
		80's and 90's Roughest Times; Dark Times; Vacant Dilapidated Land; Drug Houses; Drug Culture; Rebuild the Community; Know their Neighbors; Spend their Time and Treasure; Making Neighborhood a Better Place to Live; Pride	Stigma; Bad Neighborhood	Lack of Visibility; Economy; Not Enough Schools; Kids Bused to other Schools; Martin Luther School Closed; Violence (in Summertime).	Unique looking apartments; homes; grouped together; don't find those living areas in other communities	Lack of Walkability; Sidewalks; Safety of the Streets; People can Stay Outside; Lack of Adequate Parking; No Driveways; Tight; Ugly/Strange.
		Crime + Illegal Activity	Stigma	Neglect	Community	Circulation + Connectivity
		Pride + Respect		Changing Local Economy		
		Neglect	Crime + Illegal Activity	Community		
		Community		Crime + Illegal Activity		

#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
8	What is the history of the neighborhood? How do you see that history reflected in the neighborhood today? How can it preserve or change the past?	The history that I would like to be preserved ( and I think the newer generation scan be involved in it) is the realization of the importance of community, the importance of knowing your neighbors, the importance of looking out for those who are down the street or down the block, and secondly, a realization that we can do more collectively than we can do by ourselves.	My father was the only African American in the neighborhood, now it has changed so that whites have moved out of the neighborhood. And then they are starting to move back now that they see this is a good neighborhood. So, I'm seeing that difference now. Because the same land is the same land. So now that it's been gentrified. Why is it more expensive now than it was back then? I mean I own a lot of land in the neighborhood when I first started buying those lots they were like \$25. Now that it's been gentrified they are \$5,000.	With the church we are really trying to preserve the history of the area. I wish you could come in the summertime because that way you could really see. When we do canvassing, we go into the neighborhood and we hand out fliers with information about our church. What you'll find there is that there are literally blocks and blocks of vacant houses. The weather is tearing them down, the homeless people are going into them to stay warm and in the course of them making fires to stay warm they cause a fire and burn them down. You'll see developers trying to come into the area to try and renovate some of these houses. We don't see a lot of that. <b>[So there isn't as much of that kind of development in the area your church is located?]</b> No. You would have to drive around a lot. It's not visible, let me put it that way. I don't know what the city is doing with these properties whether they are just sitting on them. Because you'll see in the summertime the grass overgrown a lot. I know that's a big thing for the city to fight to find the owners and have the city come and have to cut the grass.	Yeah, um, well, I like the fact that they are that, as I said, they are preserving the houses and how they look. Yeah, um, well, I like the fact that they are that, as I said, they are preserving the houses and how they look. And they are not really tearing down buildings, they are just going inside of what was already there and renovating and refurbishing the old and making it new. So, I do like that. <b>[How do you feel that preserves history by doing that?]</b> Because people like me that grew up in the area, we were able to go back and we have our memories of things that happened and things that were established out of these communities. So I remember being in high school, which I've been able to walk around freely, and I had so many friends in that area. And so, you know, I'm just spinning out of their houses and just being out and hanging out in the neighborhood. I think that those are just memories, I think we just created memories in those areas and not something that we want to drive by and then see gone.	<b>Whatever you are trying to save or preserve.</b> That would probably be the 60s and 70s. Ivanhoe was originally a German enclave. It became majority African American in the 60s and 70s. I would say the history that we are trying to preserve in Ivanhoe is one in which residents would be respected regardless of what would be considered their financial class. It is a very low wealth neighborhood. One that we recognize needs to change so it is more mixed income. The [wealth] is increasing, however we don't want it to increase so fast that [low income] residents are displaced because the property taxes are jumping up and they lose their house. So I don't know that we are trying to preserve anything except that it is a neighborhood that is inclusive and really developed and pushed by the residents that live there. So if it changes over time, so be it, but we don't want a drastic change you know over the course of 5 to 10 years where it goes from where it goes from where it is today to where the average income is now \$75,000.  <b>[So to prevent displacement you are wanting a more gentle or gradual change, to where it is more inclusive?]</b>  Right. It's not an easy scenario to try and effect because you don't want concentrated poverty, but you also don't want there to be so much change where poor people who do live here and do own homes can no longer afford to stay in the neighborhood. So it is a balancing act that has to be very incremental rather than very drastic.
		Importance of Community, Knowing Your Neighbors, Looking Out for [Neighbors] Down the Street; Realization We Can do more Collectively (collective efficacy). 80's and 90's Roughest Times, Dark Times; Vacant Dilapidated Land; Drug Houses; Drug Culture; Rebuild the Community; Know their Neighbors; Spend their Time and Treasure; Making Neighborhood a Better Place to Live; Pride	Father witnessed the transition from a majority white neighborhood to African American. He is now witnessing it transition from a majority African American to more diverse in race and income. Others seeing it as a Good Neighborhood; Seeing Difference in diversity; Same Land Gentrified; Expensive.	Church is Trying to Preserve History; Blocks of Vacant Houses; Overgrown Grass; Development Not Visible;	Not Tearing Down Buildings [but] Renovating Refurbishing, Old Making it New; Walk around Freely, Hanging Out, Created Memories; Not Want to See Gone	[Preserve] Residents Respected Regardless of Financial Class; Inclusive; Developed and Ousted by Residents; Change is Balancing Act, Incremental.
		Preserve: Sense of Community and Social Capital and collective efficacy to make a Neighborhood Better Place to Live	Father witnessed the transition from a majority white neighborhood to African American. He is now witnessing it transition from a majority African American to more diverse in race and income.	Preserve: Church builds and Vacant Homes that are Deteriorating. By: Maintaining them	Preserve: Memories of the Area through Preserving the character of the homes By: Not Tearing Down Homes, but Renovating and Remodeling.	Preserve: Inclusiveness and Respect for Residents in all Financial Classes. By: Balancing Poles of Financial Class through Incremental Change
		Community	Community	Housing + Property	Housing + Property	Diversify + Inclusive Growth
			Diversify + Inclusive Growth	Neglect	Diversify + Inclusive Growth	Changing Local Economy
	Image					
9	What are the 3 locations within the neighborhood that best represent the positive characteristics of the neighborhood? Could you tell me about them?	One, Ivanhoe Park on W 3rd and Brooklyn Ave that was the park where the drug dealers were on. They called it Brooklyn corner. We renamed that Park and we've been through the city, improving that park over the past 15 years. Two, Ivanhoe Neighborhood Center 37 and Woodland. And the associated park called Nutter Park ( Jim Nutter Senior is the richest man in Kansas City). Three, Ivanhoe Garden and on Euclid Neighborhood association development 9 duplexes 8 senior living neighborhood organizations was the developer.	Harris Park, the new development that is coming throughout, and the mindset of the people. Yeah. And you know when you look at other neighborhoods where they have home associations and things like that. We have things in place that are meant to protect the neighborhood, but the city is not even enforcing it.	Aldis. It took a while to make the aldis. Bridges are very nice. Churches in the area. What they have done with bus lines and the curbs. Street improvements.	Ivanhoe Community Gardens.	People out walking, visiting one another. Most of the homes have porches. Some beautification through the neighborhood where – right now our parks are in pretty good shape
		Ivanhoe Park; Ivanhoe Neighborhood Center; Nutter Park; Ivanhoe Garden;	Harris Park; New Development; Mindset of People.	Aldis; Sun Fresh; Bridges; Churches; Busline	Ivanhoe Community Gardens	People out Waling, Visiting; Beautification Throughout; Parks
		Parks+Social Spaces	Parks+Social Spaces	Circulation + Connectivity	Parks+Social Spaces	Community
			Community	New Development		Parks+Social Spaces
			New Development		Community	New Development



