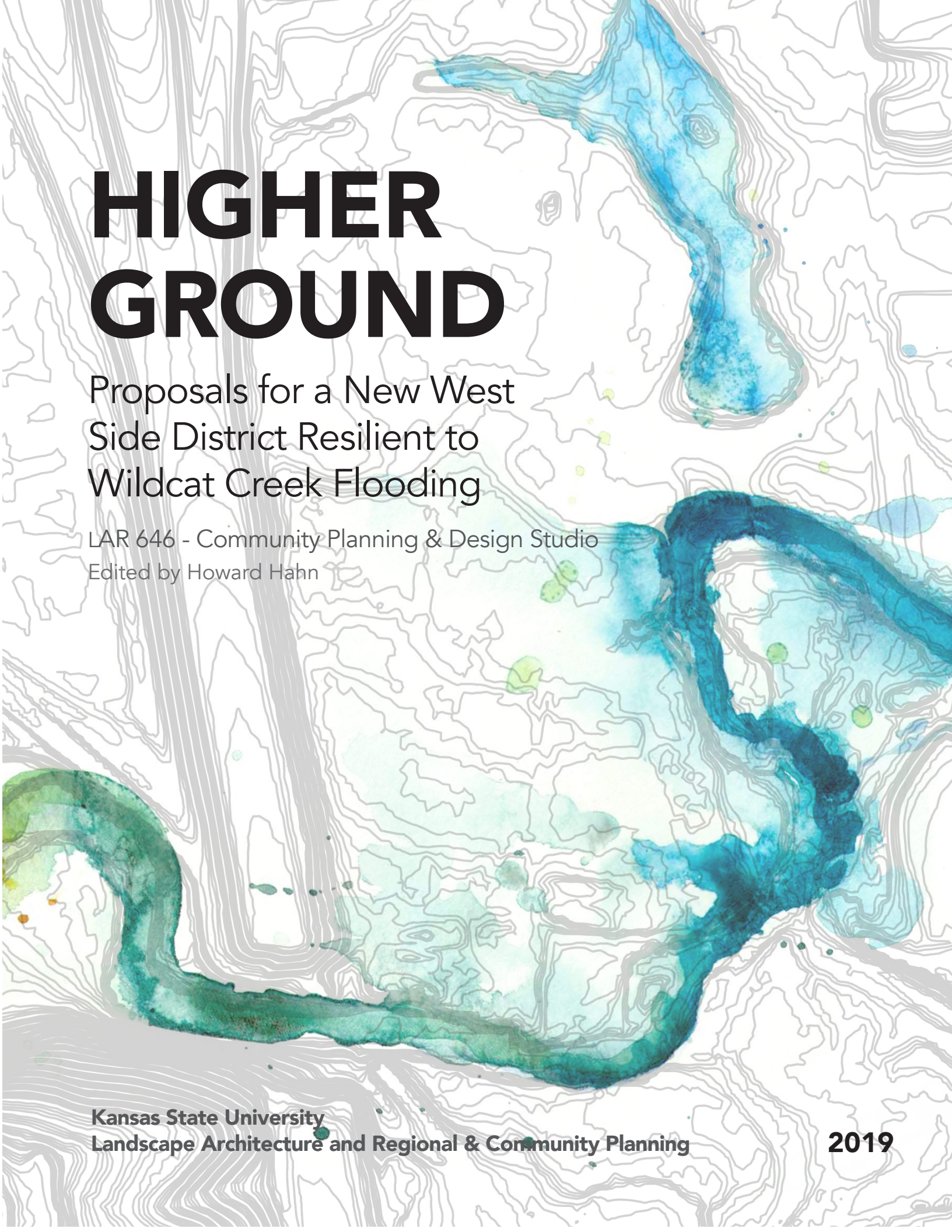

HIGHER GROUND

Proposals for a New West Side District Resilient to Wildcat Creek Flooding

LAR 646 - Community Planning & Design Studio

Edited by Howard Hahn

Kansas State University
Landscape Architecture and Regional & Community Planning

2019









HIGHER GROUND

PROPOSALS FOR A NEW WEST SIDE DISTRICT RESILIENT TO WILDCAT CREEK FLOODING

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LAR 646: Community Planning and Design Studio, 2019

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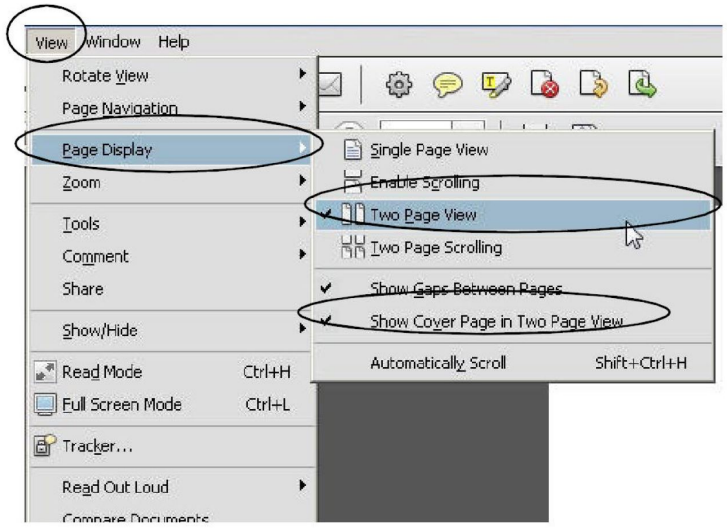

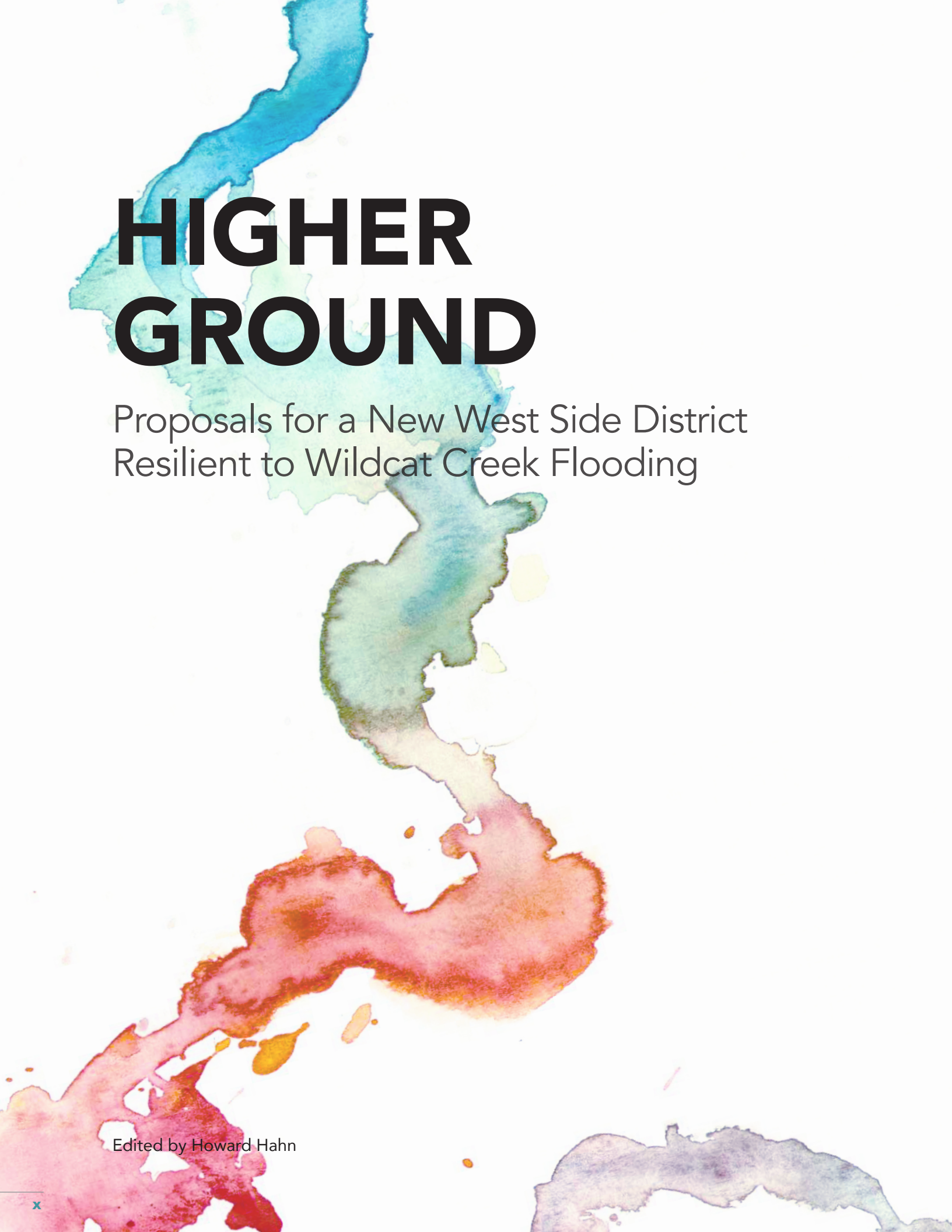

HIGHER GROUND

Proposals for a New West Side District Resilient to Wildcat Creek Flooding

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1

Executive Summary

Introduction

Executive Summary

As one of the busiest intersections in Manhattan, the exchange at Anderson Avenue and Seth Child Road holds prime real estate for an active community commercial district. Garden Way, to the east of Seth Child, hosts multi-family housing, a senior living community, and a handful of businesses clustered along Anderson Avenue. Additional commercial spaces are housed across Seth Child Road in Plaza West, while Linear Trail abuts the south side of the site, linking it to adjacent green spaces and neighborhoods. However, recent flooding has rendered most of the land south of Anderson vulnerable to future flood damage, forcing many local businesses and residents to abandon their properties. The remaining businesses suffer from the adjacent vacancies, and both Plaza West and Garden Way are facing decline without flood resilience intervention. Large expanses of impermeable surface parking, lack of vegetation, imposing power lines and high traffic volumes make the district unfriendly to pedestrians. The adjoining street corridors also lack visual identity and heavy traffic poses hazards to pedestrians and cyclists.

While these conditions challenge existing development, Higher Ground proposes four strategies for making the district more resilient: Growing West, KID-hattan, The Compass, and New Corporate Green. The strategies range from maximum preservation of existing assets to maximum redevelopment and a new vision for the west side of Manhattan. Thirteen mid-level landscape architecture graduate students completed the work during an intensive 8-week Community Planning & Design studio led by Associate Professor Howard Hahn in the summer of 2019. The effort was supported with funding from the City of Manhattan who provided timely input. The studio's process included site visits, rigorous mapping of various conditions, design development through an iterative process, and a final presentation to the Manhattan Chamber of Commerce and some interested stakeholders.

In Chapter 1, we introduce the existing conditions of Garden Way and Plaza West, and present influential site and contextual factors identified in our research. We detail the studio's methods and process, and introduce the four student design proposals. In the following four chapters, we present specific urban design strategies for establishing a new mixed-use district. The sixth chapter is a compilation of "Critical Maps" that informed studio proposals.



1.1

Studio Intent

Introduction

Project Background



Figure1.1.1
Flooding in Plaza West
The flooding of Wildcat Creek in 2018 of Plaza West and Garden Way.
(City of Manhattan, 2018)

Wildcat Creek is the primary drainage regime on the western side of Manhattan, and numerous floods have occurred over the decades causing extensive damage. Wildcat Creek recently flooded in 2010, 2011, and in 2018, all of which equaled or exceeded 100-yr storms. The most recent September 3, 2018 flood impacted 327 individuals and 102 homes (City of Manhattan 2019), displaced 300 residents, damaged or forced permanent closure of 12 businesses (MHK 2018), and caused an estimated $17.2 million in damage (Manhattan Mercury 2018). In addition to extraordinary rainfall events, flood potential has been exacerbated by steady land development which has increased stormwater runoff as more undisturbed land is converted to impermeable surfaces.

Following the 2010 Wildcat Creek flood, the Wildcat Creek Watershed Working Group (WCWWG) was formed to better assess underlying flood conditions, propose mitigation strategies, and guide future development. In 2013, the WCWWG released the Wildcat Creek Floodplain Management Plan (WCFMP) which was adopted and made part of the Manhattan Urban Area Comprehensive Plan. The WCFMP extensively mapped floodplains within each reach of Wildcat Creek, outlined general strategies and tools, and proposed an action plan which is mostly policy and regulatory based. Guidance provided by the WCFMP should reduce flood damage impacts in the longer-term future.

One immediate dilemma, and the one prompting this studio effort, is how to relocate, restore, or better protect residences and businesses affected by the 2018 Wildcat Creek flood event. The residential and commercial areas under consideration are in the southwest and southeast quadrants of the Anderson Avenue and Seth Child Road interchange area where extensive flood damage occurred (Figure 1.1.1). As these properties continue in the recovery process, two sequential landscape architecture studios at Kansas State University partnered with the City of

Manhattan and interested stakeholders to preliminarily explore physically based planning and design options for the areas around the interchange. Additionally, the City requested that the studios include the Anderson Avenue corridor between Wreath Avenue (west) and Westport Drive (east) in the study area.

The City is also considering the traffic and aesthetic implications of converting the current grade-separated Anderson/Seth Child interchange into a level, signalized intersection as part of streetscape improvements. Traffic consultants recently completed a conceptual study that showed removal of the grade-separated Anderson/Seth Child interchange, removing excessive commercial entry drives along Anderson Avenue, adding double turn lanes at intersections, and two reconfiguration options for the Anderson Avenue/ Wreath Avenue intersection: a four-way intersection and a round-about option. Base mapping prepared by the studio incorporated this latest thinking which was a major consideration when setting up project scenarios.

Two Sequential Studios

Two sequential studio courses affiliated with the Department of Landscape Architecture and Regional & Community Planning at KSU are involved with this visioning effort. Outcomes from these studios are intended to support City of Manhattan planning efforts for these areas by providing analysis, potential redevelopment options, and various illustrative graphics to advance on-going visioning and discussions by the City and interested stakeholders. The first studio led by Dr Hyung Jin Kim, LAR 648 -Advanced Studio, served as an initial investigation and was completed in spring 2019. This studio examined Site "A" which is the commercial area located at the southwest Anderson Avenue/Seth Child interchange quadrant (Figure 1.1.2). Results from this studio were rolled over to support the more extensive LAR 646 Community Planning and Design studio conducted in summer 2019. The LAR 646 studio, documented in this book, examines both Sites "A" & "B", in addition to Anderson Avenue from Wreath Avenue to Westport Place.

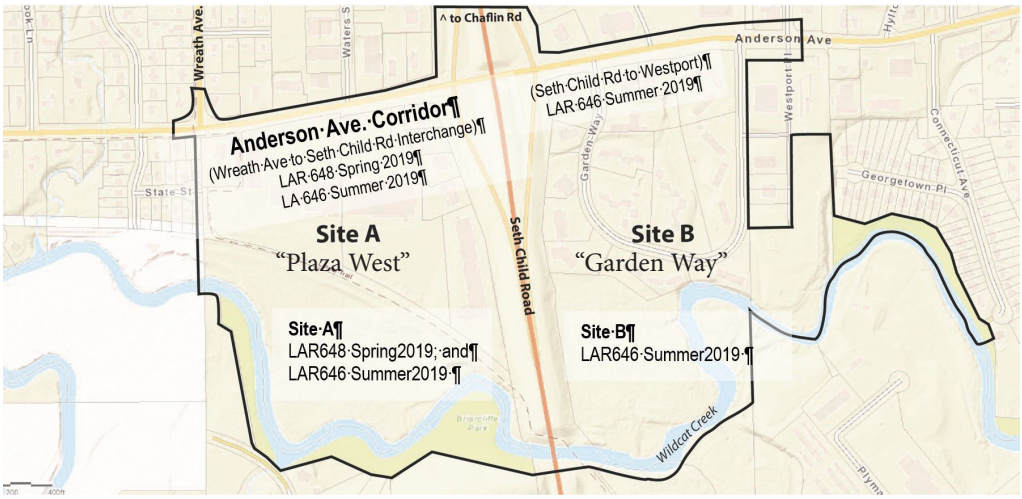


Figure 1.1.2
Study Sites for Studios LAR 648 (Spr 2019) and LAR 646 (Summer 2019)
Due to repeated flooding, the SW and SE quadrants of the Anderson Avenue/ Seth Child interchange are undergoing redevelopment planning to minimize future damage and revitalize under performing parcels. (Hahn, 2019).

Studio Intent

Introduction

This book was produced by Kansas State University students in the Community Planning and Design Studio and Seminar courses administered in the summer of 2019. Thirteen Kansas State students, led by professor Howard Hahn, generated a range of redevelopment alternatives for the Plaza West and Garden Way areas near the Anderson Avenue and Seth Child Road interchange on Manhattan's west side. As one of the busiest intersections in Manhattan, this location presents a tremendous opportunity to create community identity, generate economic vitality, and introduce a new district to live, work, and play. The agreement is mutually beneficial: Manhattan stakeholders, leaders, and decision-makers will receive fresh ideas for community planning, and students will gain "real world" experience engaging with project partners and community members on a service learning project.



Figure 1.1.3
Design proposal under development.
(Hahn, 2019)

Goals and Objectives

The Community Planning and Design course (LAR 646) will provide the City of Manhattan with multiple design proposals for the redevelopment of the Plaza West and Garden Way area. Design proposals will feature mixed-use developments that will improve the area economically and aesthetically in order to establish a district that will provide new opportunities to live, work, and play for community residents, stakeholders, and visitors. Three goals guided the Studio's design process and final design proposals:

- Develop complementary, viable concept alternatives to contribute to Manhattan's planning dialogue for the Plaza West and Garden Way areas relative to flood mitigation and economic revitalization
- Propose plans that are functionally viable from an engineering perspective
- Address influential site and contextual conditions

Community Planning and Design Studio Timeline



Figure 1.1.4
Community Panning and Design Studio Timeline
(Hahn, 2019)

Inform

The Community Planning and Design studio performed a variety of methods in order to fully understand the conditions of the Plaza West and Garden Way areas as well as the wants and needs of the community. The information was synthesized and used to provide sensible and responsive design proposals. The first step was reviewing recent planning documents relevant to Wildcat Creek, flood history, land use planning, and Anderson Avenue/Seth Child traffic studies. The studio then briefly researched the interchange area and surroundings to establish base knowledge useful when developing design proposals. Research topics included local food sources, flood storage basins, housing, proximity of various amenities, Wildcat Creek recreational potential, therapeutic landscapes, intersection-centered districts, green infrastructure, city trails, levees/sculptural landform, and creek edge treatments. Precedents were also researched to inspire, but also ground ideas in reality. From the beginning of the studio, a series of questions were asked about the site which guided students through critical mapping and design proposals. Some of these questions include:

- What type of commercial, office, cultural, and recreational development is still needed in Manhattan, particularly on the west side?
- Should an overall theme be considered to provide district identity and leverage the benefits of "clustered" resources (e.g. health care providers)?
- What development density is required to generate significant revenue to offset considerable grading/infrastructural cost to prepare the sites for redevelopment?
- How does grading and earthwork compare between pad fill and levee options for providing flood protection? What are benefits/limitations of each?
- The overall utilities are spatially and visually disruptive. What options exist, if any, to relocate (horizontally or vertically), underground, or screen the supports?
- How can the streetscape of Anderson Avenue be used to contribute to district identity, particularly through a reconfigured Seth Child intersection?



Figure 1.1.5
Site Visit
Students on site visit in the parking lot of Plaza West taking inventory of site features.
(Hahn, 2019)

Site Visit

Following initial background research, the studio embarked upon a site visit to observe, note, and photograph existing conditions first-hand. Plaza West Garden Way, Anderson Avenue, Wildcat Creek, and the Linear Trail were all assessed. Particular attention was paid to the extent of building flood damage, overall commercial and residential building condition/age, tenant mix, drainage patterns, drain inlet points, Wildcat Creek banks, adjacent land uses, and overhead utilities.

Seminar Readings

Aforementioned, the students are also enrolled in a seminar course which complements the studio. The first three weeks of the course are spent reading a variety of literature pertaining to landscape architecture and urban planning in an effort to introduce students to new concepts and frameworks. Figure 1.4 provides documentation of the seminar readings and a brief summary of the major ideas and concepts.

Mapping	"The Agency of Mapping" Corner, 1999	Provides a basis for understanding the roles of mapping in the planning and design process.
Placemaking	"Critiques and Urban Components" Krier, 2007	The text is a critical examination of methods of planning and designing at a city-scale. Krier looks at a variety of aspects from zoning to street grids to block-by-block urban form.
	"In the Street: A Quintessential Social Public Space" Vikas 2013	An analysis of streets and how they influence not only vehicular circulation but social interaction and community design.
	"Re-Framing Urban Space" Cho, Heng, and Trivic 2015	The authors emphasized why density and intensity are important factors while planning for the success of any urban space and how these two factors influence the comfort and usability of a space.
Urban Revitalization	"The New Urbanity: The Rise of a New America." Nelson, 2009	An analysis of how the shifting demographics and preferences of the American population impacts housing, infrastructure, and amenities.
	"Suburban Retrofits, Demographics, and Sustainability" Dunham-Jones 2005	An analysis of how existing developments can be revitalized to serve new and innovative purposes.
	"Principles of Brownfield Regeneration" Hollander, Kirkwood, and Gold 2013	Description of what a brownfield site is and outline for remediation techniques and processes.
Social Considerations	"From Place to Site: Negotiating Narrative Complexity" Beauregard, 2005	Dissecting how planners and designers approach space and begin to place labels on them which may or may not respect the previous narrative of the site.
	"Landscapes as Social Infrastructure" Hood, 2004	The text is the development and explanation of a system of hybrid modifications: "sweeping, weaving, lumping, and stratifying."
	"Place Analysis and Planning Methods" Sepe, 2013	Presents a variety of mapping strategies for placemaking and design.

Figure 1.1.6
Community Panning and Design Studio Timeline
(Barragree, 2018)

Critical Mapping

After basic site research conducted in Week 1, the studio then embarked on critical mapping. Critical mapping is a method of investigating the potential opportunities of an area through analyzing, synthesizing, and graphically representing spatial data (Figure 1.1.7 - 1.1.9). The initial maps created explore existing conditions through classification, correlation, and comparative analysis. Additional maps are created to explore dilemmas and opportunities uncovered in the first phase. The final mapping phase creates maps that outline strategies to leverage knowledge uncovered in the first two phases. A complete description and set of critical maps are presented in Chapter 6.

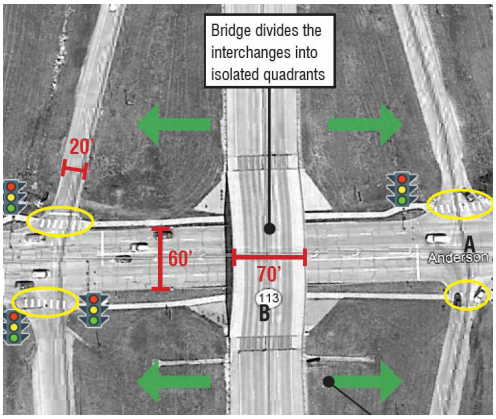


Figure 1.1.7
Anderson Ave. and Seth Child Rd. Interchange
The interchange between Anderson Avenue and Seth Child Road is the busiest intersection in Manhattan.
(Chesney, 2019)

Classification & Comparison Map

The Anderson Avenue and Seth Child interchange is one of the busiest locations in Manhattan

The student began the critical mapping process by analyzing the existing Anderson Avenue and Seth Child Road interchange relative to dimensions, traffic counts, and visual separation between the east and west sides of the interchange caused by the bridge abutment fill slopes.

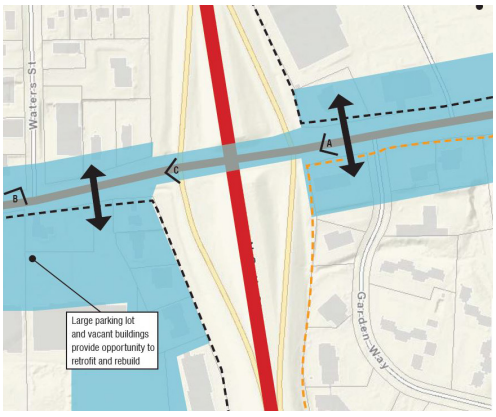


Figure 1.1.8
Visibility of Anderson Avenue
The high traffic volumes provide an opportunity for great visibility for development along Anderson Ave.
(Chesney, 2019)

Dilemma/Opportunity Map

If the grade separated interchange remains, the quadrants remain relatively isolated.

Then, the student analyzed the dilemmas posed by the grade separated interchange working against a visually coherent district.

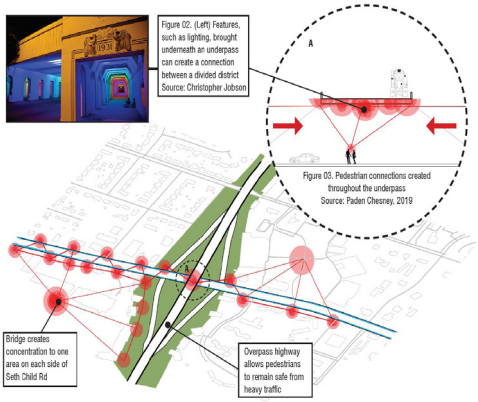


Figure 1.1.9
Strategy Map for Interchange
Lighting under the underpass can create a connection between a divided district.
(Chesney, 2019)

Strategy Map

Enhanced lighting along the Anderson Avenue and under the interchange could improve visual unity.

Finally, the student identified enhanced street lighting as one of two strategies to help provide visual continuity and unity between the east and west halves of the district separated by Seth Child Road.

Design

Since redevelopment of the Plaza West/Garden Way area is still in the early planning stages by the City, the studio approached the design phase by considering multiple scenarios organized along a "change spectrum" ranging from "least change" to "most change" (Figure 1.1.9: next page). Scenario variables considered: flood mitigation strategies (sculptural levee or pad fill), Anderson Avenue/Seth Child Road interchange options (retain or remove), Anderson Avenue/Wreath intersection options (4-way or roundabout), overhead utility options (re-routing, undergrounding, or leave-in-place), Linear Trail rerouting, Wildcat Creek edge treatments, Plaza West southern building row options (remove or retain), and various development densities/ floor area ratios (FARs).

Additionally, four district themes were established: "Urban Agriculture District", "Children's District", "Wellness District", and "Corporate Campus District. District themes were matched to the change spectrum. While all districts are mixed-use, the themes skew development toward tenants supporting a common identity to leverage the benefits of proximity and attraction. Early on, the teams roughly graded the site to ensure rough earthwork balance and establish critical elevations for flood mitigation. Development proposals also considered parking requirements using the latest parking ratios supplied by the City. In most cases, parking garages will be needed to accommodate all the site programming. At the conclusion of the design phase, the teams produced posters, presentation slides, and a book which includes background analysis, maps, and design proposals.

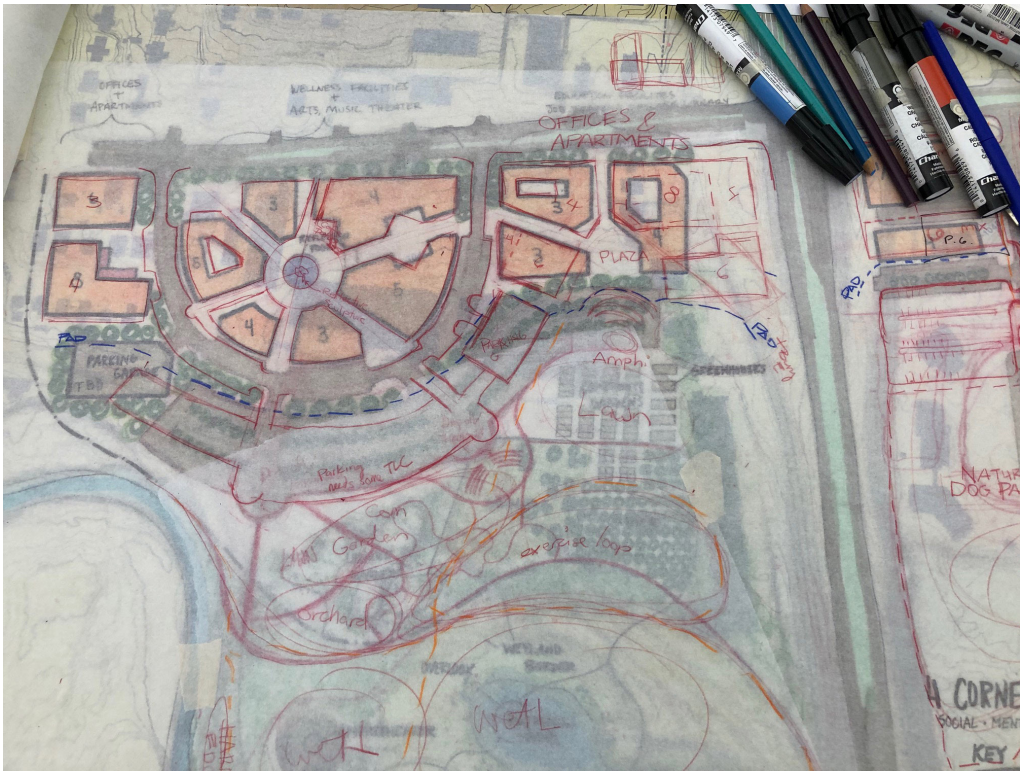


Figure 1.1.10
"Wellness District" process work.
Design concepts underwent multiple iterations related to spatial massing, grading/ earthwork, parking allocation, and amenity development.
(Hahn, 2019)

Team Summary Comparison



Growing West

KID-hattan

Least Change

Existing Conditions

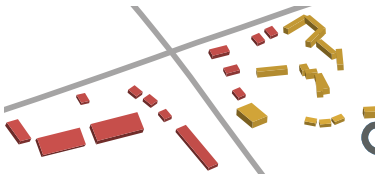
- Flood Prone
- Abandoned Commercial Spaces
- Grade Separated Interchange
- Low Development Intensity
- Garden Way Structures

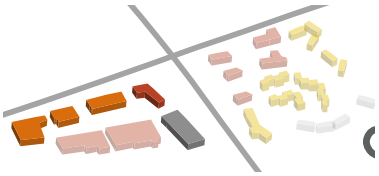
Community Outreach District

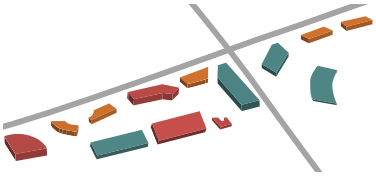
- Implement Levee
- Mix of Existing & New Structures
- Grade Separation Remains
- Low-Moderate Intensity
- Garden Way Structures Preserved

Children's District

- Implement Levee + Fill Pad
- Mix of Existing & New Structures
- Grade Separation Removed
- Moderate Development Intensity
- New Garden Way Structures

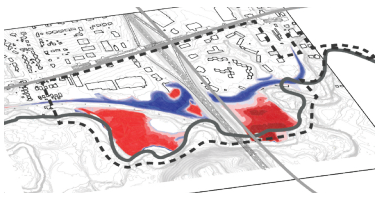


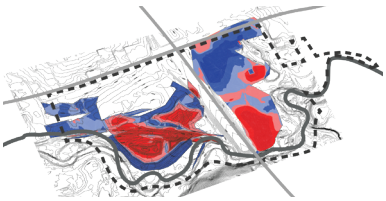




Building Mass/Land Use

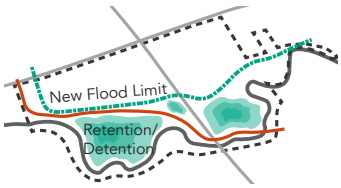






Earthwork







Flood Limit

20% Surface Parking (sf)
64% Open Space (sf)
16% Building Footprint (sf)



2% Parking Structures (sf)
4% Surface Parking (sf)
87% Open Space (sf)
7% Building Footprint (sf)



4% Parking Structures (sf)
9% Surface Parking (sf)
72% Open Space (sf)
15% Building Footprint (sf)



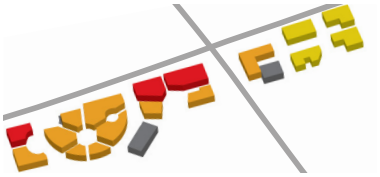
The Compass

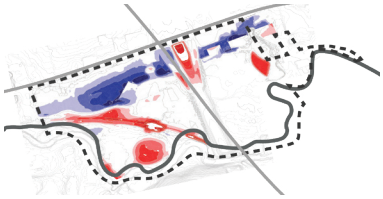
New Corporate Green

Most Change

Wellness District

- Implement Fill Pad
- All New Structures
- Grade Separation Removed
- High Development Intensity
- New Garden Way Structures





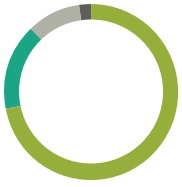


2% Parking Structures (sf)

10% Surface Parking (sf)

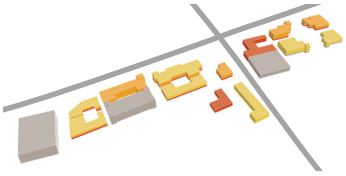
72% Open Space (sf)

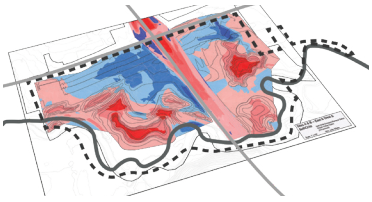
16% Building Footprint (sf)



Business District

- Implement Fill Pad
- All New Structures
- Grade Separation Removed
- High Development Intensity
- New Garden Way Structures







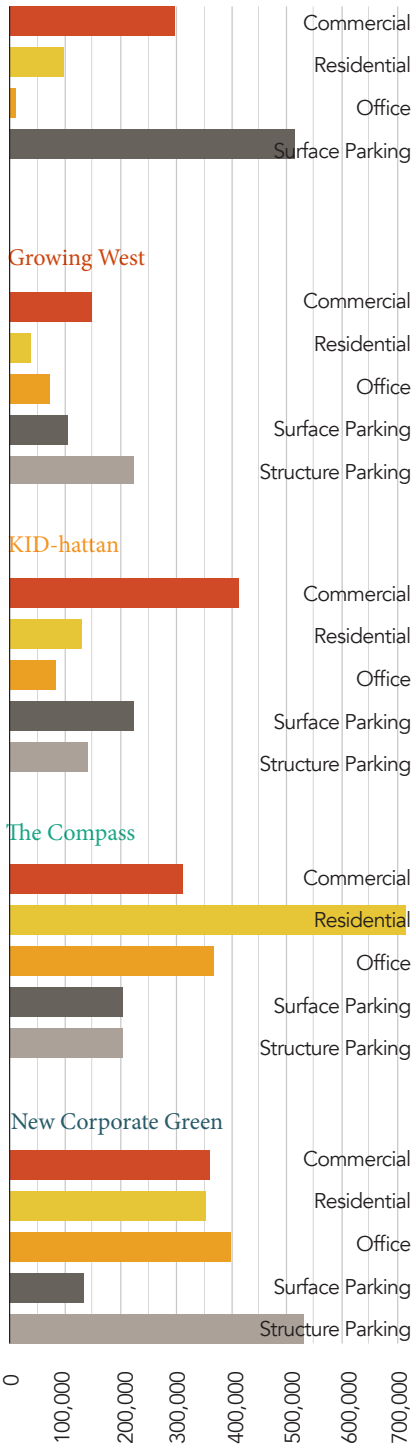
5% Parking Structures (sf)

6% Surface Parking (sf)

73% Open Space (sf)

16% Building Footprint (sf)







1.2

Influential Site Conditions

Introduction

Influential Conditions

Lack of Identity

Development around the Seth Child Road/Anderson Ave interchange lacks identity. Plaza West and Westloop are typical strip malls that spatially surround expansive parking lots having little vegetation. Seth Child is a high speed and heavily traveled highway not suited for pedestrians. Anderson Avenue, particularly on the Plaza West side, is dominated by large-diameter steel power poles and disjointed visual character.

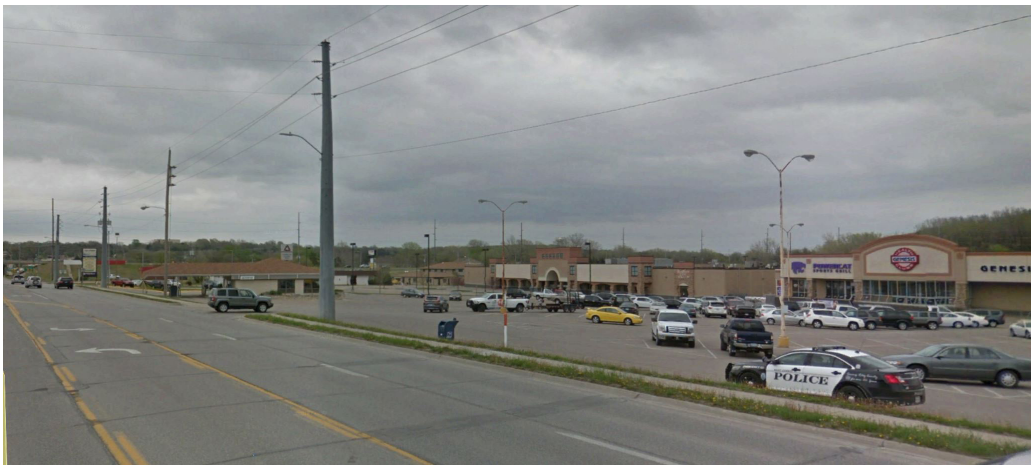


Figure 1.2.1
Lack of Identity
Plaza West and Garden Way lack place identity. With new non-vehicle centric development and an enhanced Anderson Ave . streetscape, a new west side district could be created and attract tenants and visitors.
(Google Streetview, 2019)

Recurrent Flooding

Recurrent flooding of land north of Wildcat Creek is the single dominant issue facing the southern quadrants of the Seth Child/Anderson Ave interchange. In the most recent September 2018 flood event, the Plaza West buildings adjacent to Seth Child Road were inundated up to the eaves. They have subsequently been condemned and will be demolished. Long-term, remaining buildings will need to be protected by levee, built on higher ground, or removed.

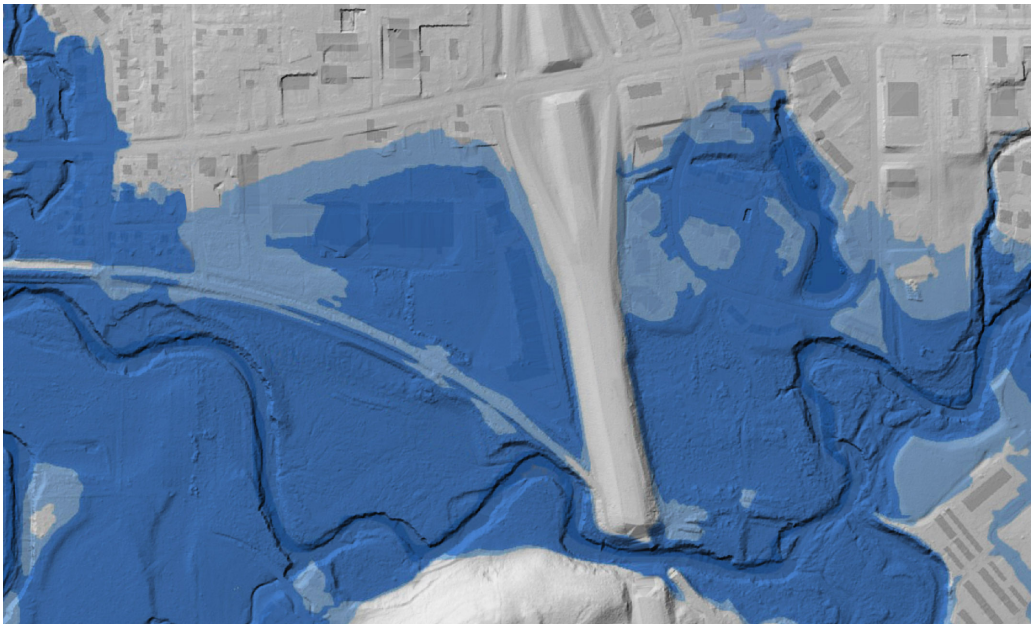


Figure 1.2.2
Recurrent Flooding
Recurrent Wildcat Creek flooding has eliminated or continues to threaten businesses and housing. Flood mitigation is required, or structures need to be relocated.
(Hahn, 2019)

Under Performance of Plaza West

Due to frequent flooding, generally older buildings, dominating power lines, pedestrian unfriendliness, overall lack of shade, and restricted visibility from travelers on the east side of Seth Child Road, Plaza West is financially under performing. The recent opening of the car museum is a new attraction, and some other small businesses/restaurants are bright spots, but the Genesis Health Club (a large tenant) is relocating. Most all of the building on the east side adjacent to Seth Child sustained heavy flood damage and will be demolished. If new buildings could be relocated closer to Anderson Avenue, or otherwise flood protected by fill pads or levee systems, the interchange quadrant has high economic potential because of its location/frontage near a high volume intersection. Also, the west side of Manhattan lacks high square footage corporate/office space offered at attractive lease rates.



Figure 1.2.3
Under performing Plaza West
Multiple factors contribute to the under performance of Plaza West. A new district, resilient to flooding, is envisioned.
(Google Earth, 2019)

Flooded First-floors of Garden Way Housing

Garden Way housing is skewed toward lower-income, affordable housing. Residents consist of elderly, military families, and KSU students. Unfortunately, many first floor units have been repeatedly flooded throughout the last decade. Bank cutting by Wildcat Creek is also threatening southern residential structures.



Figure 1.2.4
Flooded Garden Way
Recurrent flooding has significantly affected lower-income housing in the Garden Way area. This housing may need to be relocated, but affordable housing is already in short supply.
(City of Manhattan KS, 2015)

Visually-Dominant Power Lines

Three high-voltage transmission line corridors visually dominate the site and will interfere with large-area grading operations and redevelopment layouts. Redevelopment proposals must either work around perched power poles, relocate the alignments, or bury the transmission lines. Perhaps a hybrid of treatments is possible.

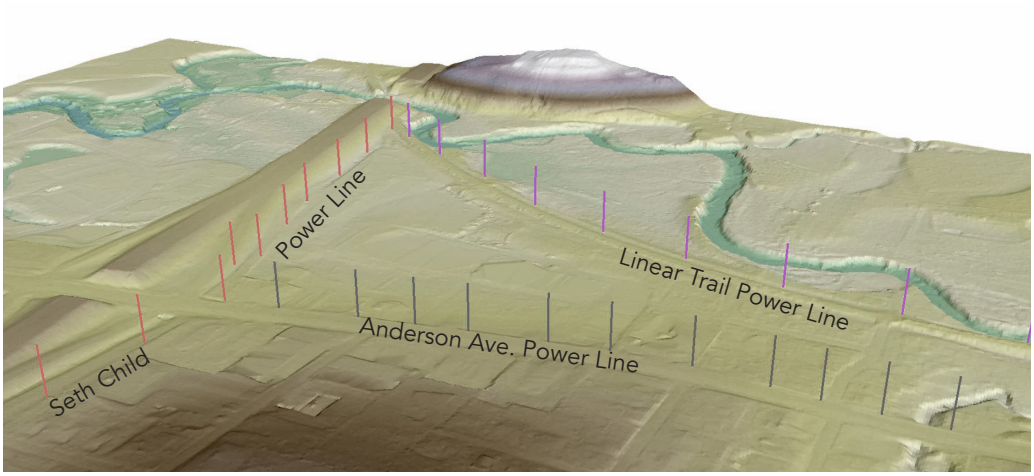


Figure 1.2.5
Visually-Dominant Power Lines
Three separate power line corridors bound Plaza West on the north, east, and south.
(Hahn, 2019)

Hidden Linear Trail

The Linear Trail is a significant city trail, but the current trail entrance near Anderson Ave./Wreath Ave. and trail alignment near Wildcat Creek is mostly concealed. Opportunities exist to route the trail closer to new development to improve its visibility as an amenity, more directly connect it to Anneberg Park, and integrate it in a new loop system through Miller Ranch. (see figure 1.2.6).

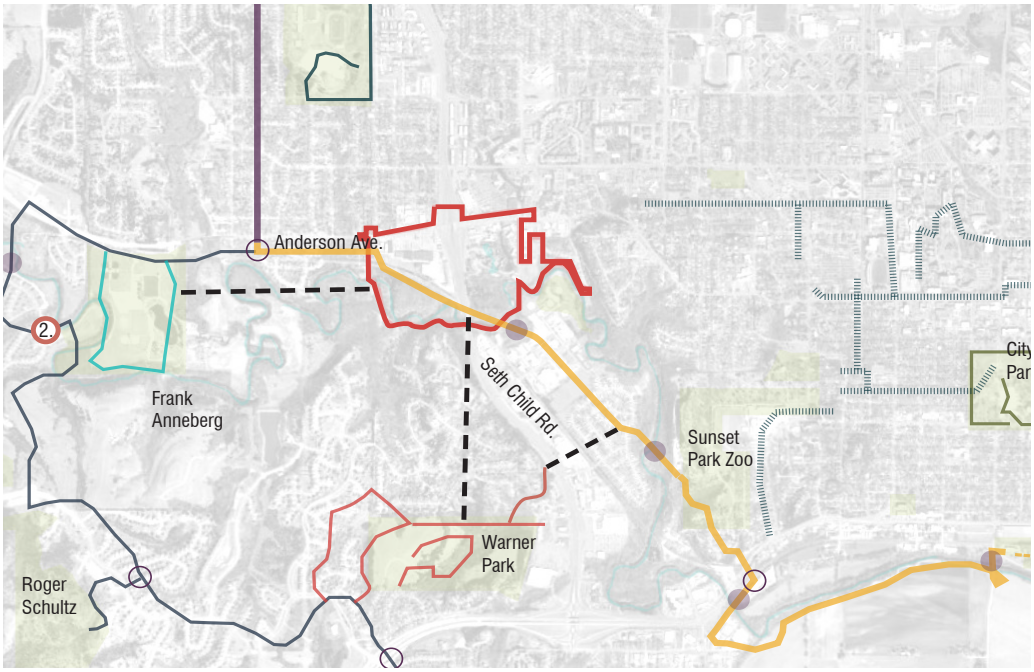


Figure 1.2.6
Hidden Linear Trail
The popular Linear Trail is not easily seen by the public at this location. Opportunities abound to increase visibility and complete missing gaps in new trail loops.
(Madsen, 2019)

Busiest Intersection in Manhattan

The Seth Child Road/Anderson Avenue intersection carries the highest traffic volume in the City of Manhattan. Seth Child Road is also a designated highway (Hwy 113) and is particularly busy on KSU game days. Currently, the diamond interchange is grade separated and the bridge fill slopes visually divide the district into east and west halves. The city is considering converting the interchange to a level intersection which could be important to the identity of a new district, improve pedestrian friendliness, and increase building frontage visibility.

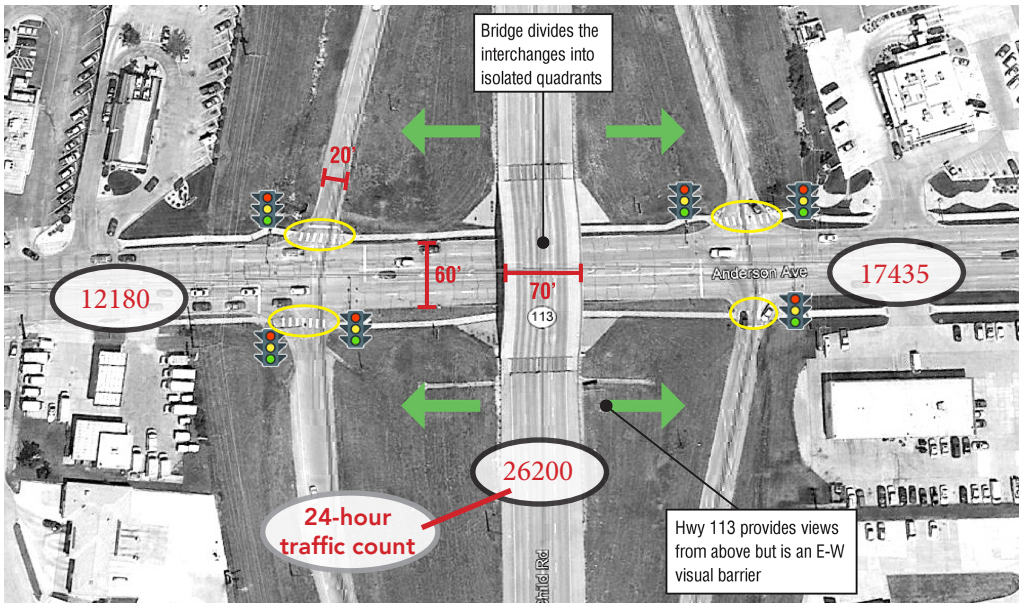


Figure 1.2.7
Busy Seth Child Rd/Anderson Ave Interchange
High traffic counts make this the busiest intersection in Manhattan.
(Paden Chesney, 2019)

Inaccessible Wildcat Creek

Wildcat Creek, which runs along the southern edge of the district, is a potential recreational and scenic resource, but it is currently obscured by thick bank vegetation and the creek channel is deeply incised away from view. The creek is both physically and visually inaccessible.

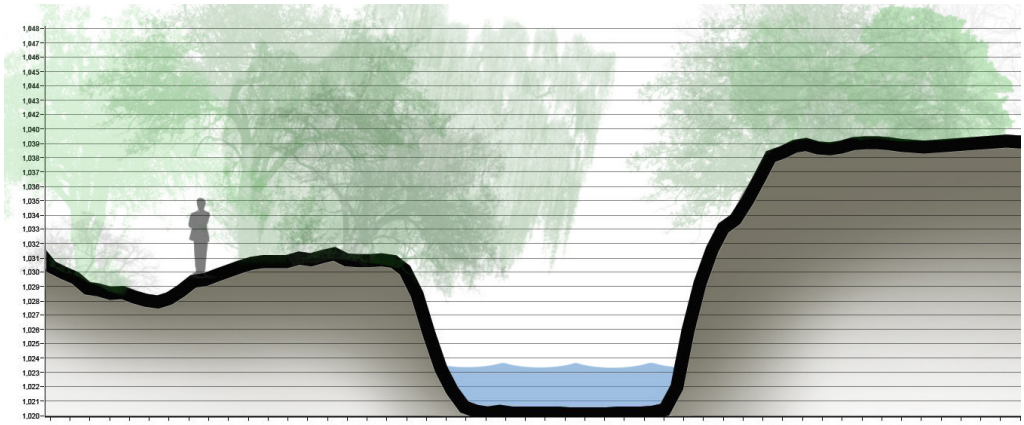
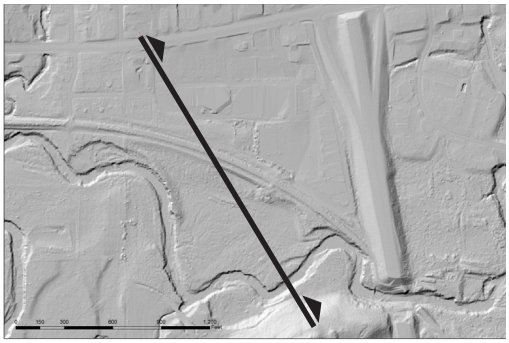


Figure 1.2.8
Inaccessible Wildcat Creek
Thick bank vegetation and deep channel incision make the creek largely inaccessible.
(Titus, 2019)

Flood Mitigation Strategies and Comparison

Existing Conditions

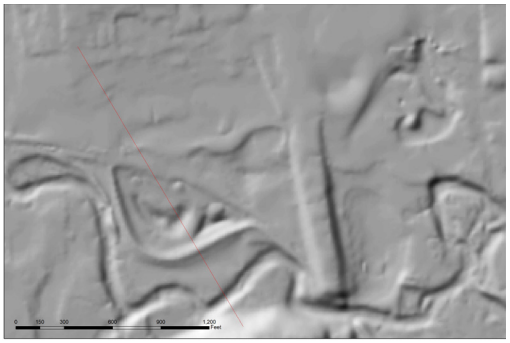
Figure 1.2.9
Existing Conditions
Hillshade of existing topography.
(Hahn, 2019)



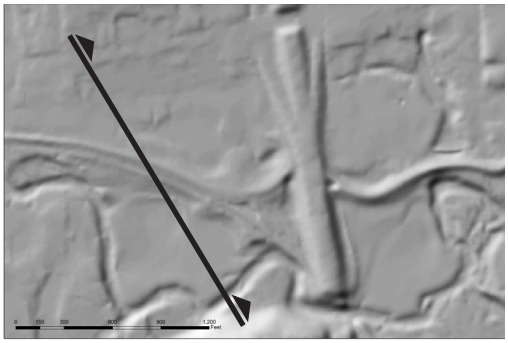
Existing

Levee

Figure 1.2.10
Proposed Levee Grading
Hillshade of KID-hattan and Growing West alternatives.
(Hahn, 2019)



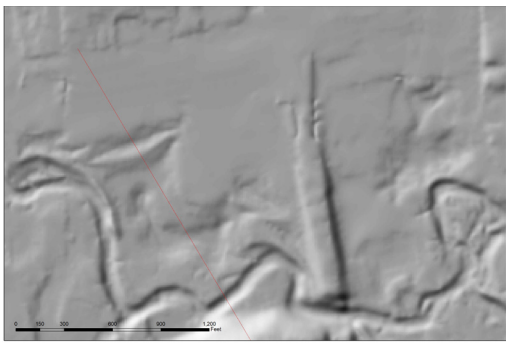
KID-hattan



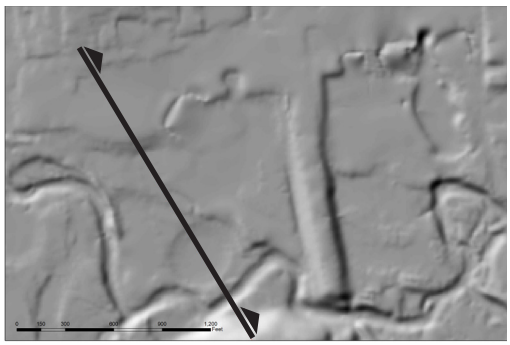
Growing West

Pad

Figure 1.2.11
Proposed Pad Grading
Hillshade of New Corporate Green and The Compass alternatives.
(Hahn, 2019)



New Corporate Green



The Compass

Four Strategies

Four strategies for mitigating flooding are exercised on the site. Currently, two are being used: "Buyout and Relocate" and "Leave and Repair." The Garden Way Apartments have been repairing their flood damage but are seeking another solution while the housing west of Plaza West are being bought out. The other two strategies are illustrated below: "Levee" and "Pad." These strategies require earthwork, grading, and design. These last two strategies were represented by two design teams each.