#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
10	What are the 3 locations within the neighborhood that best represent the negative characteristics of the neighborhood? Could you tell me about them?		Just say for instance the utility companies. The utilities don't take care of their stuff. Like the tree trimming they are supposed to do. Like the alleyways that the city is supposed to take care of. The rules and regulations that are built to protect the community are not enforced by the higher-ups.	Some of the detractors are the rundown homes. The vacant buildings filled with trash Empty lots filled with trash	I think that there are a lot of more than needed, a lot of buildings that have the wooden windows, so I think the eyesight of that is a deterrent and it's really negative. So the the wooden boards on the windows. And I think that one time the mayor that we had Sly, he he was he was working with an organization to do something to the wooden boards like you to draw pictures. But I think that he only had time to do one house at that time. But they're everywhere and they're all over the Ivanhoe area. <b>Are they increasing or decreasing?</b> I mean, I feel like maybe it's kind of stagnant, uh, but I feel like that's a negative. Yeah. A sore eyesight and a deterrent for people.	The Large Ivanhoe Park probably needs a bit of attention, and a couple of other things where it is very activated. You know its very hot in the summer time. So we need something with water you know sort of in the hottest parts of the summer. Well one basically in which the vacant houses are no longer vacant, there are lots that aren't just vacant lots. They are claimed by the house next-door to them. So a clean thriving neighborhood where residents feel comfortable to be out walking, exercising biking playing, you know, that is my vision. And that the cars on 39th street are actually driving 35 miles an our instead of 50 or 55 miles. And it sounds simple, but you know you don't want to cross 39th street because of the traffic.
			Utilities Dont Take care of Their Stuff; Tree Trimming; Alleyways City is Supposed to Take Care of; Regualtions and Rules Not Enforced by Higher-Ups	Run-Down Homes; Vacant Buildings With Trash; Empty Lots Filled With Trash	Buildings With Wooden Windows [ Vacant Buildings]; Stagnant; Sore eyesight; Deterrant;	Ivanhoe Park; Need Water in Hottest Part of Summer; Vacant Lots; Vacant Houses; Cars on 39th St. + 35th St. Driving 50-55 mph.
			City Shows Signs of Neglect in Maintenance, Enforcement of Regulations, + Poor Quality of Care.	Deteriorating Vacant Homes + Lots Neglected with Illegal Dumping	Vacant Homes Neglected. Visual Deterrant	Ivanhoe Park. Vacant Lots + Vacant Homes Neglected.
			Neglect	Neglect	Neglect	Neglect
			Housing + Property	Housing + Property	Housing + Property	Housing + Property