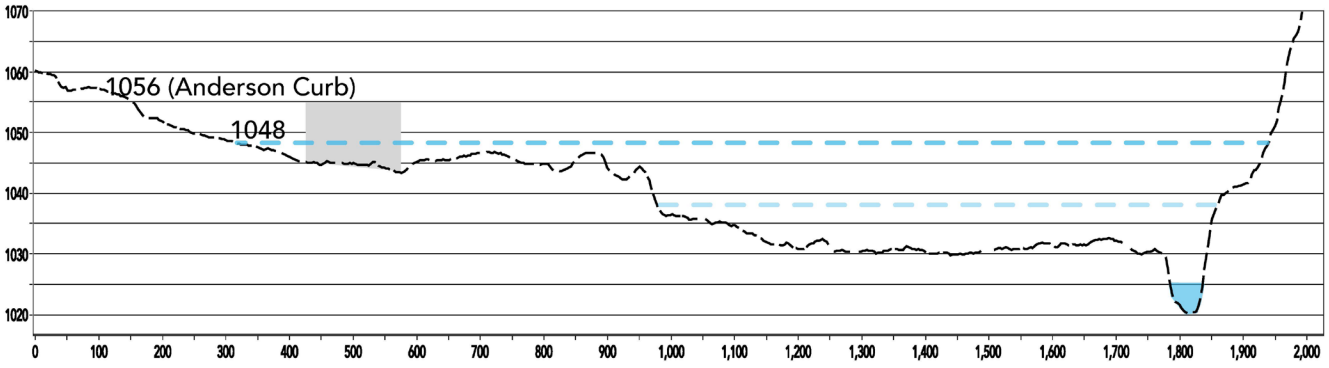


Figure 1.2.12
Existing Conditions Section
(Titus and Hahn, 2019)

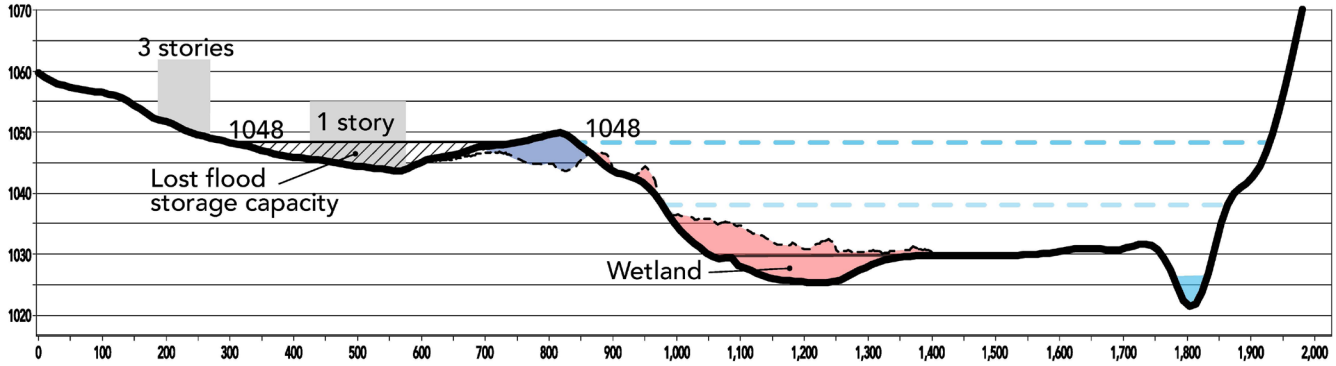


Figure 1.2.13
Levee Section (Based on Growing West)
(Titus and Hahn, 2019)

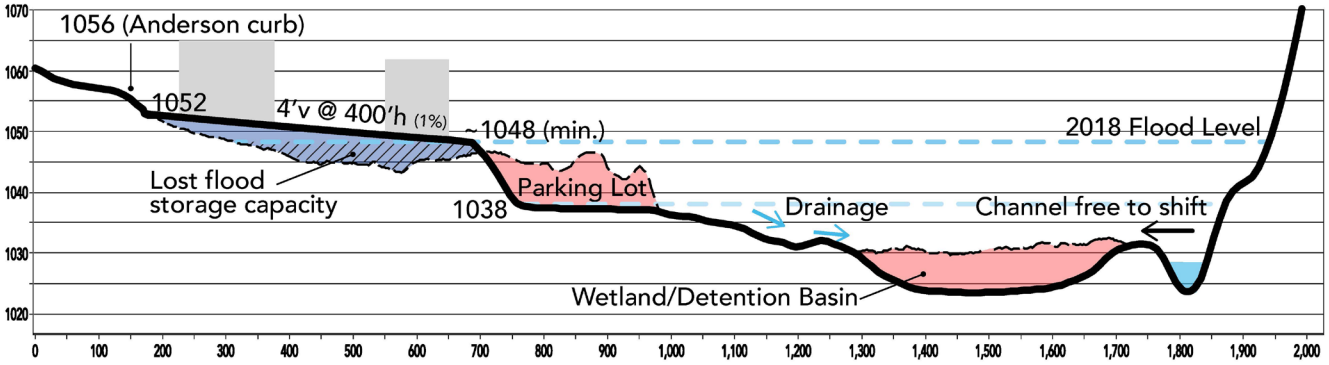


Figure 1.2.14
Pad Section (Based on The Compass)
(Titus and Hahn, 2019)



1.3

Design Teams

Introduction

Team 1: Growing West

Community Outreach Through An Urban Agriculture District

Ashley Akers | Erich Herbel | Haley Weinberg

Concept

Growing West aims to provide an active space for the community to come together by offering job opportunities, local food, retail, and festivities. Creating an active, lively environment on the site is achieved through levee implementation that allows for event spaces along the southern edge of the site and new mixed-use buildings along the northern edge. Growing West is a pedestrian and bike friendly space, strengthening the connection from Anderson Avenue to Linear Trail and shaping a safer and more inviting streetscape along the Anderson corridor., The proposal reduces the amount of vehicular entrances to the site, and minimizes potential collisions between vehicles, pedestrians, and cyclists. Introduction of housing to the Plaza West side of the site brings people to shop, work, and play within close walking distance. Implementation of this concept will help revitalize a currently under performing site.

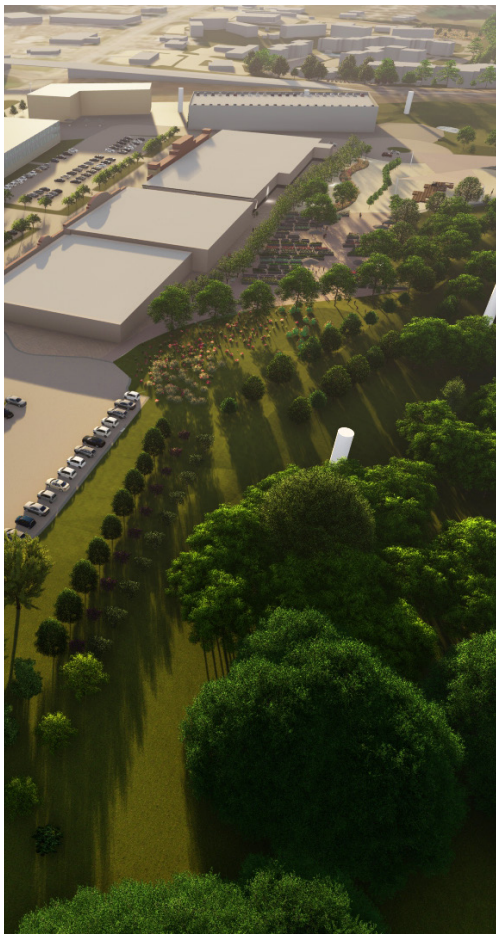


Figure 1.3.1
Plaza West Aerial
Aerial view over West Plaza facing east, showing the relationship between the levee and the programed elements.
(Akers, Weinberg 2019)

Goals + Objectives

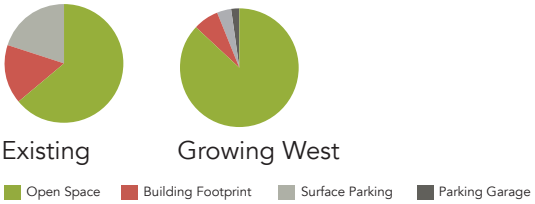
- Implement a levee system for flood remediation on site.
- Provide educational classes & training opportunities for the community.
- Provide pedestrian access to local businesses and produce.
- Provide dense, diverse housing.



Figure 1.3.2
Growing West Aerial
Aerial view of the Growing West District and its context.
(Akers, Weinberg 2019)

Land Use Metrics

Total Residents	97
Parking Stalls Needed	68
Commercial Summary	
Total Commercial SF	148,675
Employees	198
Parking Stalls Needed	416
Office Summary	
Total Office SF	72,322
Employees	145
Parking Stalls Needed	203
Parking Summary	
Total Stalls Needed	686
Parking Stalls Provided	697
Surface Parking Stall	327
Streetside Parking	0
Structure Parking	370



Growing West Site Metrics (Graph by Cole 2019)

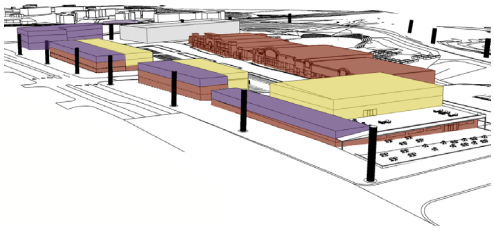


Figure 1.3.3
Building Usage
Axonometric view of the proposed buildings of Plaza West and their uses.
(Akers 2019)



Figure 1.3.4
Growing West Building Zoning
Aerial view of the proposed buildings of the Growing West District and their designated use types.
(Akers 2019)

Team 2: KID-hattan

Using Transit to Promote Social and Economic Connections Within a Wide Range of Communities

Paden Chesney | Rainie Madsen | Grant Pasowicz

Concept

Wildcat Creek has experienced a history of flooding events, especially in the past 10 years. These events have caused damage to the buildings on and around the Plaza West and Garden Way areas of Manhattan. Utilizing several green infrastructural techniques to reduce flooding impacts, KID-hattan looks to orient the district programming for families with children. Development of amenities include but are not limited to a Manhattan Library extension, day care facilities (including a Boys and Girls Club West), nature center, and children's museum. The site hosts several indoor and outdoor services that the community currently lacks.

Goals and Objectives

- Provide a range of multi-seasonal indoor and outdoor spaces geared for families with children
- Increase family living options in the community of Manhattan
- Improve interactive after-school daycare programs
- Reduce flood damage caused by Wildcat Creek while increasing visual and access connection to the water

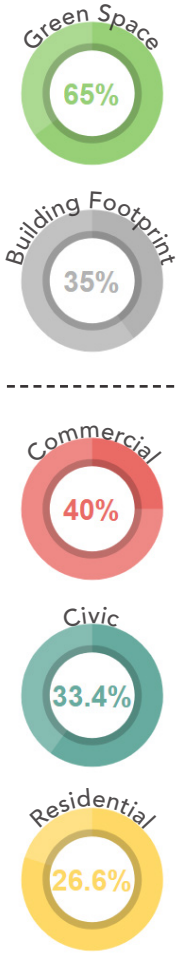


Figure 1.3.5
Nature Center
Community members enjoying the natural and educational gathering space
(Chesney, 2019)

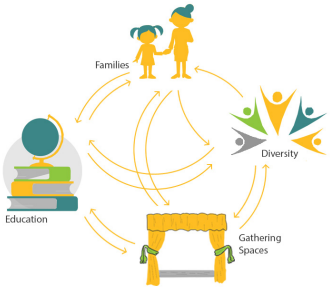


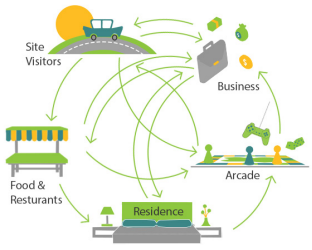
Figure 1.3.6
Full Site View
A look at both sides of the site in action
(Chesney, 2019)

Land Use Metrics



Residential Summary	
Total Residential SF	129,912
Total DU	128
Avg DU Acre	3.9
Total Residents	258
Parking Stalls Needed	**277**
Commercial Summary	
Total Commercial SF	119,366
Employees	178
Parking Stalls Needed	**477**
Office Summary	
Total Office SF	55,552
Employees	111
Parking Stalls Needed	**222**
Civic Summary	
Total Civic SF	312,713
Employees	625
Parking Stalls Needed	**726**
Parking Summary	
Surface Parking Stalls	697
Streetside Parking	41
Structured Parking	492
Total Stalls Needed	**1,703**
Parking Stalls Provided	**1,230**
FAR*	**0.21**





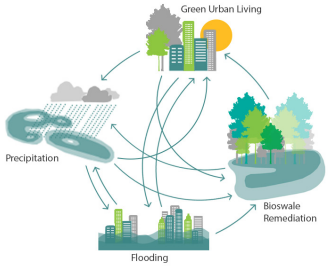


Figure 1.3.7
Community Mapping
(Madsen, 2019)
Figure 1.3.8
Economic Mapping
(Madsen, 2019)
Figure 1.3.9
Ecological Mapping
(Madsen, 2019)

Team 3: The Compass

Guiding Manhattan to Better Health

Jessie Carmichael | Madelyn Cole | Kastasya Jackson | August Titus

Concept

The Wellness District of Plaza West is a mid-rise, mixed-use development that increases density within Manhattan while embodying the benefits of physical, social, mental and spiritual well-being for local residents. A variety of different therapeutic services, both indoors and outdoors, as well as entertainment spaces, promote a lower stress lifestyle for low-income families, active retirees and many others. Wildcat Creek will be better utilized as an amenity. Other amenities include a community garden, library extension, music hall, dining, indoor and outdoor gym equipment to give surrounding community members a new respite from daily life.



Figure 1.3.10
Wellness District
Looking east along Anderson, the Seth Child interchange has been lowered and a new district has formed atop a new rise taking advantage of the creek and adjacent green spaces. ---
(Cole, Titus, 2019)

Goals + Objectives

- Physical - exercise, walking/running loops, swimming, biking, yoga, dance
- Social - spaces for gathering, individual reflection
- Mental - natural distractions, cognitive effects in particular settings
- Spiritual - internal healing, oneness, inner peace, reconnection with self/ experiencing one's internal nature



Figure 1.3.11
Main Plaza
The main plaza functions as a reflective space in the center of the central campus. The vast pool serves as a calming device for those in the space.
(Cole, 2019)

Land Use Metrics

Residential Summary	
Total Residential SF	262,625
Total Dwelling Units	891
Total Residents	1,783
Parking Stalls Needed	1,248
Commercial Summary	
Total Commercial SF	311,520
Employees	415
Parking Stalls Needed	872
Office Summary	
Total Office SF	367,744
Employees	735
Parking Stalls Needed	1,030
Parking Summary	
Total Stalls Needed	3,150
Parking Stalls Provided	1,557
Surface Parking Stalls	706
Streetside Parking	293
Structure Parking	558
FAR (Excluding ROW)	6.23

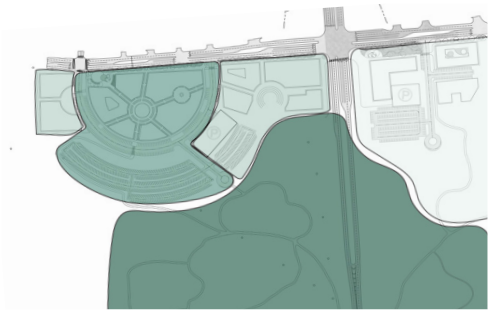


Figure 1.3.12
Phasing
The northwest portion of the site acts as the catalyst for the rest of the site.
(Titus, 2019)

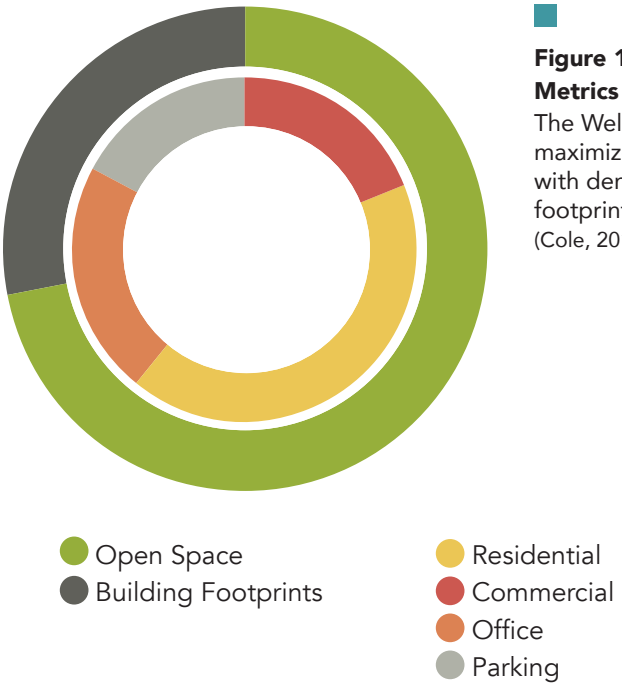


Figure 1.3.13
Metrics Graphic
The Wellness District maximizes open space with dense building footprints.
(Cole, 2019)

Team 4: New Corporate Green

High density solutions to create a new business and corporate district for Manhattan's west side

Nick Ferrara | Mikala Fitzgerald | Julia Kappelman

Concept

The design creates a multifaceted approach to a new business and corporate district for the west side of Manhattan, KS. The new district, located just north of Wildcat Creek, would be elevated on pads to alleviate future flood damage. The design proposal also examines the potential of Anderson Avenue to become a precedent streetscape for the city to emulate. Additionally, the intersection of Anderson Avenue and Seth Child Road would be a defining gateway for the west side of the city.



Figure 1.3.14
Linear Trail along Wildcat Creek
The redirected Linear Trail runs much closer to Wildcat Creek in the Woodland area just south of the new business district
(Fitzgerald and Kappelman, 2019).



Figure 1.3.15
East Central Plaza and Ephemeral Stream flowing to the Waterfall
This space offers a unique opportunity to create an overlook plaza and a waterfall feature for the pond.
(Ferrara, Fitzgerald, and Kappelman, 2019).

Goals + Objectives

- Provide a space for businesses and professionals to work in a comfortable and well-designed environment
- Incorporate shops, restaurants, and vendors along new and improved streets
- Include new residential buildings and spaces for young professionals seeking a denser semi-urban community
- Build new site amenities and infrastructural elements that people who work and live in the area can use on a regular basis
- Integrate sustainable site design strategies
- Protect vulnerable buildings from flooding
- Develop a cohesive phasing strategy
- Redirect the Linear Trail to weave through the newly created wetland
- Create an earthwork strategy that creates a cut-fill balance and the desired 1.2:1.0 cut/fill ratio



Figure 1.3.16
New Corporate Green
The design proposal is a high density and flood resilient solution to create an active business district where people can both work and enjoy themselves.
(Fitzgerald and Kappelman, 2019).

Land Use Metrics

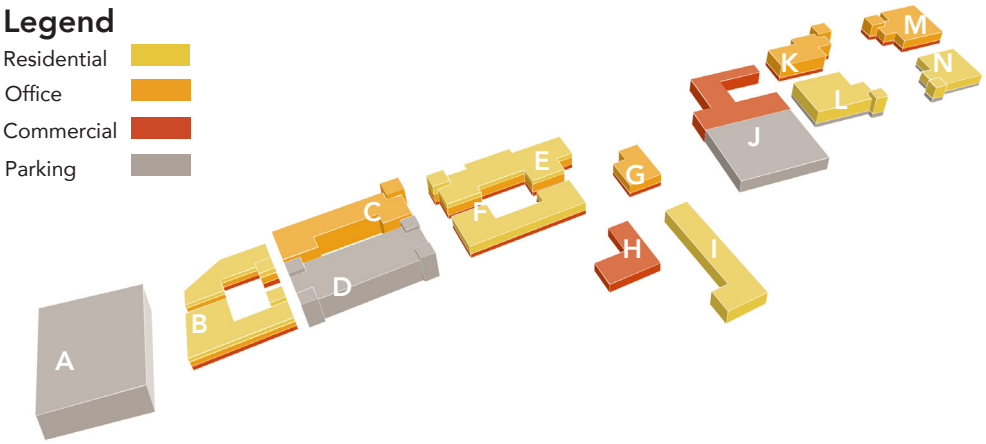


Figure 1.3.17
Building Use Diagram
The site has various options and spaces for residences, offices, shops, restaurants, cafés, and outdoor activities.
(Kappelman, 2019).

Building	Residential (sq ft)	Residents[1]	Commercial/Civic (sq ft)	Employees[2]	Office (sq ft)	Employees[3]	Structured Parking (sq ft)	Stalls[4]
A	0	0	0	0	0	0	300000	909
B	41300	103	41300	55	41300	83	0	0
C	0	0	0	0	135500	271	0	0
D	0	0	0	0	0	0	201500	611
E	41400	104	41400	55	82800	166	0	0
F	56600	142	28300	38	0	0	0	0
G	0	0	12400	17	24800	50	0	0
H	0	0	34800	46	0	0	0	0
I	86100	215	0	0	0	0	0	0
J	0	0	155700	208	0	0	207600	629
K	0	0	19700	26	59100	118	0	0
L	82800	207	0		0	0	27600	84
M	0	0	27300	36	54600	109	0	0
N	46100	115	0	0	0		23050	70
Total	354300	886	360900	481	398100	797	759750	2303

Figure 1.3.18
Building Table
This table shows the calculated area of the three building use types. Our site features a fairly good balance of residential, commercial, and office space.
(Kappelman, 2019).

Citations

Book Cover Image

Weinberg, Haley. Chesney, Paden. 2019. "Cover Image." Kansas State University LAR 646 2019. Adobe Photoshop. Source Image:

- Hahn, Howard. AutoCAD, 2019.

Figure 1.1.1

City of Manhattan, 2018. Digital Image. (Used with permission).

Figure 1.1.2

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Figure 1.1.3

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Figure 1.1.4

Hahn, Howard. "Community Planning and Design Studio Timeline." Kansas State University LAR 646 2019. Illustration Diagram.

Figure 1.1.5

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Figure 1.1.6

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Figure 1.1.7

Chesney, Paden. "Inventory and Analysis of Anderson Ave and Sethchild Rd Crossing." Map. In Tuttle Creek Blvd Is Comparable to the Anderson Ave and Sethchild Rd Intersection - Comparative Map. 2019.

Figure 1.1.8

Chesney, Paden. " Traffic flow, visibility, and Identity for the Anderson Ave corridor." Map. High Traffic Volumes Create Opportunity for Connected District Identity Along Anderson Ave - Opportunity Map. 2019.

Figure 1.1.9

Chesney, Paden. "Strategy map for the existing Anderson Ave and Sethchild Rd intersection." Map Roadway Changes Improve Direct Visual Connections - Strategy Map. 2019.

Figure 1.1.10

Hahn, Howard. 2019. "Wellness District Process Work." Digital Image.

Team Summary Comparison
Cole, Madelyn. Kappelman, Julia. 2019. "Team Summary Comparison" Kansas State University LAR 646 2019. Adobe Photoshop, Adobe Illustrator.

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Figure 1.2.2
Hahn, Howard. 2019. "Wildcat Creek Flood Map." Esri ArcGIS. Source Data:
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Figure 1.2.3
Google Earth. 2019. "Aerial View of Plaza West, Manhattan, KS."

Figure 1.2.4
City of Manhattan. 2015. "Wildcat Creek flooding in 2011 near Anderson and Seth Child." Image as found in Manhattan Connection. https://mhkconnection.wordpress.com/2015/08/19/wildcat-creek-1/

Figure 1.2.5
Hahn, Howard. 2019. "Visually-Dominant Power Lines." Esri ArcGIS. Source Data:
- Topographic base from City of Manhattan.
- Power pole locations digitized by Howard Hahn from Esri ArcLine Imagery.

Figure 1.2.6
Madsen, Rainie & "Bicycle & Pedestrian Systems Plan | Manhattan, KS - Official Website." Accessed June 1, 2019. https://cityofmhk.com/2984/Bicycle-Pedestrian-Systems-Plan. Modified by Madsen using Adobe Illustrator.

Figure 1.2.7
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- 24 hour traffic count added by August Titus, 2019.

Figure 1.2.8
Titus, August. 2019. Section B-B'. Source Data:
ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator and Adobe Photoshop.

Figure 1.2.9
Hahn, Howard. 2019. "Existing Conditions Topography Hillshade." Esri ArcGIS. Source Data:
- City of Manhattan

Figure 1.2.10 and 1.2.11
Hahn, Howard. 2019. "Topographic Hillshades of Levee or Pad Grading Options." Source Data:

Citations (cont.)

- Student Grading Plans (Erich Herbel, Grant Pasowicz, August Titus, Nick Ferrara).
- DEM surfaces and hillshades generated through ESRI ArcGIS Spatial Analyst.

Figure 1.2.12
Titus, August. Hahn, Howard. 2019. "Existing Conditions Section." Adobe Illustrator.
Source Data:
- Sections derived through ESRI 3D Analyst.

Figure 1.2.13
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Figure 1.3.1
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Figure 1.3.2
Akers, Ashley. Weinberg, Haley. 2019. Growing West Aerial. Lumion. Photoshop.

Figure 1.3.3
Akers, Ashley. 2019. Building Usage. Sketch-up. Photoshop.

Figure 1.3.4
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Figure 1.3.5
Chesney, Paden. 2019. "Nature Center Roof." Kansas State University, LAR 646 2019.
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Figure 1.3.6
Chesney, Paden. 2019. "Full Site View." Kansas State University, LAR 646 2019. Photoshop Rendering over Lumion

Figure 1.3.7
Madsen, Rainie. 2019. "Community Mapping." Kansas State University. LAR 646 2019. Photoshop Diagram.

Figure 1.3.8
Madsen, Rainie. 2019. "Community Mapping." Kansas State University. LAR 646 2019. Photoshop Diagram.

Figure 1.3.9
Madsen, Rainie. 2019. "Ecological Mapping." Kansas State University. LAR 646 2019. Photoshop Diagram.

Figure 1.3.10
Cole, Madelyn and August Titus. 2019. "Bird's Eye View over the Wellness District". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 1.3.11
Cole, Madelyn. 2019. "Main Plaza" Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 1.3.12
Titus, August. 2019. "Phasing Diagram". Kansas State University LAR 646 2019. AutoCAD Civil 3D and Adobe Illustrator.

Figure 1.3.13
Cole, Madelyn. 2019. "Building Use Diagram and Metrics". Kansas State University LAR 646 2019. SketchUp Pro and Adobe Photoshop.

Figure 1.3.14 - Linear Trail Along Wildcat Creek
Fitzgerald, Mikala and Kappelman, Julia. 2019. "Linear Trail Perspective." Created using Lumion, SketchUp, and Photoshop. Source Images:

- "Team 4 Site Model." 3D Model. Mikala Fitzgerald. Created using Lumion. 2019.
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Figure 1.3.15 - East Central Plaza and Ephemeral Stream flowing to the Waterfall
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Figure 1.3.16 - New Corporate Green
Fitzgerald, Mikala and Kappelman, Julia. 2019. "Money Shot Perspective." Created using

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Figure 1.3.17 - Building Use and Zoning Diagram
Kappelman, Julia. 2019. "Zoning Axon Diagram." Created using SketchUp and Photoshop. Source Images:

- "Team 4 Sketchup Model." 3D Model. Julia Kappelman. Created using SketchUp. 2019.
- Colors added and edited in Adobe Photoshop 2019.

Figure 1.3.18 - Building Use and Zoning Diagram
Kappelman, Julia. 2019. "Zonging Diagram Table." Created using Microsoft Excel and Microsoft Word. Source Images:

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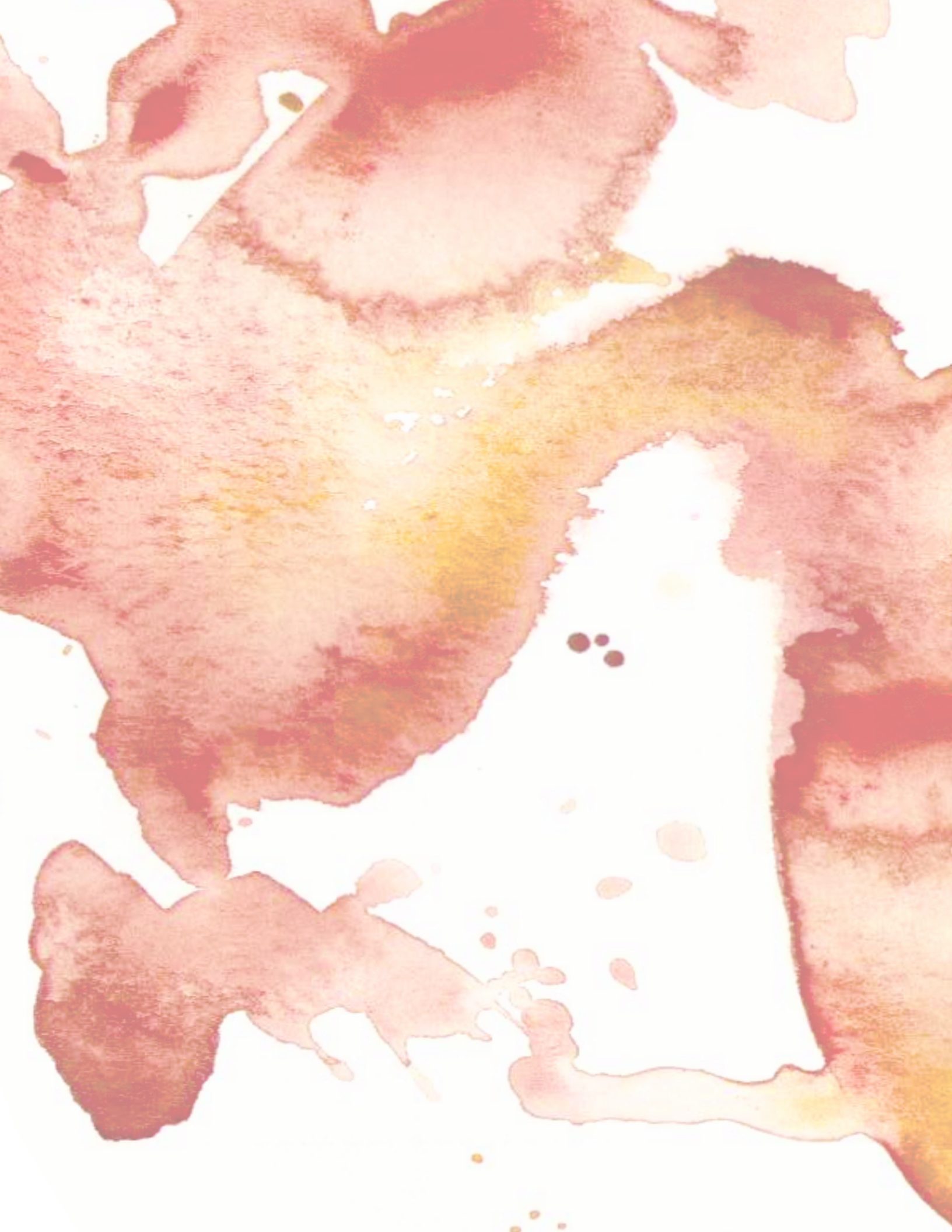


2

Growing West

Ashley Akers
Erich Herbel
Haley Weinberg

Growing West

Connect | Engage | Empower

The Growing West District connects the site and surrounding amenities to Western Manhattan; engages community interactions, and empowers people through educational opportunities.

Concept

Our framework consists of maximizing use of viable existing land and buildings to minimize disturbance of businesses while giving the site more resiliency against flooding. Our concept tests the design of a levee system to protect much of the existing development of both Plaza West and Garden Way and provide a more artful and comfortable levee experience.

Through research, we found there is a noticeable lack of access to fresh produce west of Seth Child Road. We believe that food can bring people together through urban agriculture by bringing benefits that improve the community's health, encourage awareness and connection to their food, and create new interactions amongst the people of the community.

We believe in making a site more than daytime frenzy and nighttime lull. By densifying the site, residential livability can increase and more amenities can be provided with convenient access to increase vibrancy.

Though we are striving for minimal change and maximum functionality of the existing site, for the site to function more sustainably, new buildings with more businesses and living options will allow the site to have higher economic return. The greater density will give people easier access to amenities in terms of recreational and agricultural green space and businesses for greater environmental awareness and more social connective opportunities, all while utilizing viable existing structures.



Figure 2.1
Design Spectrum
On a change spectrum Growing West represents the least change by retianing some existing structures.
(Akers 2019, modifications of Cole 2019)

Goals and Objectives

- Implement a levee system for flood remediation on site.
- Provide pedestrian access to local businesses and produce.
- Activate the district through dense, diverse housing, local businesses & community programs.
- Provide educational classes & training opportunities for the community.



Figure 2.2
Community Outreach
Growing West will connect, engage, and empower the community. (Herbel 2019)

Site Dilemma
Background Information

Historical and Community Context



Figure 2.3
Existing Parking
Long expanse of parking cover existing Plaza West.
(Akers 2019)

Plaza West's existing parking lot expands over most of the site, sloping down towards the south. The parking lot surface is not permeable, causing runoff to flow quicker than it would on a natural surface contributing to flood conditions.





Figure 2.4 & 2.5
Flood Damage
Southernmost residential units of Garden Way were heavily flood damaged.
(Herbel 2019)

Garden Way consists of mixed commercial buildings abutting Anderson Avenue with residential buildings located to the south towards Wildcat Creek. A central retention pond stores runoff from parcels north of Anderson Avenue. Garden Way has experienced heavy flooding in the past, causing extensive damage and forcing abandonment of some buildings.





Figure 2.6
Linear Trail
View from Linear Trail looking into Plaza West.
(Akers 2019)

Figure 2.7
Anderson Avenue
Anderson Avenue's sidewalk view looking west.
(Akers 2019)

The linear trail winds through the southern edge of the Plaza West site following the old train bed. One can see glimpses of the site from the trail, however the trail cannot be seen from the site. Another way to access the site is by foot or on bike. Anderson Avenue has sidewalks, however it can be a very unpleasant experience due to a lack of shade, large overhead utilities, greenery, and the crossing of Seth Child Road.





Figure 2.8
Plaza West Drainage
Figure 2.8 shows an existing drainage point to the south of Plaza West.
(Akers 2019)

Figure 2.9
2018 Flood
Aerial view of Garden Way from the 2018 flood.
(City of Manhattan, 2018)

Site drainage flows to the south on the Plaza West side and towards the retention pond on Garden Way's side. Both sites experienced heavy flood damage from the September 2018 flood.

Connect | Engage | Empower

Goals

Growing West aims to provide an active space for the community to come together by offering job opportunities, local food, retail, and festivities. Creating an active, lively environment is achieved through levee implementation that allows for event spaces along the southern edge of the site and new mixed-use buildings along the northern edge. Growing West is a pedestrian and bike-friendly space, strengthening the connection from Anderson Avenue to Linear Trail and shaping a safer and more inviting streetscape along the Anderson corridor. The proposal reduces the amount of vehicular entrances to the site, minimizing potential collisions between vehicles, pedestrians, and cyclists. Introduction of housing to Plaza West brings additional residents to the district and provides shop, work, and play within walking distance for the residents and west side community of Manhattan.





Figure 2.10
Growing West
Aerial perspective overlooking the Growing West District from the south.
(Akers, Weinberg 2019)

Illustrative Site Plan





Figure 2.11
Growing West Plan
Plan of the proposed Growing West District.
(Akers, Herbel, Weinberg 2019)

Connect | Engage | Empower





Figure 2.12
Growing West Aerial
Detailed aerial of the Growing West District.
(Akers, Weinberg 2019)

Growing West's Amenities

Major Design Ideas

Farm-to-Table



Figure 2.13
Farm-to-table Restaurant
Diners enjoy the farm-to-table restaurant looking out towards the urban agriculture fields.
(Akers, Weinberg 2019)

A farm-to-table style restaurant overlooking the urban agriculture fields provides an opportunity for residents to see their food source as well as creating an aesthetic backdrop for their dining experience. Diners at the restaurant get a direct view of how their food was grown. After their meal they can go on a stroll through the orchard or over to the event space and community raised garden beds located to the south of the car museum and local grocer.

Urban Agriculture



Figure 2.14
Orchard Harvesting
Visitors pick fruit from the urban orchards that are part of Growing West's urban agriculture fields.
(Akers, Weinberg 2019)

Growing West's urban agriculture element provides fresh, local produce for residents of the west side of Manhattan as well as a fun day trip to the site's orchards for fruit harvesting. The fields act as a bridge between the agriculture fields that surround Manhattan and the urban core. Residents can get an up-close look at the food that is sold in the local grocery and restaurant located on Growing West's campus.

Community Connection



Figure 2.15
Children's Learning Center Courtyard
Garden learning takes place between the senior living center and the children's learning center by the educational planting beds.
(Akers, Weinberg 2019)

The Garden Way site of Growing West provides spaces for community members of all abilities and ages to engage and connect through raised garden beds, shaded seating, picnic areas, orchards, and walking trails. The proposed Children's Learning Center and the senior living facility located on the Garden Way side of Growing West will have communal raised beds to spark interaction amongst diverse age groups, giving seniors opportunities to teach children valuable lessons, such as how to tend a garden and grow their own food, and for the seniors to learn from children's modern day trends, etc.

Commercial Expansion



Figure 2.16
Pedestrian Alley
The alley between the Car Museum and the adjoining farm-to-shelf grocery and mixed-commercial center is an active space.
(Akers, Weinberg 2019)

Growing West provides dense commercial mixed into residential and office buildings allowing for an active environment at all times of the day and evening. Access to local food, shops and groceries for residents of the west side of Manhattan is the goal for Growing West.

Levee

Creation of a new levee that meets flood control standards.

Plaza / Amphitheater: Implementation of a constructed levee that meets engineering standards is proposed for flood control like the 500-year flood. The levee is intended to keep/reuse the newest existing buildings on the south edge of the site. All other existing buildings will be removed. The weaving pattern of the levee also provides cutout spaces and terraced seating for the amphitheater to hold medium to large-sized crowds.

Trails: The existing Linear Trail follows the elevated rail-bed running along the edge of Manhattan and along the southern edge of Growing West's site. It will be relocated to run along the proposed levee, connecting to Anderson Avenue's streetscape and the rest of the existing Linear Trail to the south. Providing a more inviting streetscape and wider sidewalks along Anderson Avenue works to better connect the site to its surroundings.

Demonstration: Residents can learn about the proposed levee and its functions through signage along the southern seating areas and the levee trail. Educating the public about the dangers of flooding as well as the history of flooding is important for visitors to understand the relationship between the levee and the site.

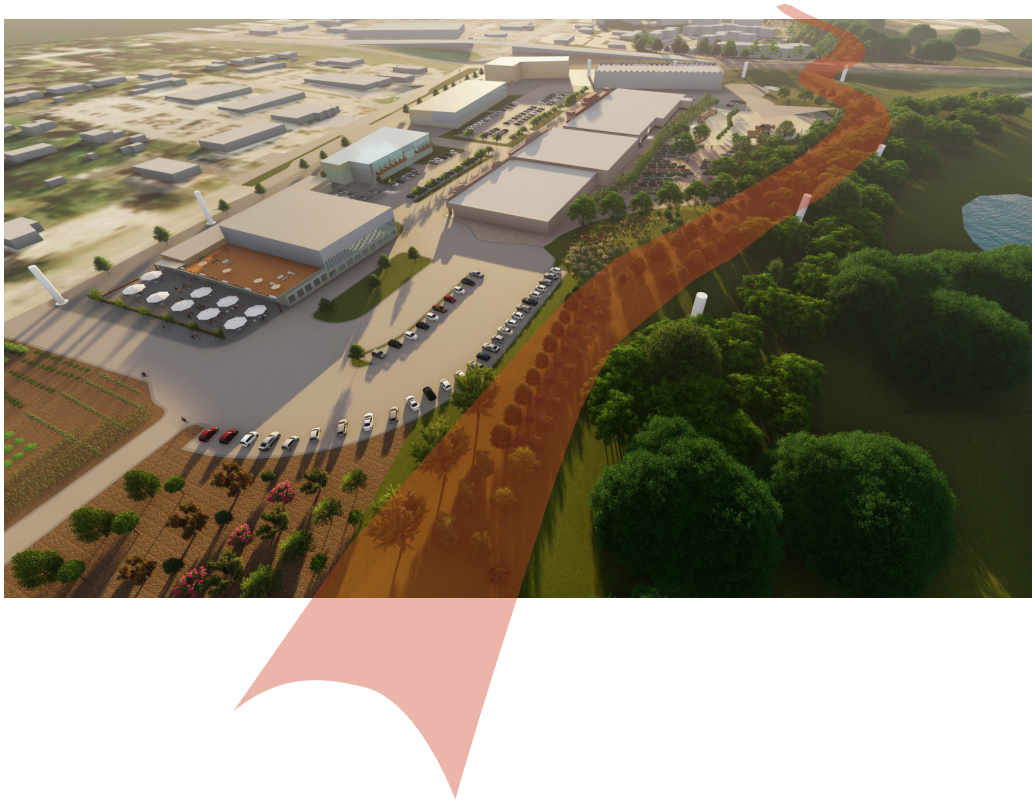


Figure 2.17
Proposed Levee on Plaza West
A levee will provide flood protection for Plaza West (no trees are planted on the levee itself).
(Akers, Herbel, Weinberg 2019)



Figure 2.18
Linear Trail on Levee
The connection between the levee, Linear Trail, amphitheater and Plaza West supports a variety of activity.
(Akers, Herbel, Weinberg 2019)



Figure 2.19
Raised Beds at Senior Living Center
Raised beds at the senior living center allows residents to have their own plot to tend to.
(Akers, Weinberg 2019)

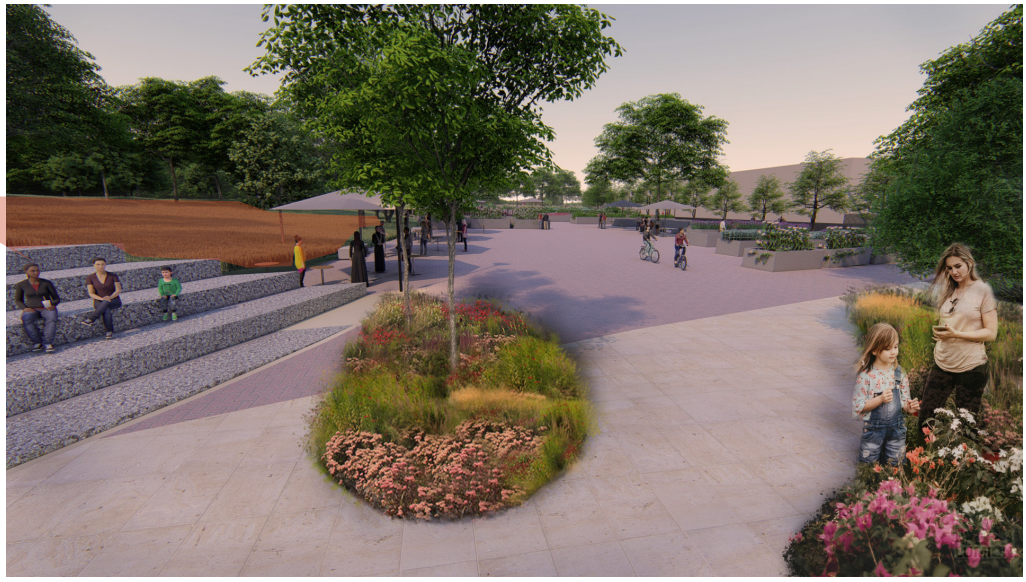


Figure 2.20
Plaza West Event Space
View down the southern plaza space of Plaza West looking west.
(Akers, Weinberg 2019)

Earthwork | Flood Basin Considerations

Protecting and Strategizing

To make the site more resilient against flooding while preserving some of the existing commercial and residential buildings, we are proposing a levee that would protect the site from a storm event rated at a future condition 1% chance flood hazard. Much of the levee soil fill will come from the Wildcat Creek floodplain which creates a deeper floodplain which offsets capacity loss due to levee fill. Additional flood storage capacity is also needed to compensate for flood storage loss over land now protected by the levee.

Existing Flooding & Flood Plain

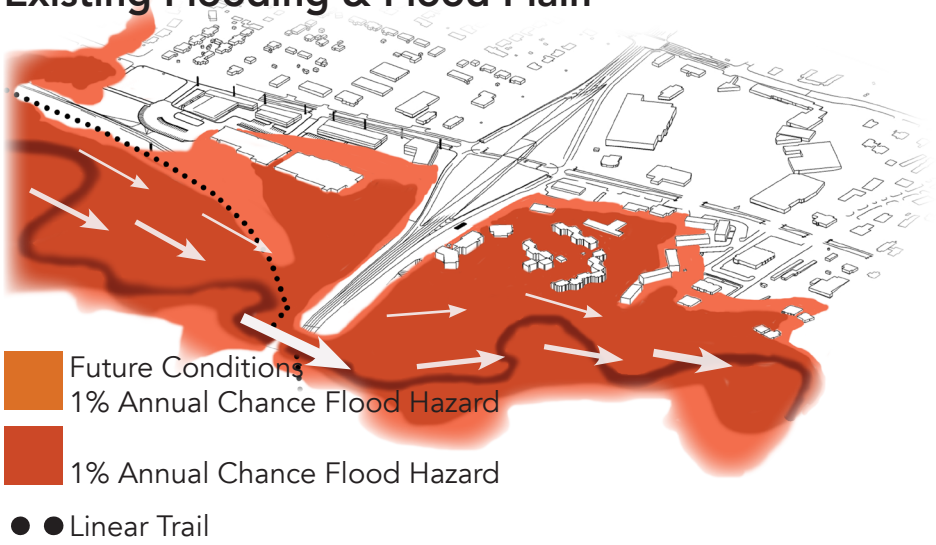


Figure 2.21
Existing Flood Map
Existing flood conditions need to be mitigated for a revitalized district.
(Herbel, 2019)

Levee & New Flood Plain

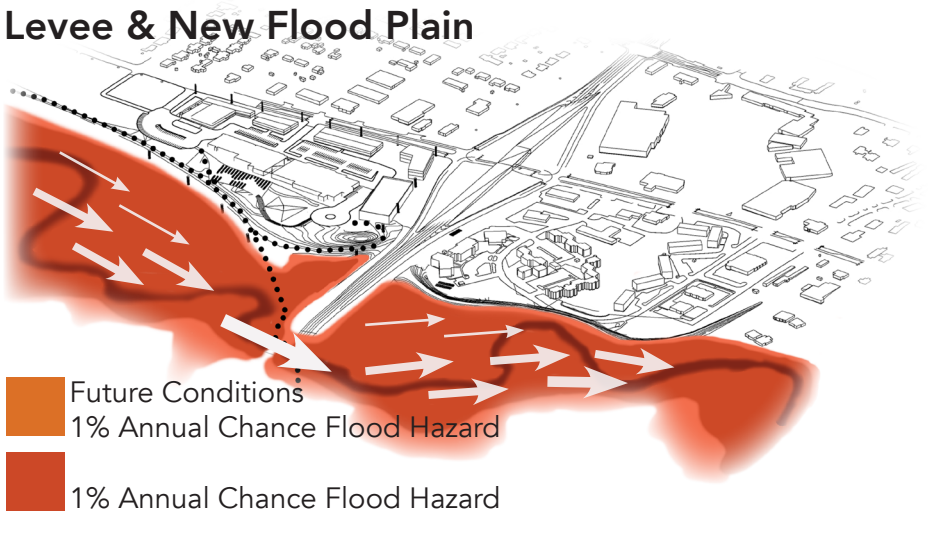


Figure 2.22
Proposed Levee Flood Map
A levee is proposed to protect the site from a future condition 1% Annual Chance Flood.
(Herbel, 2019)

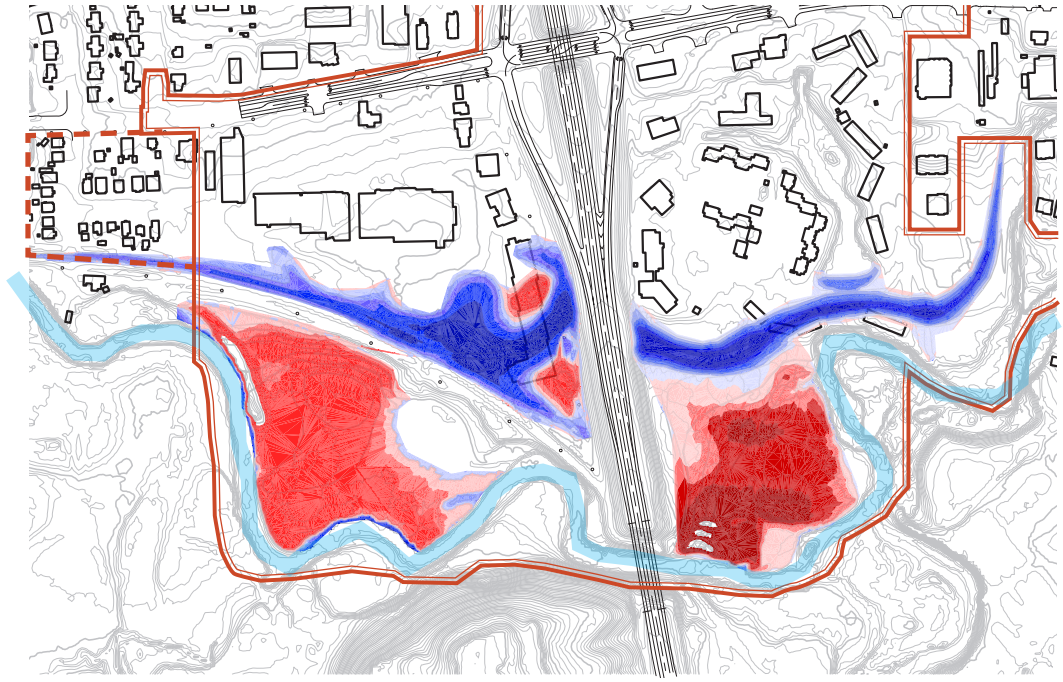


Figure 2.23
Balancing Cut & Fill
In addition to cute to provide levee fill, extra cut is required to offset lost flood storage capacity. Much of the existing woodland to facilitate mass grading removed, but could be restored to wetlands.
(Herbel, 2019)

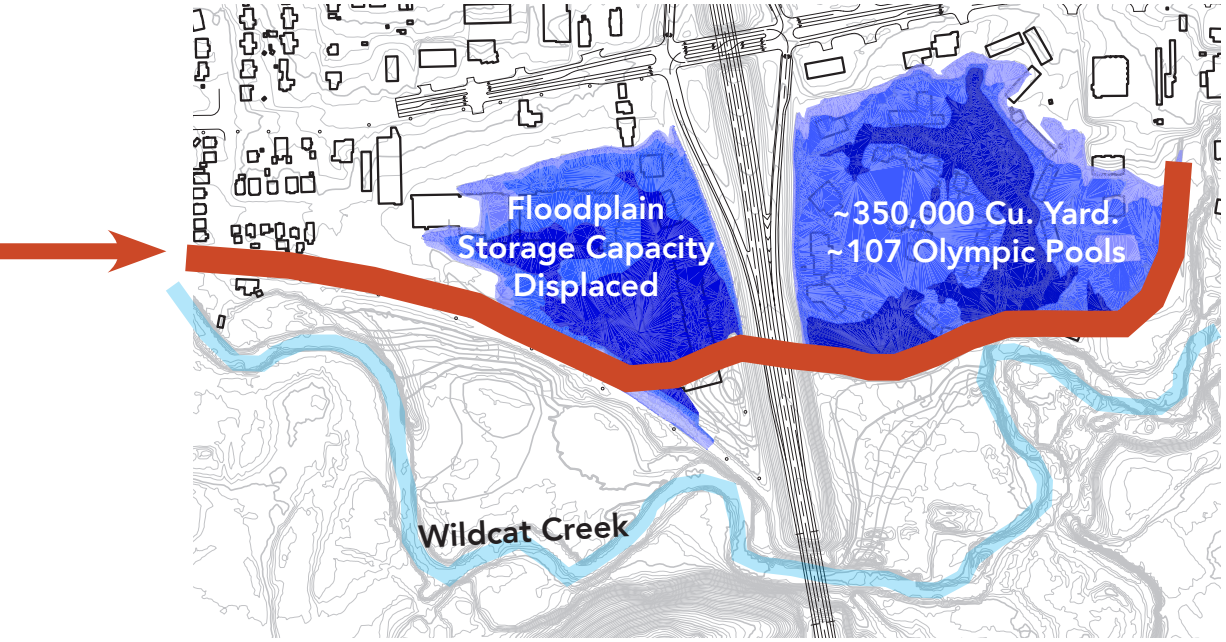


Figure 2.24
Flood Storage Capacity
Extra Wildcat Creek floodplain volume is needed as compensation for creation of the levee to prevent higher creek water discharge downstream in the event of flooding.
(Herbel, 2019)

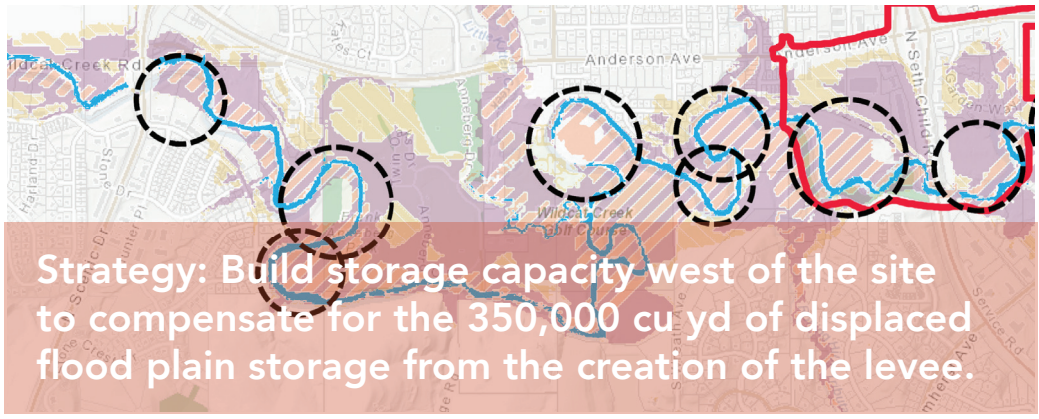


Figure 2.25
Building Flood Capacity
Several possible locations exist for increasing flood storage volume up creek from the site. Basins could be created west of Scenic drive in more agricultural and pasture land.
(Carmichael, 2019)

Agriculture

Introducing urban agriculture to West Manhattan

Community Production: The Fields of Growing West provide opportunities for the community to increase revenue, learn urban farming techniques, and come together to enjoy the harvest.