#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
	<b>Experience</b>					
11	How do you spend most of your time in Ivanhoe? Where do you go on regular basis?	Terrace Park Ivanhoe Park on 34th and Brooklyn Ivanhoe Center Ivanhoe Farmers Market on Lynwood and Woodland Robert J MO Heart Center on Lynwood and Flora Tolbert Church on Paseo and 33rd Metropolitan Missionary Baptist church on Lynwood and park (Largest churches in Area. Pastor Well-Known on City Council) Gates Plaza on Emanuel Cleaver Blvd Prospect and Lynwood Shopping Area	Harris Park.	Church. Support the Aldi's. Churches Chicken. Lucy's Fish Store	Eminem Bakery frequent often. And there is a Hair store that we go to. Right. On 30th and prospect, thats been there for 20-25 years. Lynwood shopping center, thats an area to preserve because it's not many shopping centers anyway in the neighborhood. Tease dollar store. Lymarze donuts. Johnny's doughnut.	Aldis; Work; Home; Ivanhoe Park; Not a lot of Gathering Places; 35th has loitering Problems; Prospect Max; Slow Down Traffic
12	When did you last spend time outdoors in Kansas City?	Ivanhoe park	Harris Park; Plaza; West Por; Downtown; Louis Park	Outdoor service in [Church] parking lot. [Canvasing] down Prospect ; 33rd St.; Brush Creek.	Gillham Park; Outdoors Playing Jump Rope. Yeah. Didn't Need a Park.	Art instillation at the park. [Hyde Park].
	<b>Dependability</b>					
13	When thinking about growth in the Ivanhoe neighborhood, what are you most excited for, and what are you most worried about?	I would hope to see that we would be able to use the land and houses to attract families and homeowners not renters. I have no problem with non-minority families - people moving in. I personally believe that a diverse city is best.	I'm most excited for the new people moving into the neighborhood, and continuing to build and raising the property values of our neighborhood. What I'm most worried about is the people who have been here for years who are not comfortable with the change. And also when the property values go up there are a lot of people who cant afford it. So they have been living there for years on a fixed income and it's a double edged sword because you do want your property value to go up, but the people who have been living there for years and got comfortable and even though change may be better mentally some people are not ready for change, and cant afford to change. <b>[Is that forcing them to move?]</b> I can't tell you if it is forcing them to move. I don't have the answer to that question I haven't physically seen it. But I do know that I have been I was paying property taxes for lots that I bought for \$25 and I was paying about \$5 per lot in taxes now I am paying \$300 to \$400 per lot in taxes and I have 40 lots so.. <b>[Wow that is a drastic change.. So that causes you to be worried about the future, I guess, right? If that keeps on increasing?]</b> I mean don't get me wrong. I am happy the property value has changed, but when there started to be some diversity the property values skyrocketed. When there wasn't this diversity the property values were \$300 - \$400. I mean why is it that the exact same land is different now?	[Worried] I am most concerned about the Youth. The youth is brought up in one home and they are considered a latch key kid. They can easily get in to mischief. You know something like a boys and girls club .. you know we don't really have any thing close to us like that. That would draw that youth in and give them an alternative that to what's going on out back	[Excited]: Things I like to see is of course the houses being renovated and showing people different ways to design structures and their houses and things like that. [Worried]:But you know we all have to be worried about the rising costs of what that going to do to the community. To make it affordable. Because you know a lot of people are on affordable housing and a lot of people are on section 8. in that area and those people are not going to take section 8 and you know it's going to essentially move people out of that area. And probably move people to the project area.	Possibility for people who have originally have been unable to purchase new property because that is my role in Ivanhoe. To build houses in Ivanhoe that are well constructed, energy efficient for people who don't generally have that access. So, from that standpoint the more that we can do the more that we can create a better sense of community in the neighborhood. The lease excited, when I think about where I grew up, most people don't have that sort of east west north south traffic where a lot of strangers are passing by. So, for me, that concerns me, because of the fact that there are people who I don't know who are just travelling through the neighborhood. I'm used to the neighborhood where if there is someone who passes by me, I know that they live in the neighborhood or whose children they might be. I know Kansas City is a lot bigger than where I grew up so that might be a factor as well. But the volume of traffic is something I don't like.
		No Problem with Non-Minorities Moving In; Diveristy is Best; Hope to Attract Families and Homeowners- not Renters;	Excited for New People Moving In; Raising Property Values; Worried about: [Longtime Residents] Not Comfortable With Change; People Who Cant Afford it; Double Edged Sword;	Worried about the Youth; Latch-Key-Kids; Alternatives for Kids.	Exited: Houses Renovated; Different Ways to Design Structures. Costs Move People Out of Neighborhood; Project Area	Possibility for People to Purchase Property in Ivanhoe; Create Better Can Create Sense of Community; Worried about Volume and Speed of Pass Through Traffic (this Ruins Sense of Community)
		Excited: Diversity Concern: Non-family and temporary residents	Excited: New Residents + Increasing Property Values Concerns: Resistanec too change + Affordability for Low-Income Residents	Concerns: Youth + Youth Services	Excited: House Renovations Concerns: Affordability for Low-Income Residents	<b>Excited:</b> New Residents + Diverse Housing Options <b>Concerns:</b> Sense of Community + Traffic Volumes
		Housing + Property	Housing + Property	Community	Housing + Property	Housing + Property
		Community	Diversise + Inclusive Growth		Changing Local Economy	Community
		Diversise + Inclusive Growth	Changing Local Economy			Circulation + Connectivity