Proximity: From research conducted by a student in chapter six, map series 1.4, the west side of Manhattan has a lack of pedestrian or bike connections to local food sources. The Fields of Growing West coupled with the community raised garden planters allow for hands-on access to locally grown food. Growing West is located in a central hub surrounded by residential areas of west Manhattan. Those residential areas that do not directly abut the site can access the site through the Linear Trail or Anderson Avenue by bike.

Training: One of Growing West's main goals is community outreach, so job opportunities and training for residents is provided through new local businesses, fields, orchards, community raised garden beds, and the local grocer.



Figure 2.26
Urban Orchards
Harvest time at the urban orchards is an enjoyable communal activity.
(Akers, Weinberg 2019)



Figure 2.27
The Fields
Urban agriculture fields of the Growing West District looking east occupy former flood land.
(Akers, Weinberg 2019)

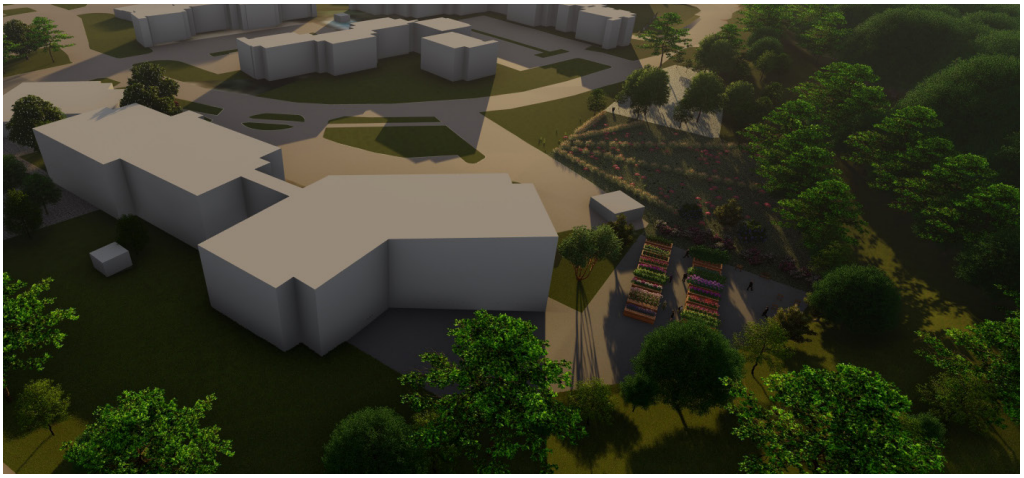


Figure 2.28
Senior Living Facility
Raised beds, plaza space, and dense edible plantings located adjacent to the senior living facility in Garden Way are a new amenity.
(Akers, Weinberg 2019)



Figure 2.29
Community Raised Beds
Community raised beds in the southern plaza space of Plaza West.
(Akers, Weinberg 2019)

Figure 2.30 (below)
Farm-to-table Restaurant
Diners have a close view of adjacent agriculture fields.
(Akers, Weinberg 2019)



Commercial

Expanding and densifying the realm of commercial reach.

Business: Growing West's proposal is to create a dense, walkable, local business hub to create an active environment throughout the day and evening. Providing a healthy mix of offices, retail, restaurants, and commercial uses on the Plaza West's site generates district revenue on-site and provides access for residents and surrounding neighborhoods.

Proximity: Providing a space on the west side of Manhattan that has business, work, living, food, activities and connection to both nature and the urban core of Manhattan creates jobs, stimulates economic development and allows for easy access to amenities in a small area.

Job / Food Training: Residents of Manhattan have the opportunity to learn how to tend to the fields, the orchards, raised beds, and food service through the farm-to-table style restaurant and farm-to-shelf grocery proposed in Growing West. Job training days will be available through events at the restaurant and grocery store throughout the year and will be offered to anyone in the community.





Figure 2.31
Pedestrian Alley
The alley between the Car Museum and the farm-to-shelf grocery and mixed-use commercial center is an active space..
(Akers, Weinberg 2019)



Figure 2.32
Anderson Avenue Street Front
Visitors are drawn into Plaza West from Anderson Avenue.
(Akers 2019)

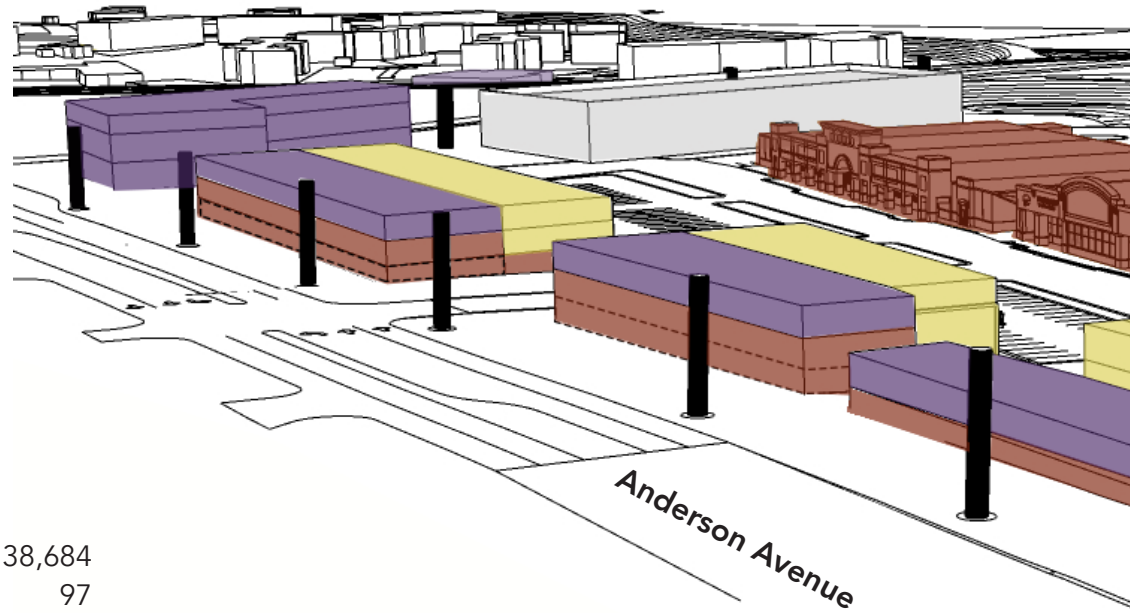


Figure 2.33
Plaza West Interior Aerial
Aerial view of the interior parking area of Plaza West looking east.
(Akers 2019)

Mixed-Use Breakdown & Metrics

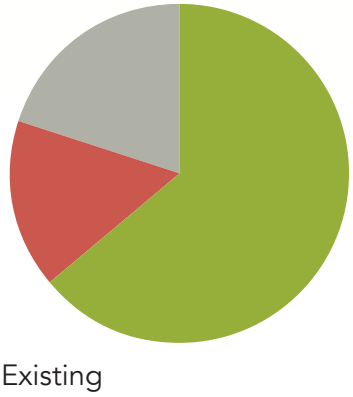
Legend

- Commercial
- Residential
- Office
- Mixed-Use

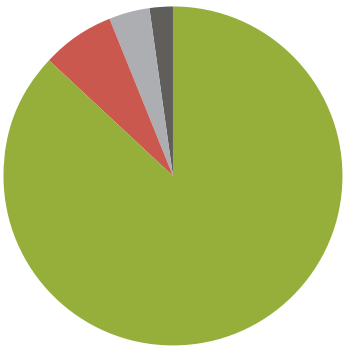


Site Metrics

Residential Summary	
Total Residential SF	38,684
Total Residents	97
Parking Stalls Needed	68
Dwelling Units / Acre	.83
Commercial Summary	
Total Commercial SF	148,675
Employees	198
Parking Stalls Needed	416
Office Summary	
Total Office SF	72,322
Employees	145
Parking Stalls Needed	203
Parking Summary	
Total Stalls Needed	686
Parking Stalls Provided	697
Surface Parking Stall	327
Streetside Parking	0
Structure Parking	370
Existing Garden Way	262,875
Total Site Area (East)	1,055,638
FAR (Floor to Area Ratio)	.25
Total Developed SF (West)	259,681
Total Site Area (West)	1,454,974
FAR (Floor to Area Ratio)	.18
Composite FAR	.21



Existing



Growing West

(Graph by Cole 2019)

Legend

- Open Space
- Building Footprint
- Surface Parking
- Parking Garage

Figure 2.34
Building Usage Plan
Figure 2.34 shows a plan view of the proposed buildings and their uses. (Akers 2019)

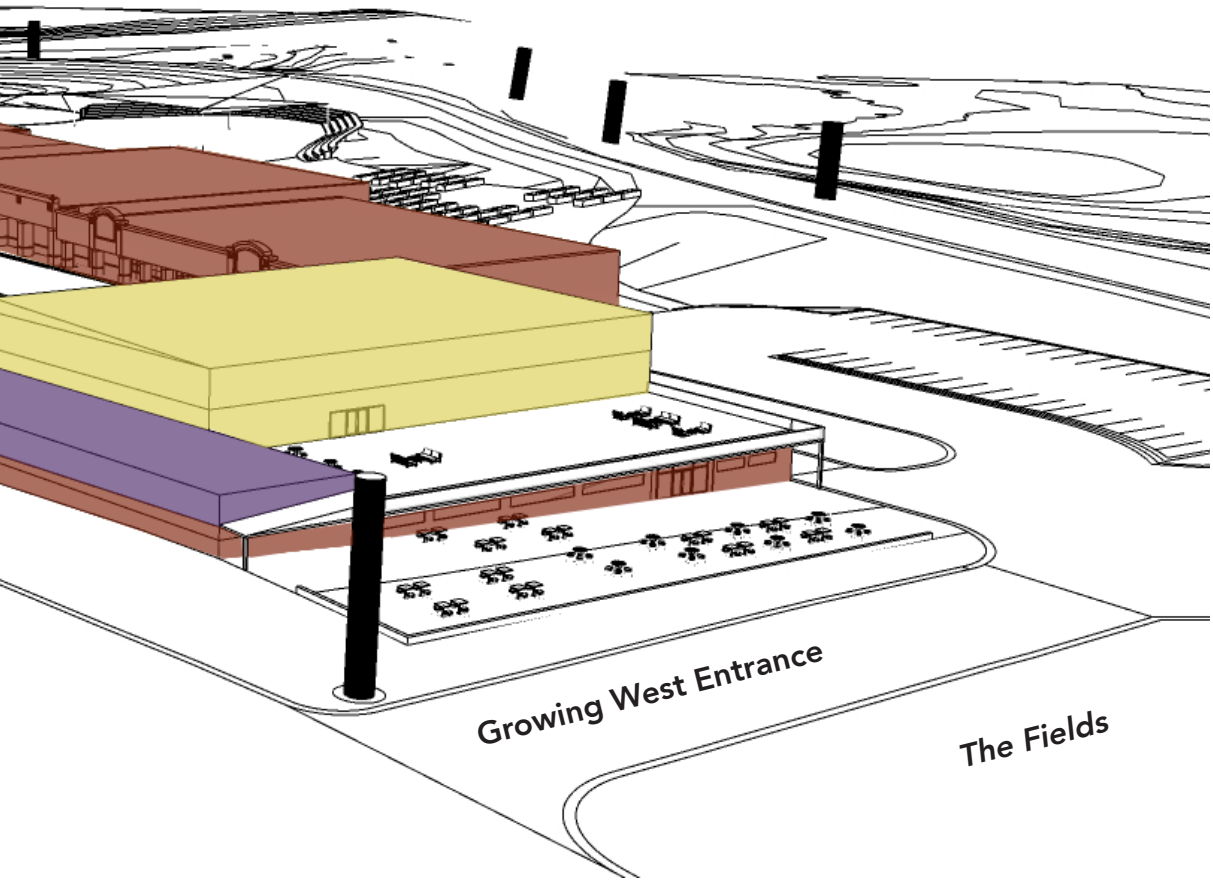


Figure 2.35
Building Usage
Figure 2.35 provides an aerial view of the proposed buildings within Plaza West and their uses.
(Akers 2019)



Figure 2.36
Building Usage Plan
Plan view of the proposed buildings and their uses.
(Akers 2019)

West Developable Area = 1,454,974 SF

East Developable Area = 1,055,638 SF

Site Programming

Planning for the community

Growing West is designed to host events throughout all seasons, centered on connecting the community through opportunities for educational, recreational, and cultural engagement. These events will foster a community of stewardship and fuel the local economy by bringing business on-site, providing community education courses and job training, and connect locals to adjacent natural areas and green spaces. On-site urban agriculture plots will supply both year-round farm-to-table restaurants on site and seasonal markets and harvest events.

Galas and fundraisers will help to support community outreach efforts for youth leadership training, arts and agricultural education, and veteran services whose employment on-site will support local business. New office and mixed-use development along Anderson will densify the district, catalyzing investment in local business and creating a community destination for recreation, education, and cultural festivities.

- Phase 01 | Levee construction
- Phase 02 | Construction of proposed buildings
- Phase 03 | Implementation and utilization of urban agriculture fields

Regional Connections

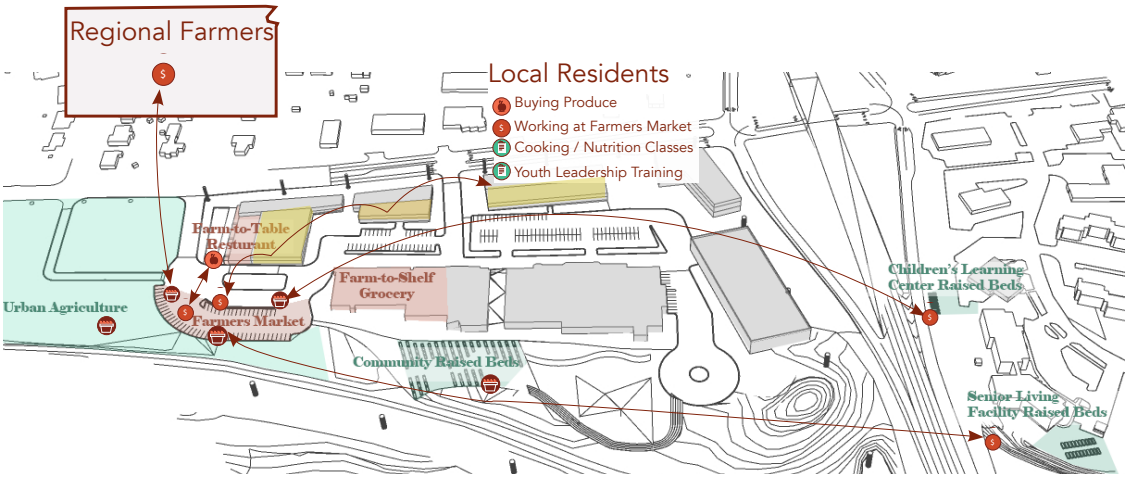


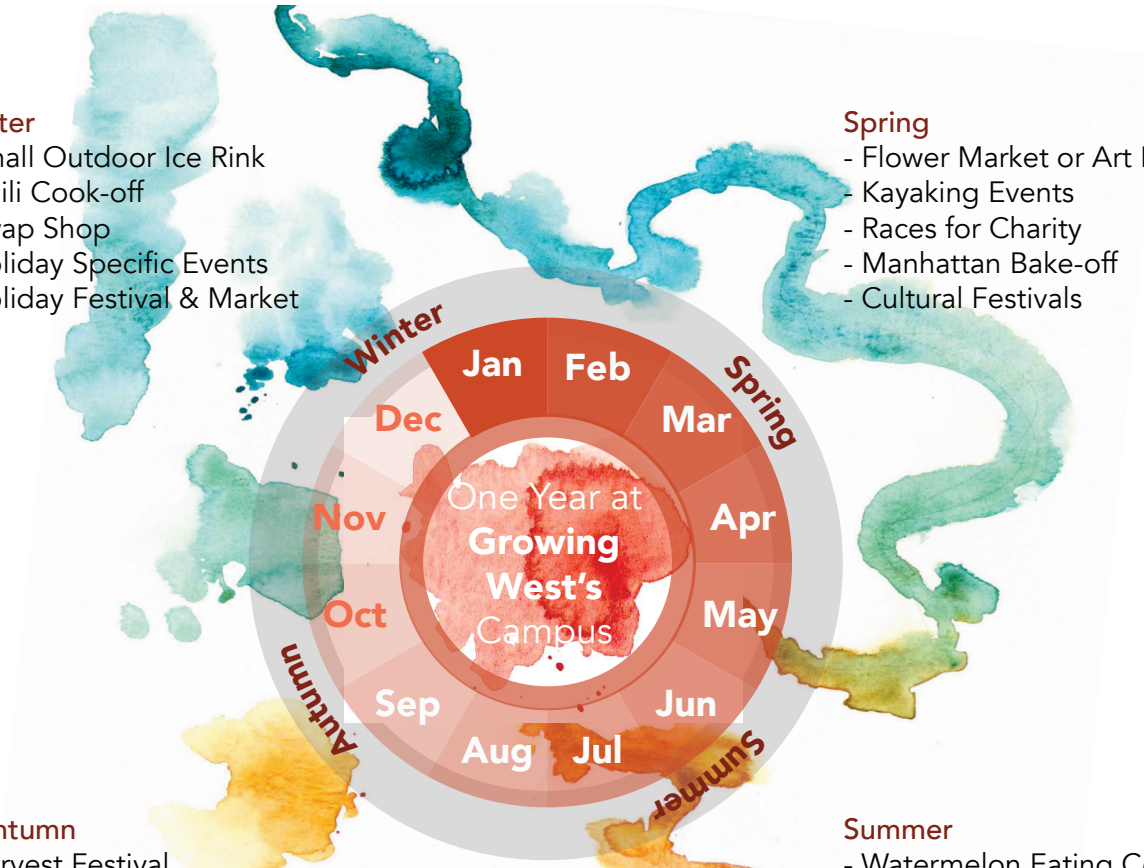
Figure 2.37
Growing West Relationship to Surrounding
Growing West supports diverse urban agriculture amenities and benefits.
(Akers 2019, modified from Five Borough Farm's Farmer's Market Diagram 2012)

- Health
- Social
- Economic
- Ecological

Benefits

- Access to healthy food
- Food-health literacy
- Healthy eating
- Empowerment & mobilization
- Local economic stimulation
- Job growth
- Job readiness
- Food affordability
- Conservation

- Supplies produce
- Provides access to produce
- Earns income
- Provides subsidy or permit
- Provides education or training



Winter
- Small Outdoor Ice Rink
- Chili Cook-off
- Swap Shop
- Holiday Specific Events
- Holiday Festival & Market

Spring
- Flower Market or Art Installation
- Kayaking Events
- Races for Charity
- Manhattan Bake-off
- Cultural Festivals

Aumtumn
- Harvest Festival
- Halloween Events
    - Tunk-or-Treat
    - Costume Contest
- Urban Pumpkin Patch

Summer
- Watermelon Eating Contest
- Beer Gardens
- Day Camps in the Gardens for Kids
- Garden Parties & Events
- Outdoor Movie Events
- Car Show
- Orchard Harvest
- Outdoor Oriented Events

Multi-Seasonal/ Year-Round Events:
- Indoor / Outdoor Classes & Events
- Gala Events for Outreach Programs
- Art Fairs
- Farmers Markets
- Community Garden Classes
    - Composting 101
    - Gardening 101
    - Gardening Club
    - Cooking Classes
- Music Festivals
- Beer Gardens
- Showcases of Local Wines + Tastings

Figure 2.38
Growing West Annual Events
Abundant seasonal and annual events for the community that can be held in the Growing West District.
(Akers, Herbel, Weinberg 2019)

What Makes Our Design Special

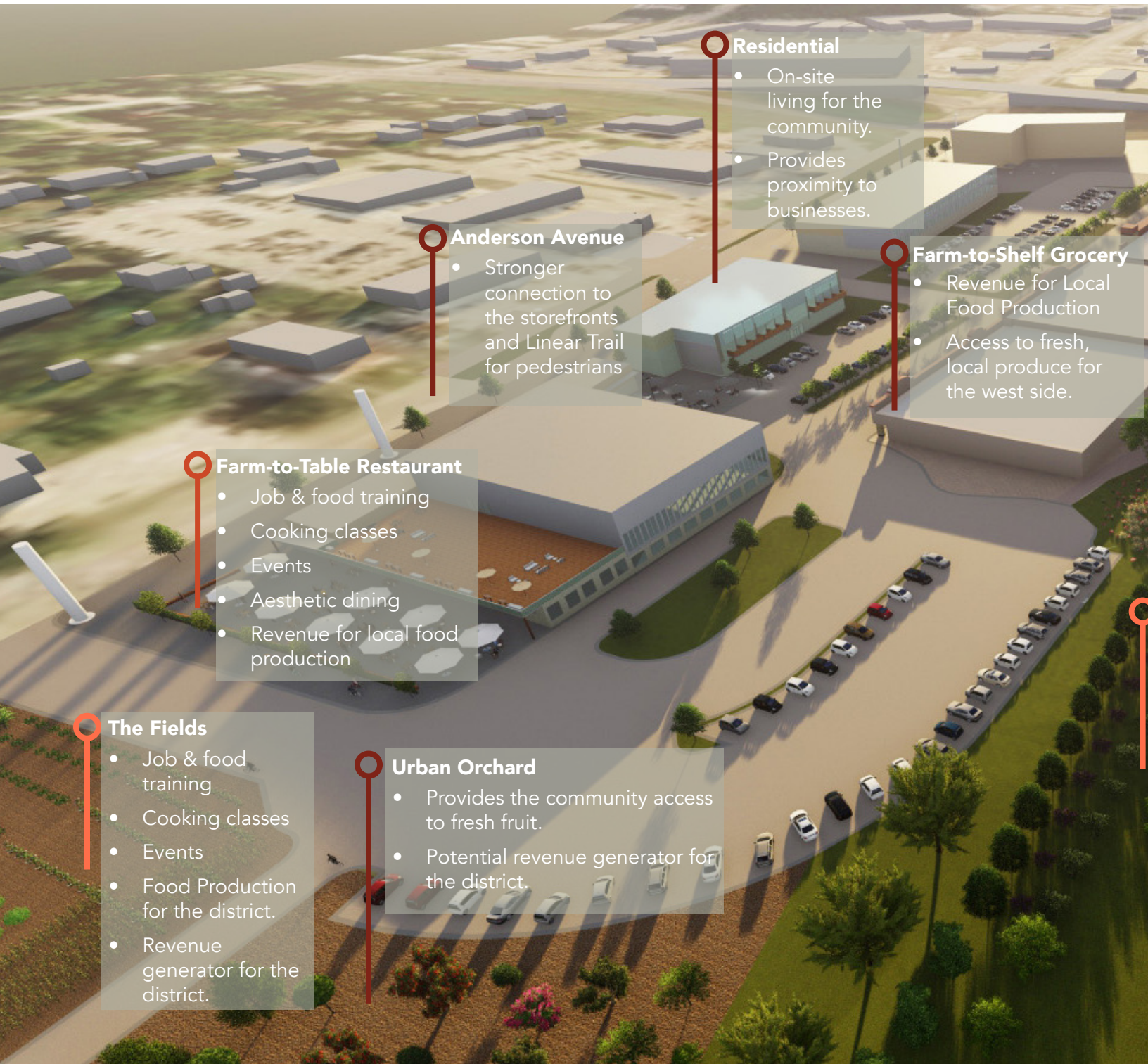
Why Introducing An Urban Agriculture District is An Asset to Manhattan's Community

Bringing together the Manhattan Community through an urban agriculture district.

Connect

Engage

Empower



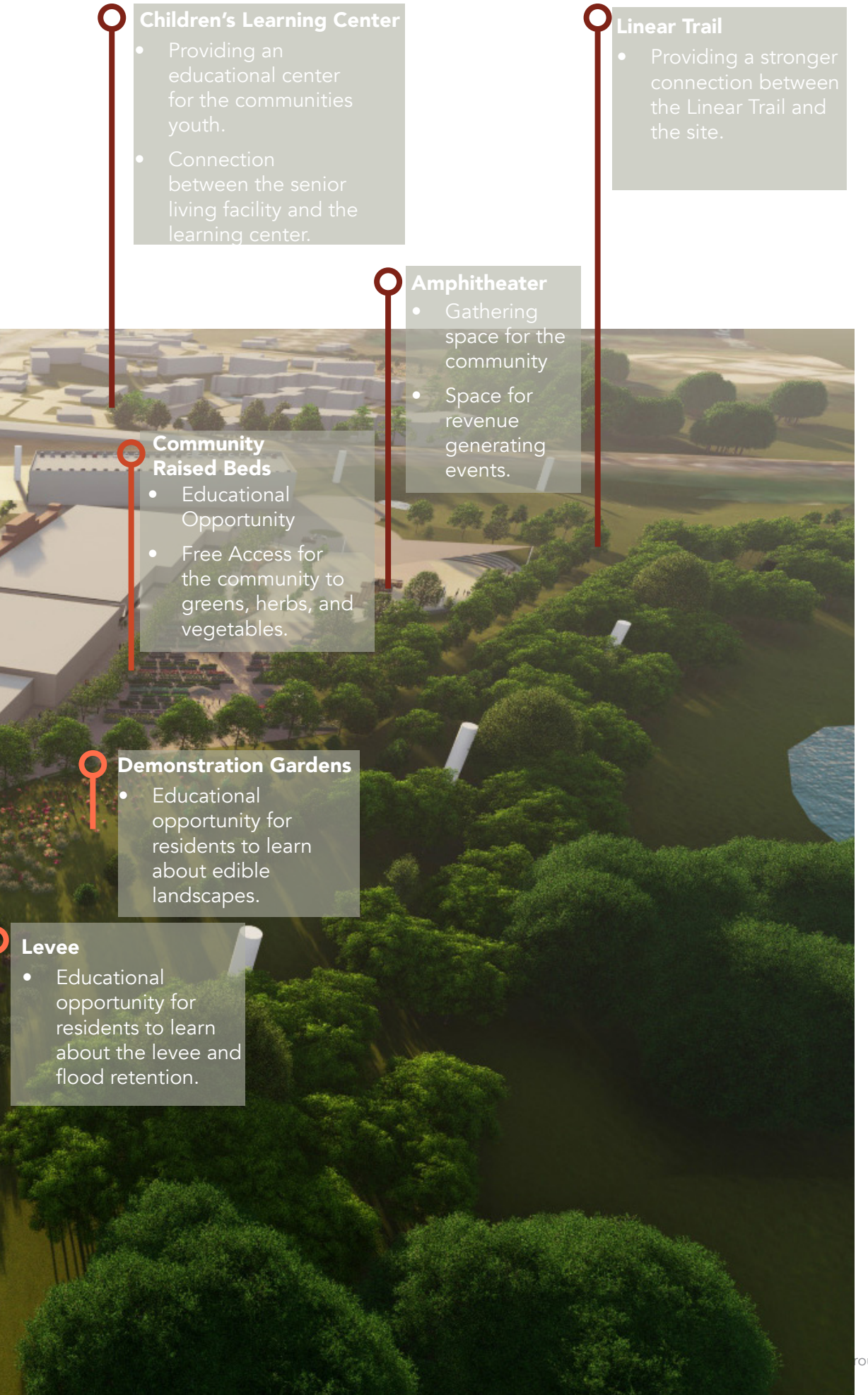


Figure 2.39
Growing West Overview
Overview of the Growing West District.
(Akers, Weinberg 2019)

Perspective Reference Map





Figure 2.40
Site Metrics
Reference map for the perspectives and their location within the chapter.
(Akers, Weinberg 2019)

Citations

Figure 2.1

Akers, Ashley. 2019. Group Spectrum. Illustrator.

Cole, Madelyn. 2019. Group Icons. Illustrator.

Figure 2.2

Herbel, Erich. 2019. Community Outreach. Illustrator.

Figure 2.3

Akers, Ashley. 2019. Existing Parking. Digital Photograph.

Figure 2.4

Herbel, Erich. 2019. Flood Damage. Digital Photograph.

Figure 2.5

Herbel, Erich. 2019. Garden Way. Digital Photograph.

Figure 2.6

Akers, Ashley. 2019. Linear Trail. Digital Photograph.

Figure 2.7

Akers, Ashley. 2019. Anderson Avenue. Digital Photograph.

Figure 2.8

Akers, Ashley. 2019. Plaza West Drainage. Digital Photograph.

Figure 2.9

City of Manhattan. 2018. 2018 Flood. RileyCountyPD. "The Corps of Engineers Reports Rainfall around 8.9 Inches and around 3-4 Inches in Riley. That Water Then Came down Wildcat Creek. Pic.twitter.com/bRI1Br0aVJ." Twitter, Twitter, 3 Sept. 2018, 9:45 AM, twitter.com/RileyCountyPD/status/1036656466961334273.

Figure 2.10

Akers, Ashley. Weinberg, Haley. 2019. Growing West. Lumion. Photoshop.

Figure 2.11

Akers, Ashley. Herbel, Erich. Weinberg, Haley. 2019. Growing West Plan. AutoCAD. Photoshop.

Figure 2.12

Akers, Ashley. Weinberg, Haley. 2019. Growing West Aerial. Lumion. Photoshop.

Figure 2.13

Akers, Ashley. Weinberg, Haley. 2019. Farm-to-table Restaurant. Lumion. Photoshop.

Figure 2.14

Akers, Ashley. Weinberg, Haley. 2019. Orchard Harvesting. Lumion. Photoshop.

Figure 2.15

Akers, Ashley. Weinberg, Haley. 2019. Children's Learning Center Courtyard. Lumion. Photoshop.

Figure 2.16

Akers, Ashley. Weinberg, Haley. 2019. Pedestrian Alley. Lumion. Photoshop.

Figure 2.17

Akers, Ashley. Herbel, Erich. Weinberg, Haley. 2019. Proposed Levee on Plaza West. Lumion. Photoshop. InDesign.

Figure 2.18

Akers, Ashley. Herbel, Erich. Weinberg, Haley. 2019. Linear Trail on Levee. Lumion. Photoshop. InDesign.

Figure 2.19

Akers, Ashley. Weinberg, Haley. 2019. Raised Beds at Senior Living Center. Lumion. Photoshop.

Figure 2.20

Akers, Ashley. Weinberg, Haley. 2019. Plaza West Event Space. Lumion. Photoshop.

Figure 2.21

Herbel, Erich. 2019. Existing Flood Map. Sketch-up. Photoshop.

Figure 2.22

Herbel, Erich. 2019. Proposed Levee Flood Map. Sketch-up. Photoshop.

Citations

Figure 2.23

Herbel, Erich. 2019. Balancing Cut & Fill. Sketch-up. Photoshop.

Figure 2.24

Herbel, Erich. 2019. Flood Storage Capacity. Sketch-up. Photoshop.

Figure 2.25

Carmichael, Jessie. 2019. Flood Basin Strategy Map. Base ArcGIS.

Figure 2.26

Akers, Ashley. Weinberg, Haley. 2019. Urban Orchards. Lumion. Photoshop.

Figure 2.27

Akers, Ashley. Weinberg, Haley. 2019. The Fields. Lumion. Photoshop.

Figure 2.28

Akers, Ashley. Weinberg, Haley. 2019. Senior Living Facility. Lumion. Photoshop.

Figure 2.29

Akers, Ashley. Weinberg, Haley. 2019. Community Raised Beds. Lumion. Photoshop.

Figure 2.30

Akers, Ashley. Weinberg, Haley. 2019. Farm-to-table Restaurant. Lumion. Photoshop.

Figure 2.31

Akers, Ashley. Weinberg, Haley. 2019. Pedestrian Alley. Lumion. Photoshop.

Figure 2.32

Akers, Ashley. 2019. Anderson Avenue Street Front. Lumion. Photoshop.

Figure 2.33

Akers, Ashley. 2019. Plaza West Interior Aerial. Lumion. Photoshop.

Figure 2.34
Akers, Ashley. 2019. Building Usage. Sketch-up. Photoshop.

Figure 2.35
Akers, Ashley. 2019. Site Metrics. Howard Hahn. Excell.
Cole, Madelyn. 2019. Group Site Metrics. Illustrator.

Figure 2.36
Akers, Ashley. 2019. Building Usage Plan. Sketch-up. Photoshop.

Figure 2.37
Akers, Ashley. 2019. Growing West Urban Agriculture Relationship Diagram. Illustrator. Inspiration from Cohen, Reynolds, and Sanghivi 2012.
Cohen, Nevin. Reynolds, Kristin. and Sanghvi, Rupal. 2012. *Five Borough Farm: Seeding the Future of Urban Agriculture in New York City. New York: Design Trust for Public Space*.

Figure 2.38
Akers, Ashley. Herbel, Erich. Weinberg, Haley. 2019. Growing West Annual Events. Watercolor by Weinberg. Illustrator.

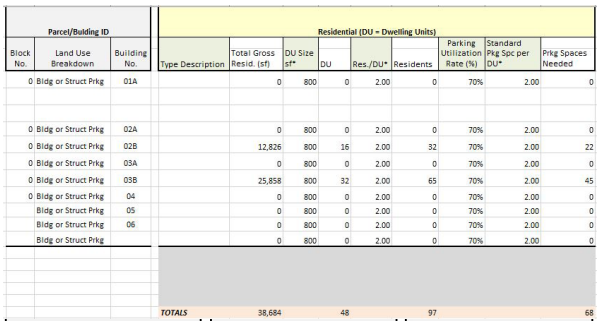
Figure 2.39
Akers, Ashley. Weinberg, Haley. 2019. Growing West Overview. Lumion. Photoshop.

Figure 2.40
Akers, Ashley. Weinberg, Haley. 2019. Perspective Reference Map. Lumion. Photoshop. InDesign.

Figure 2.41
Akers, Ashley. Herbel, Erich. Hahn, Howard. Weinberg, Haley. 2019. Site Metrics. Microsoft Excell.

Site Metrics

Scenario Summary	
Description	Summary Totals
Total Parcel Areas (sf)	223,350
Total Parcel Area (ac)	5.13
FAR*	1.16
FAR*	0.00
FAR*	0.00
Residential Summary	
Total Residential SF	38,684
Total Dwelling Units (DU)	48
Avg DU/Acre	9.4
Total Residents	97
Parking Stalls Needed	68
Commercial Summary	
Total Commercial SF	148,675
Employees	198
Parking stalls Needed	416
Office Summary	
Total Office SF	72,322
Employees	145
Parking Stalls Needed	203
Parking Summary	
Total Stall Needed	686
Parking Stalls Provided	697
Surface Parking Stalls	327
Streetside Parking	0
Structured Parking	370



Parcel/Bulding ID			Residential (DU = Dwelling Units)								
Block No.	Land Use Breakdown	Building No.	Type Description	Total Gross Resid. (sf)	DU Size sf*	DU	Res./DU*	Residents	Parking Utilization Rate (%)	Standard Pkg Spc per DU*	Prkg Spaces Needed
0	Bldg or Struct Prkg	01A		0	800	0	2.00	0	70%	2.00	0
0	Bldg or Struct Prkg	02A		0	800	0	2.00	0	70%	2.00	0
0	Bldg or Struct Prkg	02B		12,826	800	16	2.00	32	70%	2.00	22
0	Bldg or Struct Prkg	03A		0	800	0	2.00	0	70%	2.00	0
0	Bldg or Struct Prkg	03B		25,858	800	32	2.00	65	70%	2.00	45
0	Bldg or Struct Prkg	04		0	800	0	2.00	0	70%	2.00	0
	Bldg or Struct Prkg	05		0	800	0	2.00	0	70%	2.00	0
	Bldg or Struct Prkg	06		0	800	0	2.00	0	70%	2.00	0
	Bldg or Struct Prkg			0	800	0	2.00	0	70%	2.00	0
			TOTALS	38,684		48		97			68

Parcel/Bulding ID			Parking Required			Parking Being Provided		
Block No.	Land Use Breakdown	Building No.	Type	Pkg Spaces	Parking Area (sf)	Levels	Parking Area (sf)	Stalls Provided
0	Bldg or Struct Prkg	01A	Garage	19	6,383	0.00	0	0
0	Bldg or Struct Prkg	02A	Garage	41	13,577	0.00	0	0
0	Bldg or Struct Prkg	02B	Garage	40	13,333	0.00	0	0
0	Bldg or Struct Prkg	03A	Garage	73	24,002	0.00	0	0
0	Bldg or Struct Prkg	03B	Garage	81	26,879	0.00	0	0
0	Bldg or Struct Prkg	04	Garage	146	48,036	0.00	0	0
	Bldg or Struct Prkg	05	Garage	164	53,987	0.00	0	0
	Bldg or Struct Prkg	06	Garage	122	40,344	0.00	0	0
	Bldg or Struct Prkg		Garage	0	0	3.00	122,109	370
						Pkg Lots	104,523	327
						SS Pkg	0	0
			TOTALS	686	226,541		226,632	697

Parcel/Bulding ID			Commercial						
Block No.	Land Use Breakdown	Building No.	Type Description	Commercial Area (sf)	Sq Ft per Comm. Emp.	Employees	Parking Utilization Rate (%)	Standard Pkg Spc per 1K sf*	Prkg Spaces Needed
0	Bldg or Struct Prkg	01A		6,908	750	9	70%	4.00	19
0	Bldg or Struct Prkg	02A		7,347	750	10	70%	4.00	21
0	Bldg or Struct Prkg	02B		6,413	750	9	70%	4.00	18
0	Bldg or Struct Prkg	03A		12,988	750	17	70%	4.00	36
0	Bldg or Struct Prkg	03B		12,929	750	17	70%	4.00	36
0	Bldg or Struct Prkg	04		0	750		70%	4.00	0
	Bldg or Struct Prkg	05		58,428	750	78	70%	4.00	164
	Bldg or Struct Prkg	06		43,662	750	58	70%	4.00	122
	Bldg or Struct Prkg			0	750		70%	4.00	0
			TOTALS	148,675		198			416

Parcel/Bulding ID			Office						
Block No.	Land Use Breakdown	Building No.	Type Description	Office Area (sf)	SF per Off Emp	Employees	Parking Utilization Rate (%)	Standard Prkg Spc per 1K sf*	Prkg Spaces Needed
0	Bldg or Struct Prkg	01A		0	500		70%	4.00	0
0	Bldg or Struct Prkg	02A		7,347	500	15	70%	4.00	21
0	Bldg or Struct Prkg	02B		0	500		70%	4.00	0
0	Bldg or Struct Prkg	03A		12,988	500	26	70%	4.00	36
0	Bldg or Struct Prkg	03B		0	500		70%	4.00	0
0	Bldg or Struct Prkg	04		51,987	500	104	70%	4.00	146
	Bldg or Struct Prkg	05		0	500		70%	4.00	0
	Bldg or Struct Prkg	06		0	500		70%	4.00	0
	Bldg or Struct Prkg			0	500		70%	4.00	0
			TOTALS	72,322		145			203

Parcel/Bulding ID			Site Footprint Breakdown	Building						
				Building Level Allocation						
Block No.	Land Use Breakdown	Building No.	Footprint Area (sf)	Resid Levels	Comm Levels	Office Levels	Parking Levels	Total Levels	Total Area (sf)	Total Hab. Area (sf)
	Bldg or Struct Prkg	01A	6,908	0.00	1.00	0.00	0.00	1.00	6,908	6,908
	Bldg or Struct Prkg	01B	7,998	0.00	1.00	1.00	0.00			
	Bldg or Struct Prkg	01C	16,057	1.00	2.00	0.00	0.00			
	Bldg or Struct Prkg	02A	7,347	0.00	1.00	1.00	0.00	2.00	14,694	14,694
	Bldg or Struct Prkg	02B	6,413	2.00	1.00	0.00	0.00	3.00	19,239	19,239
	Bldg or Struct Prkg	03A	12,988	0.00	1.00	1.00	0.00	2.00	25,976	25,976
	Bldg or Struct Prkg	03B	12,929	2.00	1.00	0.00	0.00	3.00	38,787	38,787
	Bldg or Struct Prkg	04	17,329	0.00	0.00	3.00	0.00	3.00	51,987	51,987
	Bldg or Struct Prkg	05	58,428	0.00	1.00	0.00	0.00	1.00	58,428	58,428
	Bldg or Struct Prkg	06	43,662	0.00	1.00	0.00	0.00	1.00	43,662	43,662
	Bldg or Struct Prkg	07	40,703	0.00	0.00	0.00	3.00	3.00	122,109	0
	Surface Parking Lots		104,523							
	Streetside Parking		0							
	Sidewalks/Plazas		22,395							
	Internal Drives		116,075							
	Open Space*		220,598							
TOTALS			694,353						381,790	259,681
			223,350 (Cross-check)							

Figure 2.41
Site Metrics
Metrics of the Growing West District.
(Akers, Herbel, Weinberg 2019)



3



KID-hattan

Paden Chesney
Rainie Madsen
Grant Pasowicz

KID-hattan

Integrating new attractions, activities, and mixed-use development in a new family-friendly district.

Concept

Wildcat Creek has experienced a history of flooding events, especially in the past 10 years. These events have caused damage to the building structures on and around the Plaza West and Garden Way areas of Manhattan. Utilizing several green infrastructural techniques to reduce flooding impacts, KID-hattan looks to orient the district programming for children and their families. Development of amenities include a Manhattan Library extension, day care facilities (including a Boys and Girls Club West), Nature Center, and Children's Museum. The site hosts several indoor and outdoor services that the community currently lacks.



Figure 3.1
KID-hattan Photomontage
A collage of the ideas and visions that guided our redesign of Plaza West and Garden Way (Madsen, 2019)

Goals and Objectives

- Provide a range of multi-seasonal indoor and outdoor spaces geared for children and parents
- Increase family living options in the community of Manhattan
- Improve interactive after-school daycare programs
- Reduce flood damage caused by Wildcat Creek while increasing visibility and access to the water

District Core

Rationale - the decision to implement a children's district in the community of Manhattan

Why a Children's District?

According to the 2010 United States Census, the largest represented age group in Manhattan, KS outside of college-aged inhabitants were children up to 19 years old. This information, combined with the city looking to entice younger families to move to Manhattan clearly justifies the creation of more space for children. Of the existing spaces geared toward children, there seems to be limited options. These spaces show a lack of connection from one space to another. KID-hattan is looking to offer a safe, densified district with a range of activities for all ages. The district will provide a mixture of facilities, from commercial retail to a new children's museum.



Figure 3.2
Community Quote 1
(Pasowicz, 2019)

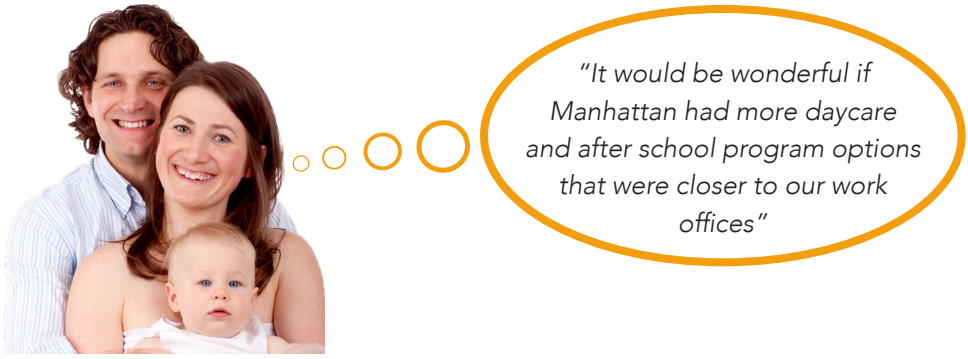


Figure 3.3
Community Quote 2
(Pasowicz, 2019)



Figure 3.4
Community Quote 3
(Pasowicz, 2019)

Project Foci
Character and Components

Communal Inclusivity

One of the main project objective is to create a new-mixed use district skewed towards families. Planned amenities and provide an array of family-friendly program elements, some of which are not currently available in the city or are not concentrated on the east side of Manhattan. These amenities will draw a wide variety of ages and allow for a range of abilities to enjoy the district.

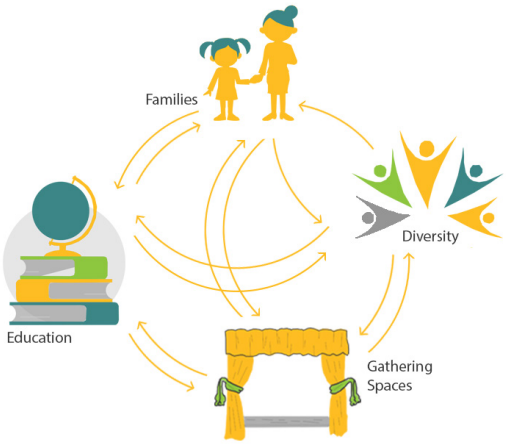


Figure 3.5
Community Mapping
(Madsen, 2019)

Amenity Value

Along with public community spaces, new business and commercial space will be available in order to produce revenue for the district. These economic booster will help offset development costs. Mixed use will reduce distance between homes, after school daycares, and work for families.



Figure 3.6
Economic Mapping
(Madsen, 2019)

Flood Remediation

Another important focus of the project concerns flood management and increasing the biotic health of the site. This is achieved by reducing gray infrastructure and adding increased green space, regrading for flood management, creating wetlands and incorporating a raised flood wall.

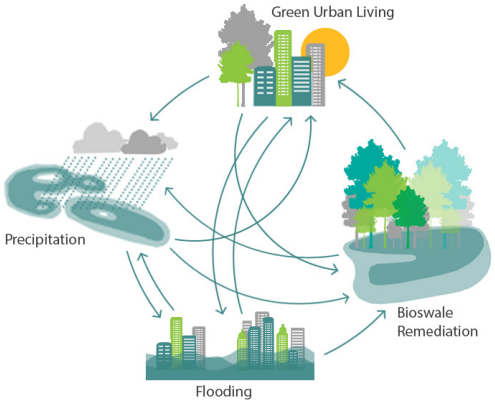


Figure 3.7
Ecological Mapping
(Madsen, 2019)

Background Information

Site Context and Conditions

The project site is located in the southwest and southeast quadrants of the Anderson Avenue and the Seth Child Road interchange. There is a visual and physical disconnect between the two sides due to the elevated Seth Child Road. The city is addressing this issue with a new traffic plan. The design team for KID-hattan has chosen to adapt the road changes being considered by the city with the creation of a round-about. The southern border of the site is formed by Wildcat Creek. This body of water has caused historical issues due to flooding. The northern portion of the site is dominated by impermeable roadways, surface parking, and buildings. The Linear Trail starts on the far west side of the site and follows an abandoned railroad bed.

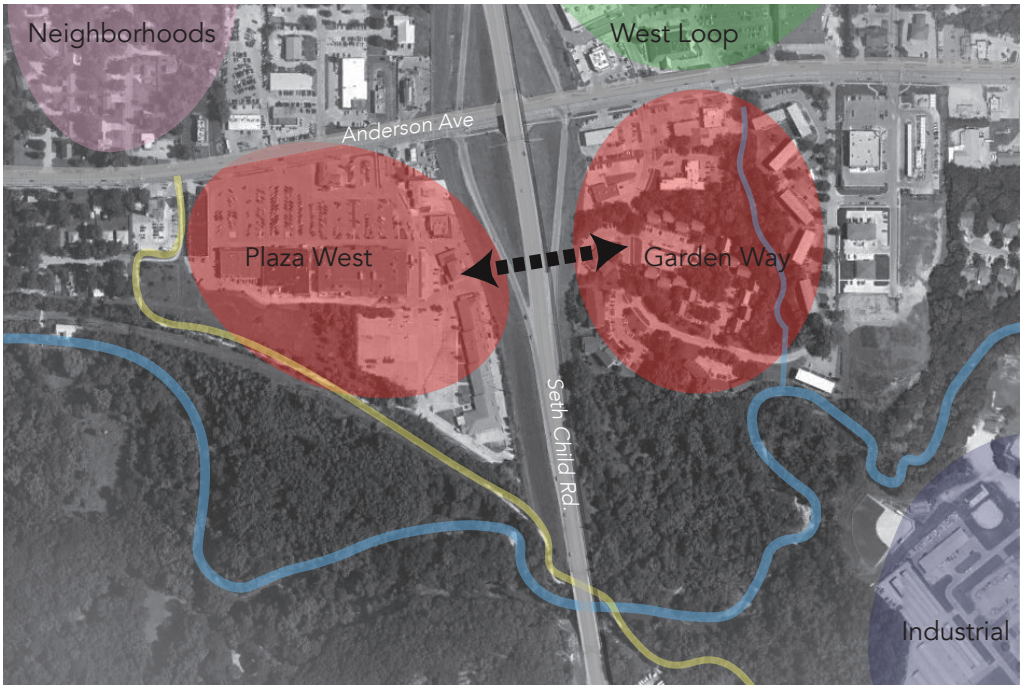
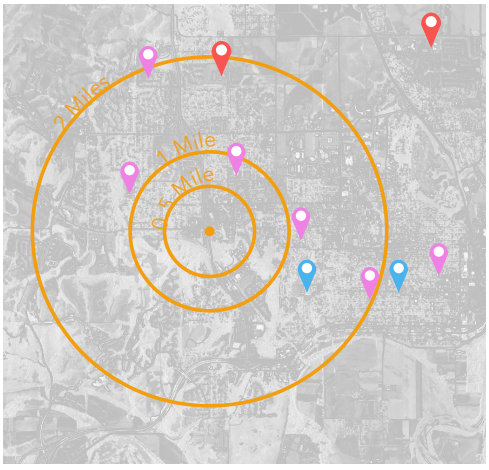


Figure 3.8
Existing Site Analysis
(Pasowicz, 2019)

School Proximity to Site



Amenities Proximity to Site

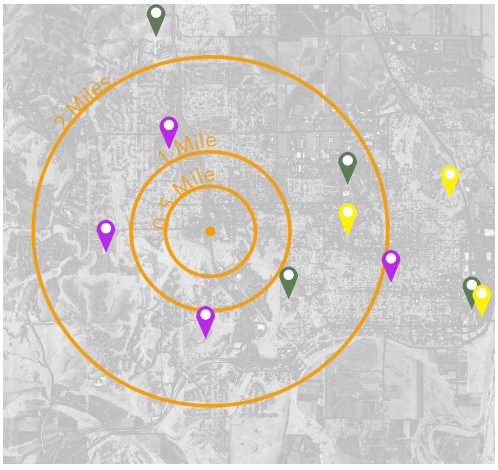


Figure 3.9 (Left)
School Proximity
Schools in the surround area of the site.
(Pasowicz)
Figure 3.10 (Right)
Amenities Proximity
Nearby amenities
(Pasowicz, 2019)

Background Information

Existing Land Use

The west side of the site, known as Plaza West, is dominated by impermeable surfaces and strip shopping malls. Several of these commercial buildings have been condemned by the city due to perpetual flood damage. The east side, called Garden Way, provides a variety of housing options, including apartments, a nursing home, and affordable housing. In addition there are several business that front Anderson Avenue. Similar to the west side, the buildings closest to Wildcat Creek have been condemned and purchased by the city.





Figure 3.11 (Left)
Closed Shops
Existing flood damaged retail space
(Madsen, 2019)

Figure 3.12 (Right)
Poor Drainage
Areas of water collection
(Madsen, 2019)





Figure 3.13 (Left)
Poor Trail System
Linear trail consists of uneven walking surfaces and lacks connections
(Madsen, 2019)

Figure 3.14 (Right)
Abandoned Garden Way
Flood damaged appartments serve no purpose to the community
(Madsen, 2019)

Critical Site Issue
Hazardous Flooding

Flooding has posed a risk for both sides of the site historically. The most recent flooding event occurred in September of 2018 and severally damaged several structures on site. With flooding occurring at such a high frequency several buildings have been condemned on site and will not be covered by flood insurance. The Linear Trail sits on an elevated former rail bed but it does not meet requirements as a true levee. The project looks to implement a new levee and flood wall, move new buildings above the flood line and regrade the site in order to direct storm water way from the buildings and better manage runoff.

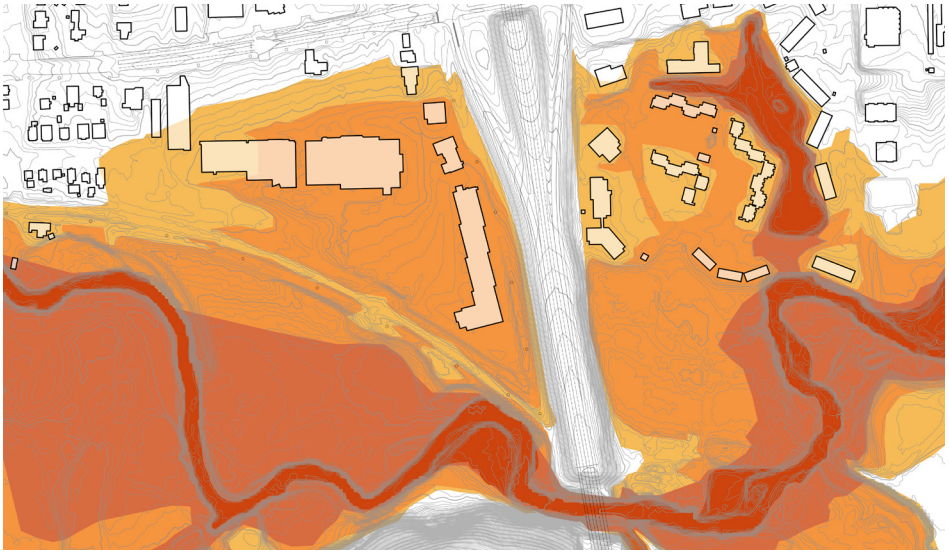


Figure 3.15
Existing Flood Conditions
Current topography causes Plaza West to be prone to flooding
(Chesney, 2019)



Figure 3.16
Proposed Flood Conditions
Addition of a flood wall and redsigned levee
(Chesney, 2019)

- 0.2% Annual Flood
- 1% Annual Flood
- Flood Plain
- Water Retention

Major Problems Being Addressed

Under-performing Buildings

Flooding issues have caused the closing of several structures on site. Several adjacent properties are to be acquired by the city in the future. The image below depicts the current condition of the building structures.