#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
14	Do you think that Ivanhoe can grow without changing the character and identity of the neighborhood?	If we aren't changing the neighborhood for the better, we are not growing. I'm measuring growth (as a Neighborhood Organization), by our ability to take the neighborhood from where it is to a better version of itself.	As anything grows it's going to change the character. I haven't seen anything grow where the character didn't change.	I think it can grow. Will the identity change? I would say it will change. It really depends on who is involved in the community. You know if it is outside influenced and the community doesn't get an option to have a say in how it changes. But if you involve the community Ivanhoe can keep its identity but still yet evolve.	That guy on the news, again. I don't think he is trying to change the character of the neighborhood. But they are still growing but they still are being able to offer places for people to live that want to live in that neighborhood, but still want the nice houses. I can't think of his name but he was on Fox 4 and the bank that he partnered with was Liberty Bank. And they are very proud of him.	Identity to me is with respect to neighborhood, is one in which again it is a sort of inclusive environment. Everybody feels at place in place. When there is an emergency people feel comfortable going next door to ask for help. When you have growth that is very fast or they are targeting a certain demographic whether that is age race or income then you create the process of separation. So I'll be the first to say Ivanhoe needs younger people. And I am the mother three young adults who are in their twenties, and when I think about how they operate, it's a little different from my generation. So I wouldn't want to see a huge influx of twenty-year-olds who are not necessarily connected to anybody in the neighborhood except for people who are directly in their house. So there needs to be a good mix of so that there is a generational transfer of information and community. <b>So your saying there needs to be a diversity of age, and generations?</b> Yes, diversity across the board, whether that's age, or race, or sex, or income level. But there needs to be a good mix so that you build this inclusive enclave within the city. Now that is a Utopian view of what happens in the real world. But that is what I would want to see with the growth, and I know that that won't happen if growth happens too fast. Because when growth happens too fast it tends to be on either end of the spectrum either it is producing upper middle class to high end or you are producing very lower-income housing. So, you attract either one end of the spectrum and very little in between.
		Change for the Better or Not Growing: Measured by ability to take neighborhood to a better version of itself.	Change is going to change the character.	I think we can grow; Identity will change. Depends on whose involved; Ivanhoe Can Keep Identity and Evolve [if] Community Involved	Growing but still offering affordable with nice [expensive] houses.	Identity=Respect to Neighborhood; Inclusive Environment; Everybody Feels At Place and In Place; Going Next Door to Ask For Help; Growing Fast or Demographic Targeting Growth Creates Separation; Ivanhoe Needs Younger People. Intergenerational transfer of information and community. Diversity across the board;
		Yes. Growth = Change for Better Version of Itself	Growth is going to Change Character	No. Identity Will Change. Yes. If Community is Involved.	Yes. Character Preserved by offering diverse housing options. Affordable + Expensive	Identity = Respecting Neighborhood + Inclusive Environment + Everybody Feels At Place. No if Rapid + Polarized. Yes if Diverse Growth. Diversity Across the Board = age, race, sex, income level
		Diversify + Inclusive Growth	Diversify + Inclusive Growth	Diversify + Inclusive Growth	Diversify + Inclusive Growth	Diversify + Inclusive Growth
		Community	Changing Local Economy	Changing Local Economy	Changing Local Economy	Changing Local Economy

#	Questions	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
15	Are you concerned at all about the water quality of the brush creek or about the security of the neighborhood when there are major storms? Can you recall the last major storm, and can you walk me through what happened?	<p>It's not really a high priority at the moment, but it would not have been allowed at the Plaza. It's full of debris and it's just a mess! Once you get out of the Plaza you know you are out of where people care about it.</p>	<p>You know I'm not worried about it. But you know if you ride down and look at the decor of Brush Creek in the Plaza if you go across 37th Street and go across Troost, look at the décor of the brush creek. So, I'm not necessarily really worried about that but what I am concerned about is the visibility of it. There are still places in Brush Creek, like once you get down to Van Brunt [Blvd], where brush creek still floods. Again, how is it possible where you are able to control it and when you get passed Troost you look at the decor in brush creek and you look at the debris in brush creek and you can see a total visible difference and that in itself is a change and my question to that is why is that possible, and how is that possible because the city or whoever runs brush creek. You don't have to take my word for it. Just drive down to brush creek and once you cross Troost, you can see a visible difference.</p> <p><b>[Sort of similar to what you were saying with the other utilities and maintenance of the area? That difference?]</b></p> <p>Absolutely. There's that stigma again. And as we fight to clean it up, it has to come from the top. You know as individuals we're fighting from the bottom and when it starts coming from the development of the entire brush creek, it doesn't make a difference what the little people do. It has to come from the top if things are truly going to change.</p>	<p>No, I really don't see it as a big issue. Now regarding the water and the brush creek. They really haven't fixed that issue. Because Brush Creek was flooding continuously, they built that early talent day care. I'm waiting to see how that plays out. Because the minute we had a good rainstorm, all down there in that area it floods. It doesn't flood in the plaza.</p> <p>Just like in an area that you haven't done any significant investment things are liable to happen. We've had water mains break in the street right up the street from our church right up Prospect (Ave). To see big lead plates in the road because they're trying to pick up. I'm just waiting to see if we are waiting to see water running down the street after it freezes in the fall. Bush creek floods they have to fix that waiting to see how that plays out.</p>	<p>Kansas city has the best tasting water.</p> <p>The problem with the sewer issues is that they have an old sewer system and they don't have enough sewers. But every time that it rains, or if there is heavy rain, Brush Creek Floods. And then they have to put out those orange signs on the roads so that you don't drive into it, but the sewer system is horrible because even sometimes it doesn't seem to rain that much but it still gets flooded.</p> <p><b>[So that would be something that needs investment?]</b></p> <p>Yes. If we were to tackle this problem, then that might be something that changes how people feel about the community feels about the Creek. I remember having to drive around it and having to go out of your way to get where you need</p>	<p>I've only been in the community when there was one major storm which was in may. There was a short storm so there wasn't flooding in the street but there was flooding in the backyard. I was all up in arms because of my garden. But the water was receding and eventually it cleared up by 10 o'clock. But it rained for 2 hours. Now I haven't experienced that one major storm at brush creek where people died and caused property damages. I haven't experienced anything like that, nor have I seen it rise to the levels where I would say it's going to be a threat. Now I live in the mid center of the neighborhood so what happened closer to prospect, I still don't think I would be affected by it. I know it's no longer in the floodplain so I'm not really worried about security. So you would say it's not a big concern, and I think they were supposed to take care of that when they redesigned and did the renovation that they did. I think they now have water tanks under the walking trails.</p> <p><b>[What about the water quality, is it a concern for you?]</b></p> <p>No, I know they used to have a Fishing Derby in 2019 and if they had it there I would imagine that the water quality isn't that bad.</p>
		Not Really High Priority; But "Stinking Sore" [Poor Water Quality] Not Allowed in Plaza; Were Out of Where People Care About it; Debris and Mess	Not Worried About It; But: Concerned about Visibility; Decor and Debris Visible Difference Passed Troost; Still Floods: Stigma Again; Fight to Clean it Up From The Top.	No. Not Big Issue; But: Havent Fixed Water and Brush Creek Brush Creek Flooding Continuously. Havent Done Significant Investment Water Mains Break; Water Running Down Street. Brush Creek Floods, They Have to Fix That.	Sewers Old or Not Enough. Brush Creek Floods Every Time it Rains. Orange Signs on th Roads; Sewer System Horrible; Tackling Problem Changes How Community Feels about Creek.	Flooding in the Back Yard (in Garden); Havent Experienced Major Storm in Brush Creek. Not Worried about Security. The Water Quality isnt That Bad.
		Not Concerned. Plaza Comparison. Debris + Mess. Lack of Care. Brush Creek Still Floods. Upland Flooding Past.	Not Concerned. Plaza [Troost] Comparison. Debris Visible. Brush Creek Still Floods	Not Concerned. Still Floods. Water Street Infrastructure is Issue (Prospect). Brush Creek Still Floods. Upland Flooding Problem. Needs Investment in Water System (Upland).	Not Concerned. Sewers Infrastructure Problem (Horrible). Brush Creek Still Floods. Plaza/Troost Comparison in flooding. Investment in Brush Creek Needed For Community.	Not Concerned. Upland Flooding (in Backyard). Brush Creek Still Floods - But is controlled. Quality of water Fine.
		Neglect	Neglect	Neglect	Neglect	Water + Infrastructure
		Water + Infrastructure	Water + Infrastructure	Water + Infrastructure	Water + Infrastructure	