Figure 3.17
Underutilized Buildings
(Pasowicz, 2019)

Condemned Buildings

City Owned

Desired Purchase for City



Linear Trail

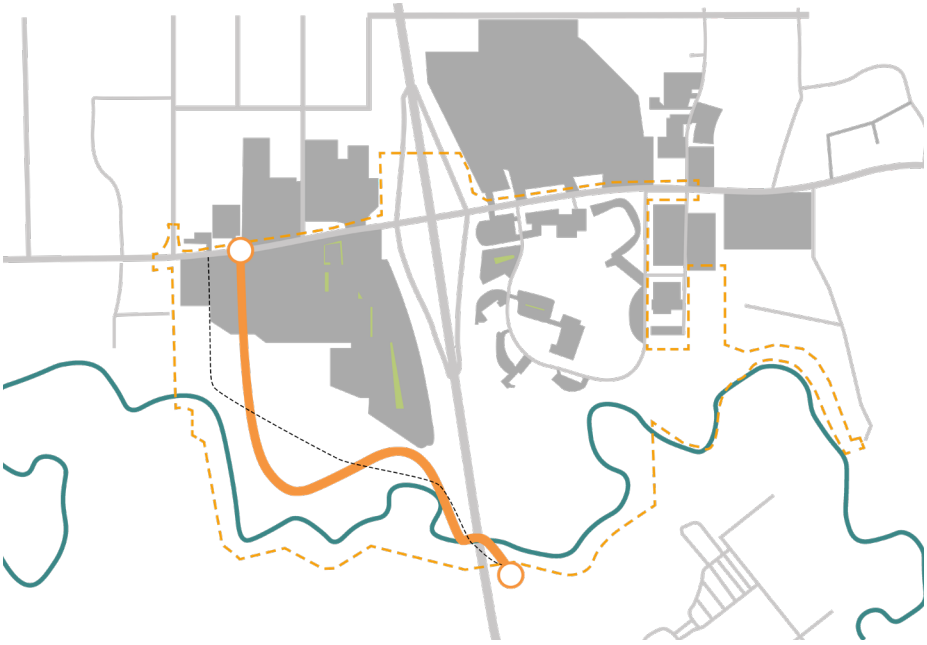
The Linear trail head starts near Wreath Ave on the Plaza West side and connects across Wildcat Creek. The project plans to relocate the trail due to grading operations, but will still link across the creek to the greater trail system.

Figure 3.18
Trail Relocation
(Madsen, 2019)

New Linear Trail

Existing Linear Trail

Connection Points



Design Framework

Major Design Ideas

Strategy #1: Improve the Anderson Avenue Streetscape

A goal of this project is to improve the pedestrian experience along Anderson Avenue, while better connecting across Seth Child Road. This functional and visual connection will be enhanced by lowering the raised interchange on Seth Child, as well as linking the east-west sides through special paving and lighting elements.

Strategy #2: Relocate and Modify the Linear Trail

The proposal for KID-hattan looks to relocate the current linear trail, which is located on a raised railroad bed. The trail will still be raised at an alternate location, and will help form a wetland basin to increase water retention on site. In addition, the project looks to introduce a more grand entry to the beginning of the Linear Trail.

Strategy #3: Increase Community Gathering Space

The plan looks to add a considerable amount of public space to the site. The The plan looks to add a considerable amount of public space to the site. The majority of the southern portion of the site will be allocated as public green space. Within the outdoor space there will an amphitheater, play spaces, and a bouldering area. Several buildings will be introduced for public benefit.

Strategy #4: Facilitate Outdoor Nature After School Education Programs

Manhattan has need for after-school centers. Concentrating these centers near employment sites on the west side of town has been indicated by several residents during meetings.



Figure 3.19
Conceptual Sketches
Visualization of initial conceptual project goals
(Pasowicz, 2019)

Illustrative Site Plan





Figure 3.20
Illustrative Master Plan
Full site plan depicting our vision for KID-hattan
(Madsen, 2019)

Strategy 1 - Improve the Anderson Avenue Streetscape

Enhancing Anderson Avenue will contribute to the new district's identity

A large art part of the KID-hattan proposal is redevelopment of the Anderson Avenue and Seth Child Road corridors. The plan looks to convert the grade-separated interchange to a level intersection. This reconfiguration will generate needed fill which can be used in the construction of elevated building pads on the south side of Anderson Avenue. Additionally, the master plan seeks to improve the walkability and pedestrian friendliness of Anderson Avenue, a highly trafficked street. These improvements will increase foot traffic from adjacent neighborhoods while reducing vehicular traffic on site. Other street improvements already suggested by the city include re-pavement, additional turning lanes and a round-about option. Our master plan looks to increase sidewalk widths, implement bioswales and introduce permeable surfaces on large paved walkways. All these changes will improve the overall quality and experience of the district.



Figure 3.21
Anderson Street Section
View of the relationships between pedestrian walkways, green infrastructure, and Anderson Ave.
(Pasowicz, 2019)

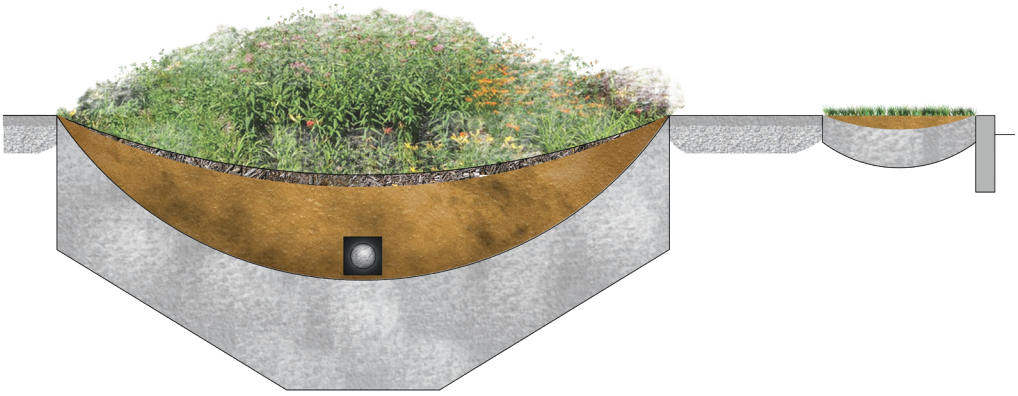


Figure 3.22
Streetscape Bioswale
How the bioswale functions as a storm water management strategy
(Pasowicz, 2019)



A Busy Day at Plaza West and Anderson Avenue Street Front

Figure 3.23
Anderson Streetscape
Re-imagining the Anderson streetscape
(Pasowicz, 2019)

Strategy 2 - Relocate and Modify the Linear Trail

Retrofitting the current trail will improve user experience while improving stormwater management

The linear trail encircles a large majority of Manhattan and is an important community attraction for runners, bikers, and walkers. The trail head starts on the west side of the site near Wreath Ave. The current entry is not widely visible and has no dedicated trail-head parking. The master plan looks to make the trail entrance more visible and provide shared parking. In addition, the project looks to relocate the trail on top of a newly constructed levee that meets engineering standards and introduces wetlands as part of stormwater management. The relocated trail will rejoin the existing alignment at the railroad bridge where it crosses Wildcat Creek.

Figure 3.24
The New Linear Trail
A view to the wetlands from the new trails system
(Pasowicz, 2019)



A Saturday Afternoon on Linear Trail Atop the Levee

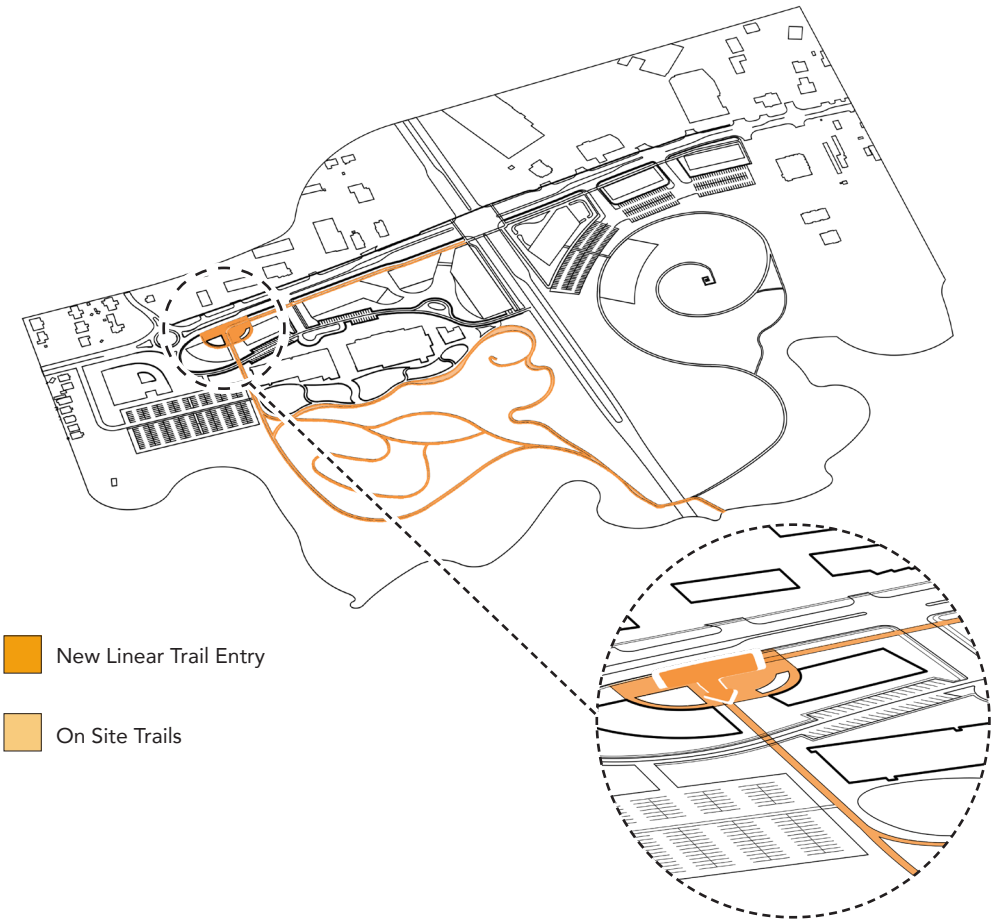


Figure 3.25
New Trail System
New linear trail entry and reroute of trails system
(Madsen, 2019)

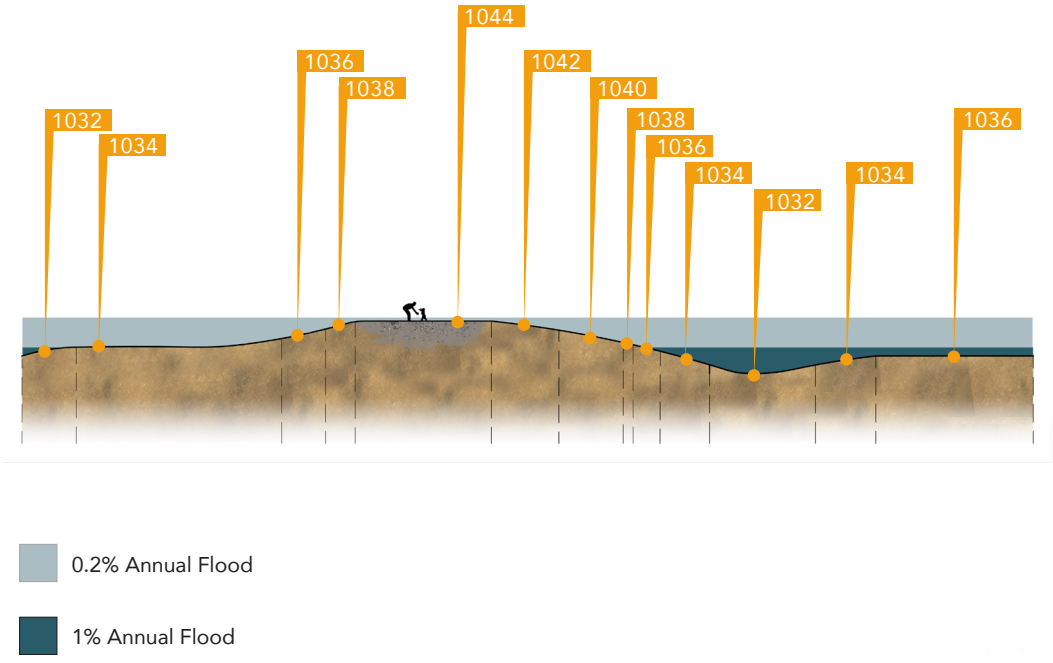
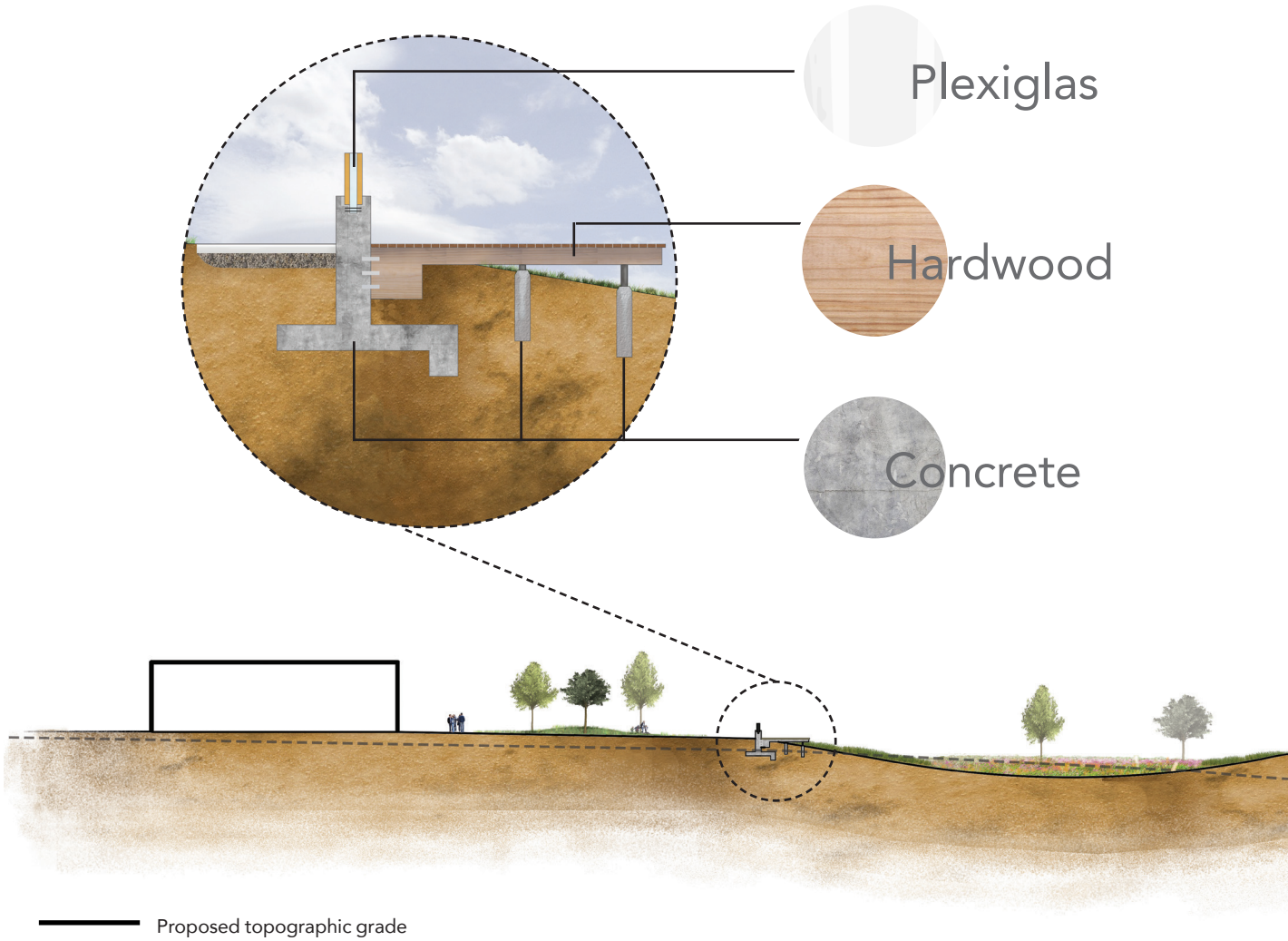


Figure 3.26
Levee Section
Cross section of levee with topographic elevation change noted
(Chesney. 2019)

Flood Damage Mitigation

Reduction Strategies including pad fill, a levee, and a limited flood wall

Most all of the land south of the existing car museum will be extensively regraded to generate pad fill, construct a new levee that meets engineering standards, and create wetlands that accommodates run-off in non-flood conditions. In addition, there will be an implementation of a multi-colored Plexiglas concrete flood wall that runs along the raised walkway south of the existing car museum and future recreational complex. This floodwall will preserve existing building structures. The wall will reach 1049', a foot above the current flood elevation of the 500-year storm event. The final strategy is to remove flood damaged structures from the site and restrict any new building's footprint to be blow the 1048' to prevent future damage to building structure.





A Rainy Day in the KID-hattan Wetlands

Figure 3.27 (Above)
Storm Water Management
Retention basins provide water access and prevent the flooding of nearby structures
(Chesney, 2019)



Figure 3.28 (Below)
Wetland Section
Basin system, including the Linear Trail and levee
(Pasowicz, 2019)

Strategy 3 - Increase Community Gathering Space

A diversity of indoor and outdoor community spaces will be provided

After addressing the technical issues of the site the design the KID-hattan design group studied what family oriented activities and spaces were lacking in Manhattan. The district will support a multitude of amenities and activities safe for children and appeal to a variety of ages. Both indoor and outdoor spaces are provided for entertainment. The main features of the district would include a Children's Museum to host traveling exhibits and interactive play spaces. There would also be a nature center educating children on the existing biota of the area. These two buildings would be located on the east side of Seth Child Rd. The west side of Seth Child Rd. would include a library extension housing a large children's reading section for the Manhattan public library. There would also be an arcade full of indoor and outdoor games. An outdoor amphitheater for small concerts and plays (300-500 attendees) would be found along the raised boardwalk, and several plaza spaces for public gathering would be located around the district. The open green wetland would provide a safe outdoor recreational space for children to discover new adventures.

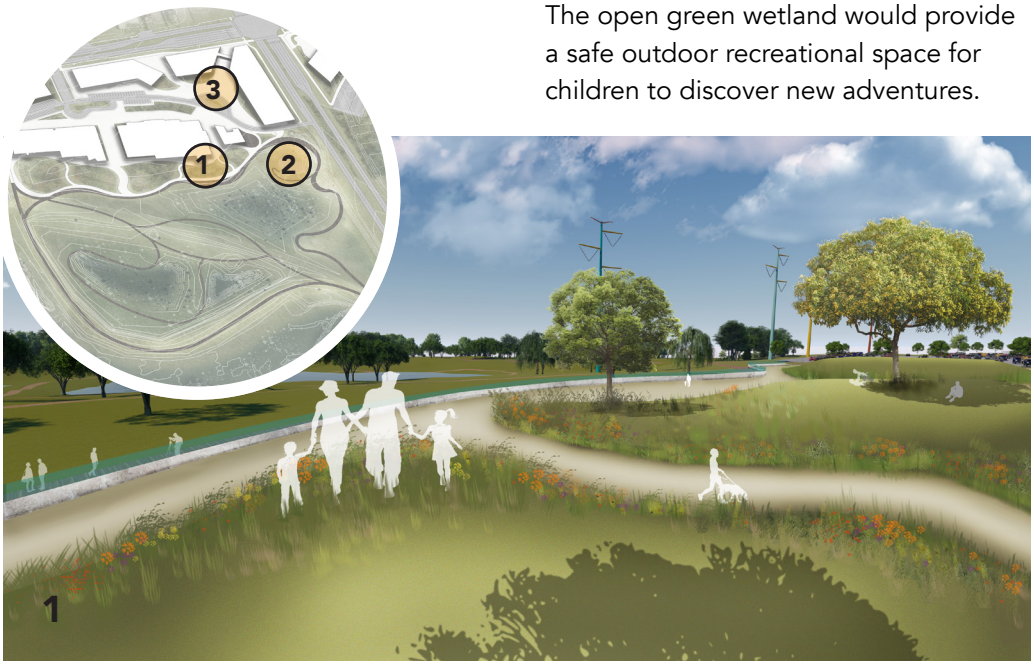
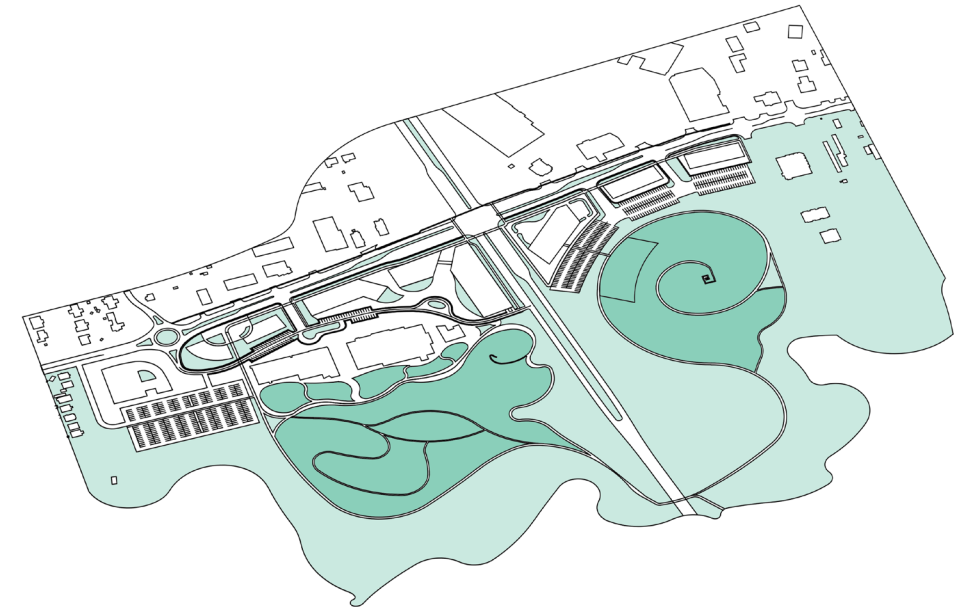


Figure 3.29
Topography Play
View of rolling hills along the south-side boardwalk and floodwall
(Chesney, 2019)



Figure 3.30
Performance Space
Performance space is enclosed by a semi-circular boardwalk and overlooks the wetlands to the south
(Chesney, 2019)



Open green space

Occupiable gathering space

Figure 3.31
Public Green Space
New open greenspace adjacent to proposed community buildings
(Chesney, 2019)



Figure 3.32
Library Courtyard
The Little Apple Library and Arcade, and Boys and Girls Club create a large courtyard space open for a range of activity
(Chesney, 2019)

Strategy 4 - Outdoor Nature and After-School Educational Programs

KID-hattan will provide appealing educational Programs for Kids

KID-hattan looks to provide an assortment of programs for children while their parents are at work. With mixed-use development contributing live-work options, some children could be involved in education programs as their parents or guardians finish work on Manhattan's west side. Options that will be implemented immediately include a Boys and Girls Club West as well as a daycare centers. For slightly older children any of the public spaces mentioned earlier will provide a safe space for kids to explore on their own or in small groups. Lastly, field trips to the Children's Museum and Bluestem Nature Center are possible if set up through the school district.

Figure 3.33
New Amenities
New programs implemented to provide for the kids of Manhattan
(Madsen, 2019)



A Nature Center for the kids of Manhattan would provide an outdoor learning experience taking advantage of the existing Wildcat Creek and newly implemented wetlands.

Implementing an arcade in Plaza West brings a new and needed entertainment amenity for people of all ages to enjoy.

Placing a library on site gives both kids and parents the opportunity to learn and have fun with the addition of a sky bridge connecting to the parking garage.

Providing a kids museum would give families a space to go and spend the day together as they experience learning and activities

Combining the Boys and Girls club and daycare, parents have the ability to drop their kids off to run errands or go to work with the ability to stay on the same side of town.

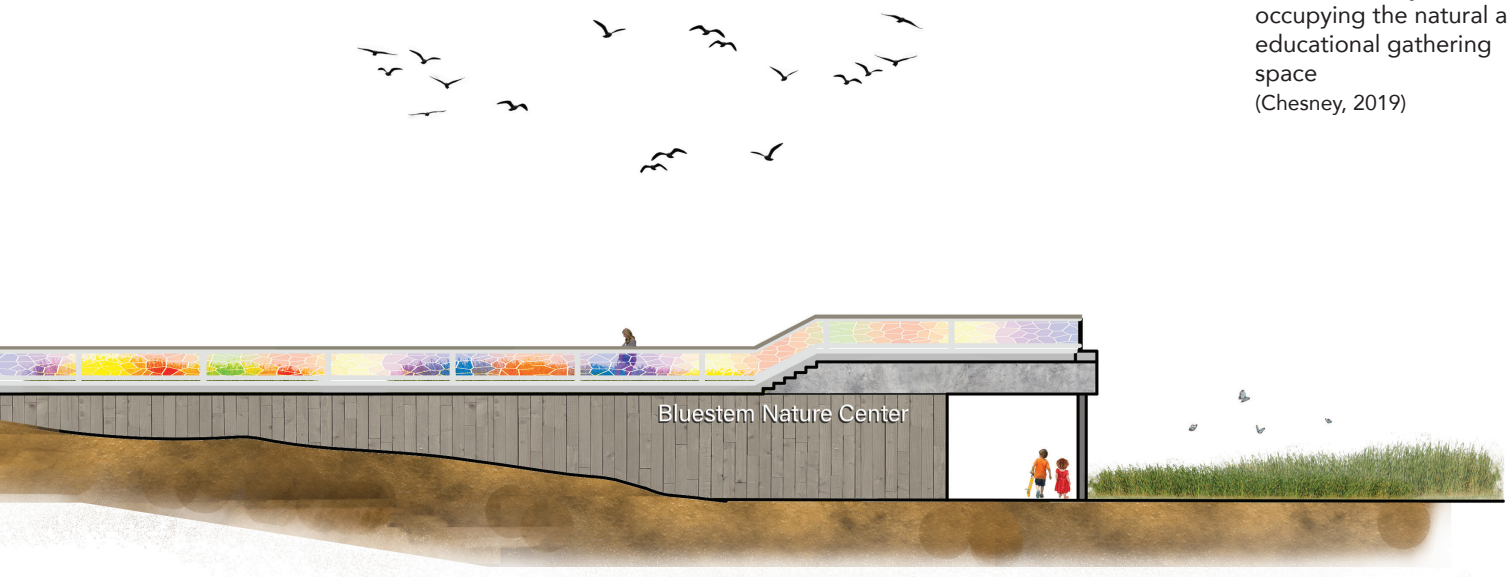
The addition of a Rec Facility provides families of the west side of Manhattan a close indoor/ outdoor recreation space.