# APPENDIX C

Actions		D	J	F	M	A	M
A	Literature Review						
B	Precedent Studies						
C	Site Analysis						
D	Interviews						
E	Projective Design						
F	Book Design						

February							March								
	W10	A	B	C	D	E	F		W15	A	B	C	D	E	F
	1							Proposed Interventions	31						
	2								1						
	3								2						
	4								3						
	5								4						
Site Analysis Synthesis	6								5						
	W11								6						
	7								W16						
Interviews Synthesis	8							Graphics	7						
Compile Findings	9								8						
	10								9						
	11								10						
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Substantial Complete Doc	15								14						
Begin Book Design	16								15						
Begin Projective Design Phase	17							Finish Design Phase	16						
	18							Compile All of Report	17						
	19								18						
	20								19						
	W13								20						
Substantial Complete Reviews	22								W17						
	23							Final Report Draft	21						
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Design Concept Development	W14							Schedule Final Exam	26						
	27							Final Book Revisions	27						
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April							May						
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# APPENDIX D



University Research  
Compliance Office

TO: Dr. Sara Hadavi  
Landscape Architecture/Regional and Community Planning  
Seaton Hall

Proposal Number: 10345

A handwritten signature in black ink, appearing to be "Rick Scheidt".

FROM: Rick Scheidt, Chair  
Committee on Research Involving Human Subjects

DATE: 12/22/2020

RE: Proposal Entitled, "Staying Rooted in Place: Equitable Placemaking through Green Stormwater Infrastructure"

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written - and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, 45 CFR §104(d), category: 2, subsection: ii.

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