Figure 3.34 (Right)
Nature Center Section
The walk-up nature center green roof
(Pasowicz, 2019)





Figure 3.35 (Above)
Nature Center Roof
The community occupying the natural and educational gathering space
(Chesney, 2019)



Earthwork Cut and Fill Factors

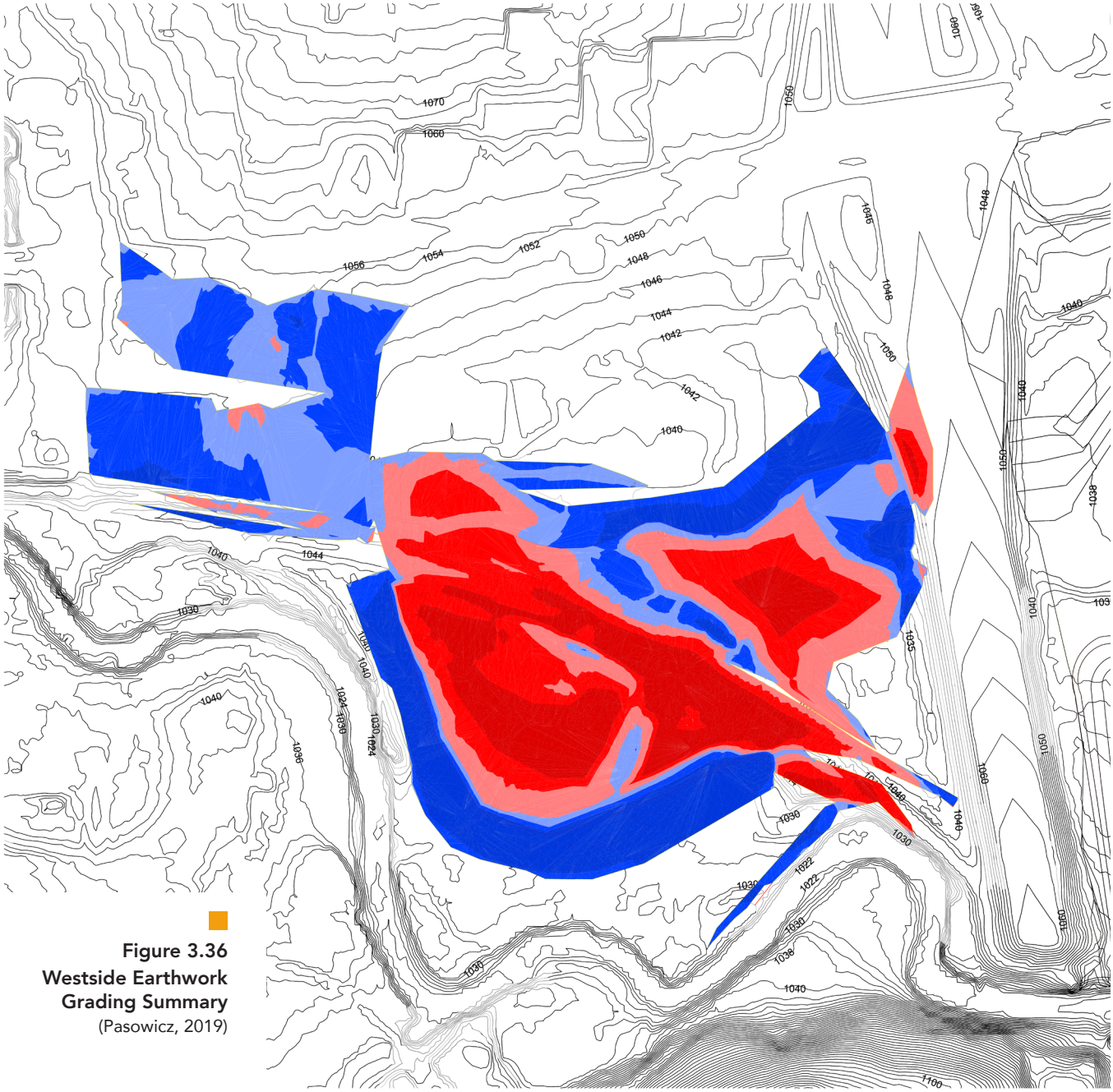


Figure 3.36
Westside Earthwork Grading Summary
(Pasowicz, 2019)

Westside Volume Summary

Cut Factor	1.000
Fill Factor	1.100
Cut Volume (adjusted)	97775.82 Cu. Yd.
Fill Volume (adjusted)	55642.56 Cu. Yd.
Net Volume (adjusted)	42133.26 Cu Yd. <Cut>

Minimum Elevation	Maximum Elevation
-20.00′	-6.00′
-6.00′	-3.05′
-3.05′	-0.80′
-0.80′	0.42′
0.42′	2.37′
2.37′	15.77′

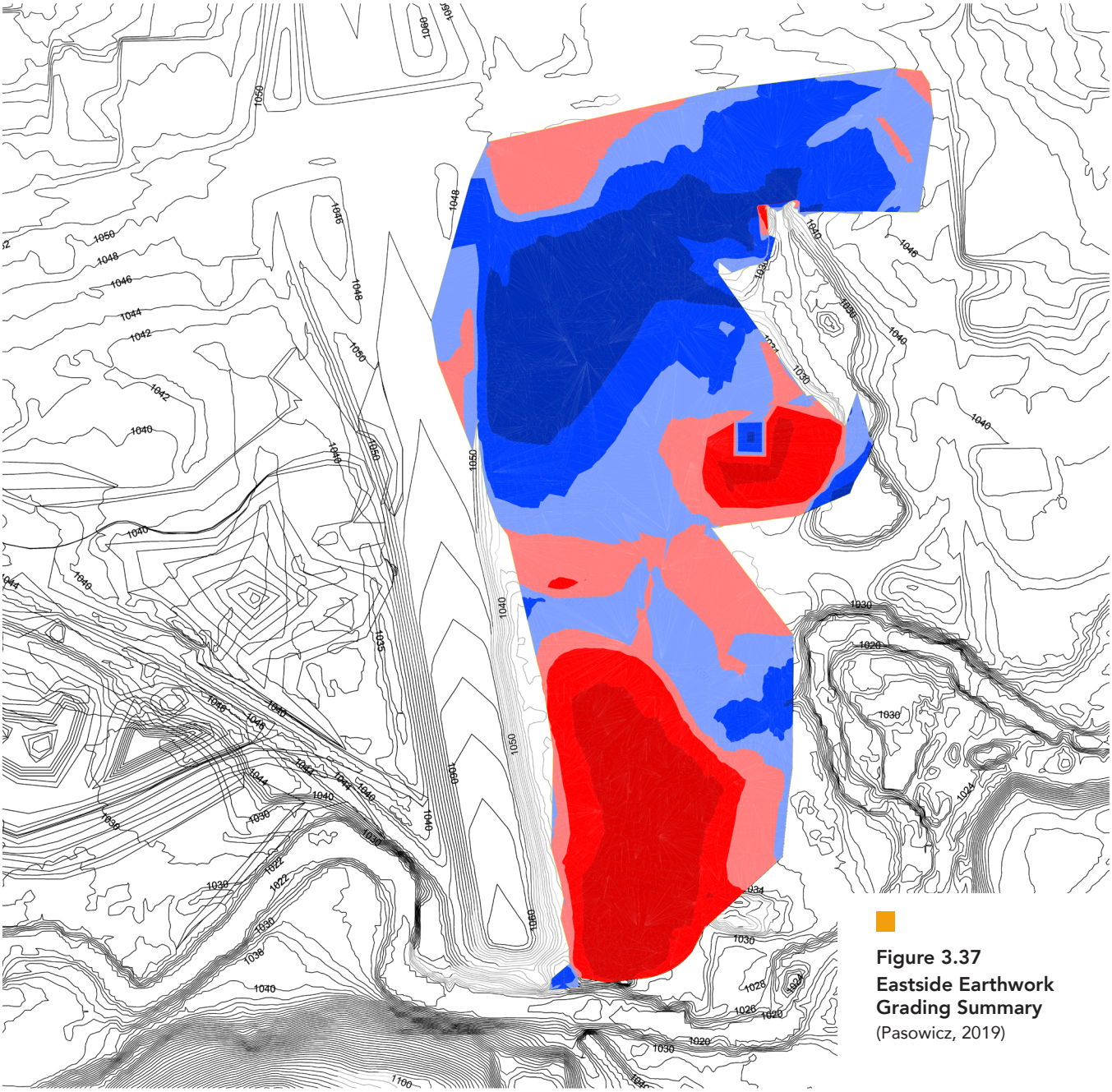


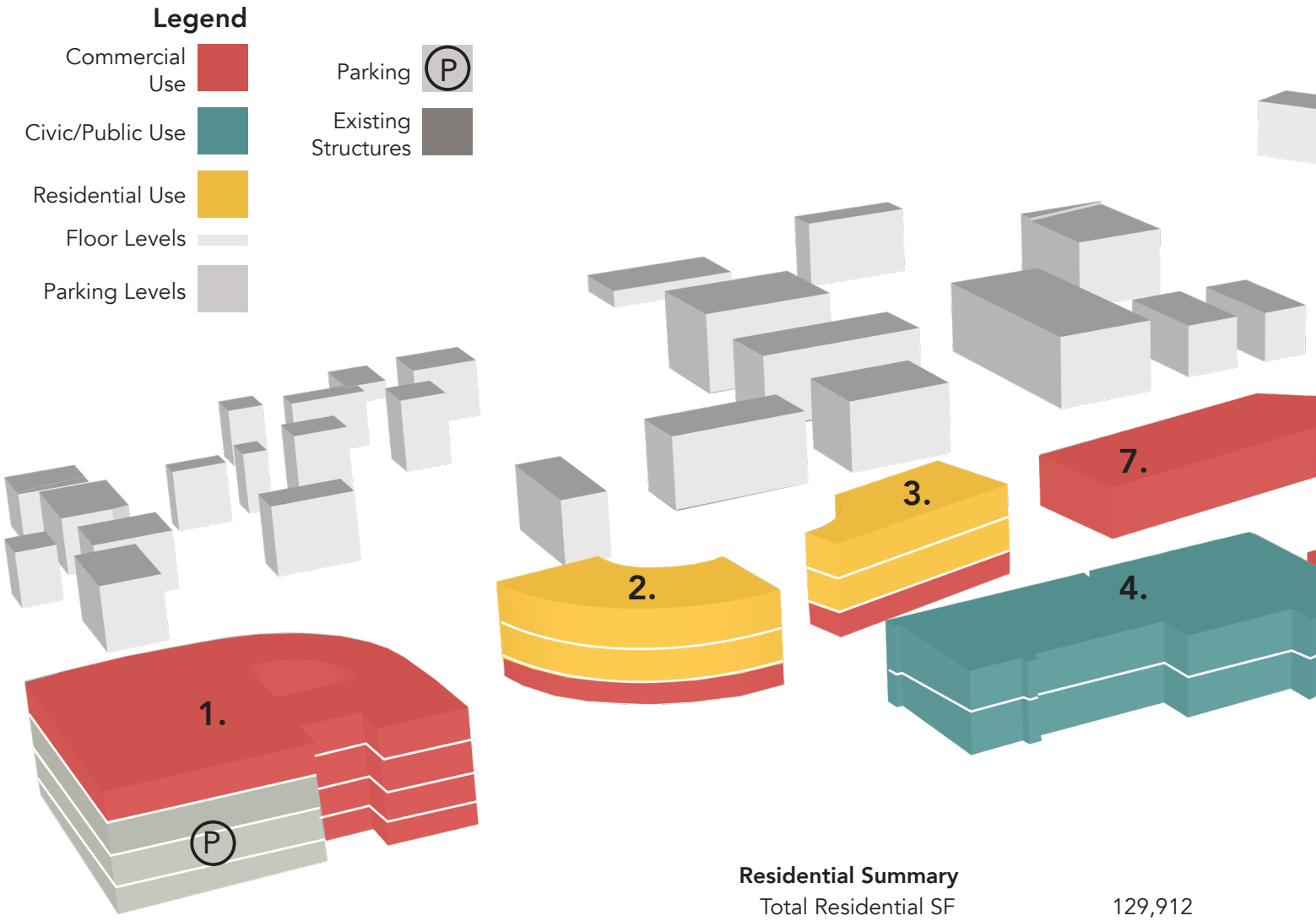
Figure 3.37
Eastside Earthwork Grading Summary
(Pasowicz, 2019)

Minimum Elevation	Maximum Elevation
-20.43′	-9.53′
-9.53′	-3.60′
-3.60′	-0.38′
-0.38′	1.58′
1.58′	6.76′
6.76′	21.48′

Eastside Volume Summary

Cut Factor	1.000
Fill Factor	1.100
Cut Volume (adjusted)	104963.52 Cu. Yd.
Fill Volume (adjusted)	109185.55 Cu. Yd.
Net Volume (adjusted)	4222.03 Cu Yd. <Fill>

Mixed-Use Breakdown and Metrics



Site Metrics

Making the Design Viable

The KID-hattan proposal is a mixed use plan including Commercial, Residential, and Civic spaces for the community to utilize including 11 new buildings, one remodeled building, and one existing building.

A more in-depth break down of each component is shown on the right

Residential Summary

Total Residential SF	129,912
Total DU	128
Avg DU Acre	2.23
Total Residents	258
Parking Stalls Needed	277

Commercial Summary

Total Commercial SF	119,366
Employees	178
Parking Stalls Needed	477

Office Summary

Total Office SF	55,552
Employees	111
Parking Stalls Needed	222

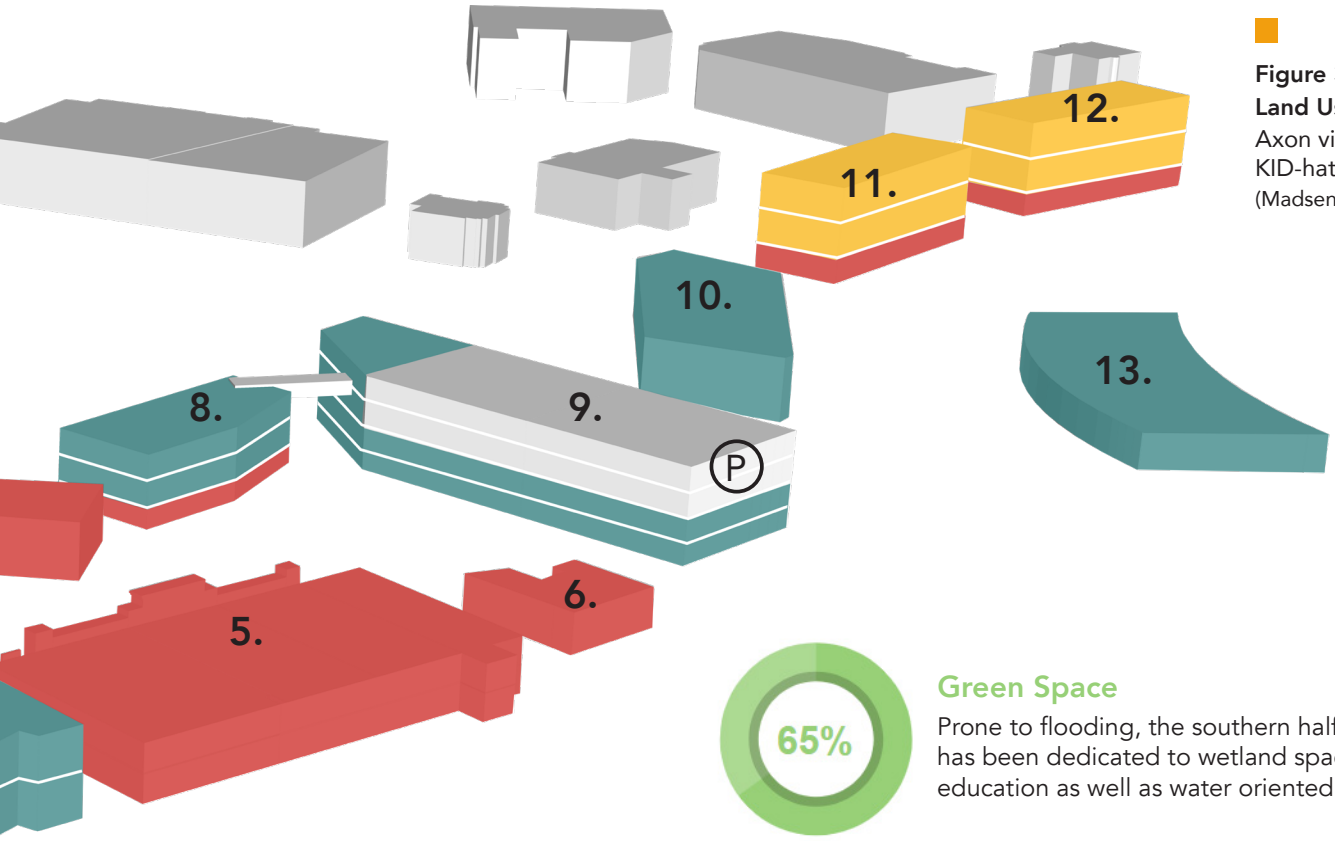
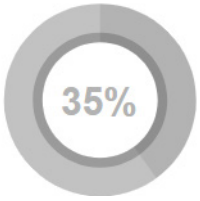


Figure 3.38
Land Use Plan
Axon view of proposed KID-hattan Plan
(Madsen, 2019)

Green Space

Prone to flooding, the southern half of KID-hattan has been dedicated to wetland space for outdoor education as well as water oriented open space.



Building Footprint

New shops, residential, and public spaces for the people and families of Manhattan will be key components of the district. The existing car museum will be kept as a district attraction.

Civic Summary

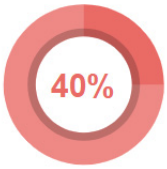
Total Civic SF	312,713
Employees	625
Parking Stalls Needed	726

Parking Summary

Total Stalls Needed	1,703
Parking Stalls Provided	1,230
Surface Parking Stalls	697
Streetside Parking	41
Structured Parking	492

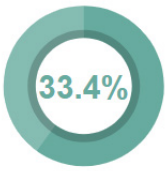
Scenario Summary

Total Parcel Area (sf)	1,425,971
Total Parcel Area (ac)	32.74
Total Development Area	**2,510,612**
Total Building Area	**612,543**
FAR*	**0.24**



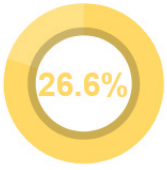
Commercial

Shops, restaurants, and businesses are included within almost every building throughout the district to generate income.



Civic

Providing the children of Manhattan spaces to learn and experience nature with a new library, recreation center, museum, & other attraction.



Residential

Newly implemented mixed use buildings provide a modern style of convenient living with eight floors of housing.

Phasing

A time-line of proposed elements and their corresponding actions

A proposed phasing plan will provide members of the city and community with a time-line goal. This will allow both families and individuals to occupy the space during all times of the phasing plan. The proposed elements on site including mixed-use, office, civic, and commercial space will generate revenue for Manhattan. These buildings will deter from the existing building composition which separates the site into two halves. The first phase of the KID-hattan proposal will require the removal of all impervious surfaces and condemned and city bought buildings. During this phase, it is important to account for any contaminated soils along the intersection of Seth Child Rd. and Anderson Ave. The previously owned gas station will require remediation methods to move forward into phase two. As wetland and water retention plans are established all remaining phases will continue to develop as scheduled. The wetland phase is the most crucial phase of the plan and will determine if the site provides adequate flood prevention for all proposed structures.

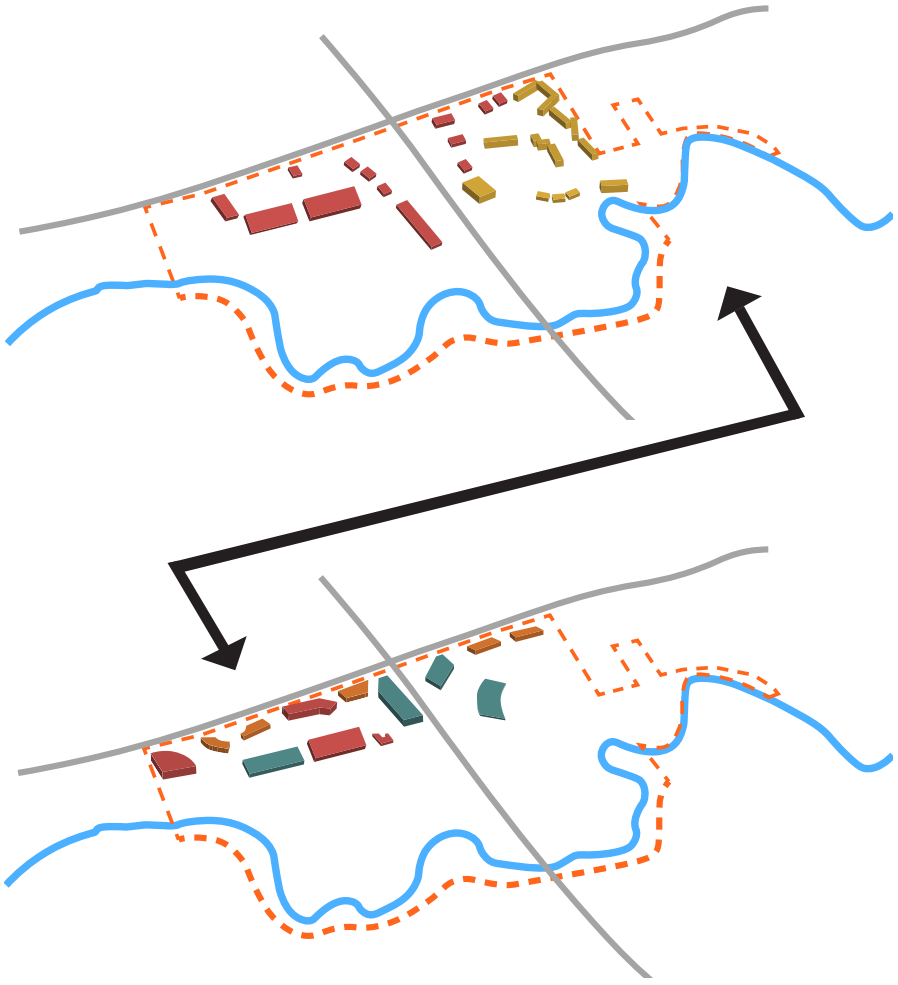
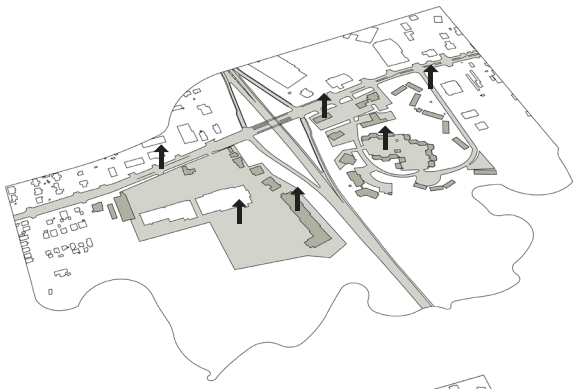


Figure 3.39
Existing (Above) vs. Proposed Land Use (Below)
Comparison of land usage between the existing site and the proposed KID-hattan site (Pasowicz, 2019)



1 Removal

Impervious surfaces and condemned buildings are removed in preparation for soil remediation.

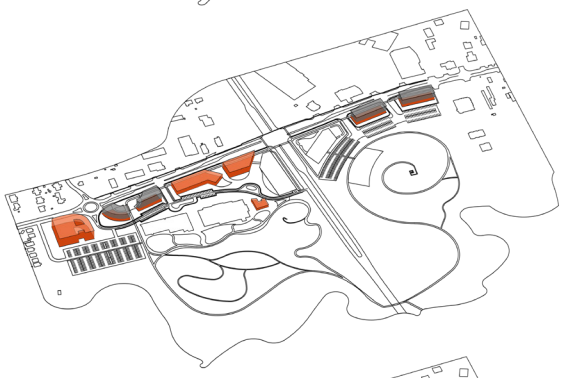
- Impervious surface
- Removed Buildings



2 Wetlands

Retention basins are built to meet the FEMA floodplain requirements. The levee system is to be relocated along the south end of Linear Trail.

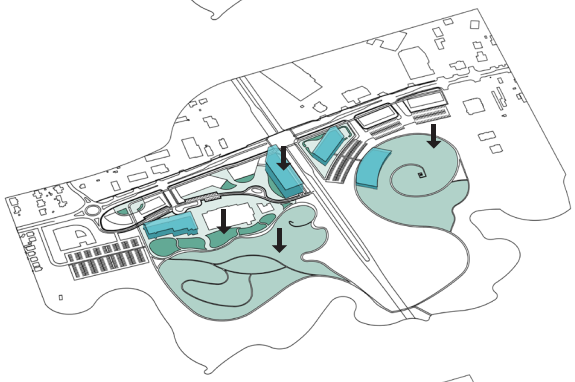
- Storm water containment
- Continual water containment



3 Business

Street front businesses provide opportunity for the economic value of the site to increase.

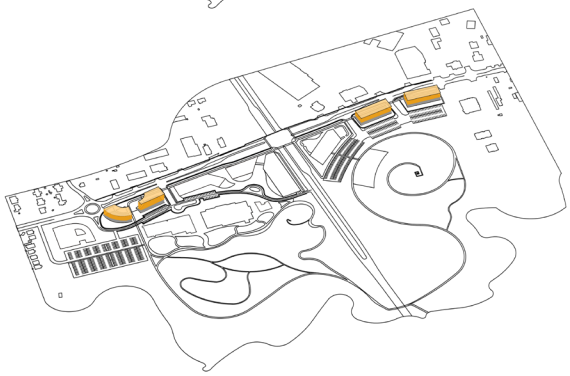
- Mixed-use space
- Commercial and office space



4 Community

Open green and civic space create gathering areas for the community to learn, socialize, relax, and play.

- Open green space
- Designated gathering space
- Civic buildings



5 Residential

New one, two, and three bedroom apartments allow residents to enjoy the amenities on site while being located next to existing businesses.

- Mixed-use space
- Residential building

Figure 3.40
Phasing
(Chesney, 2019)

Year 1

Year 2

Year 4

Year 6

Year 8

Encompassing the KID-hattan District

KID-hattan provides several new amenities for the Manhattan community. This district is geared toward the families of the community, but provides for more users than simply kids and their parents. It looks to provide a closer proximity for childcare and entertaining spaces on the west side of town. The district adds many new public gathering spaces both indoors and outdoors that can be occupied in a multitude of seasons. In addition, the district will serve as a large revenue generator for the city, as new office spaces and commercial buildings will be added. Along with all the social goals KID-hattan looks to be an ecologically sound project, helping to mitigate Wildcat Creek flooding damage, while adding an educational and recreational public green space to the urban fabric of Manhattan.



"I TOOK A WALK IN THE WOODS AND CAME OUT TALLER THAN THE TREES."

- HENRY DAVID THOREAU

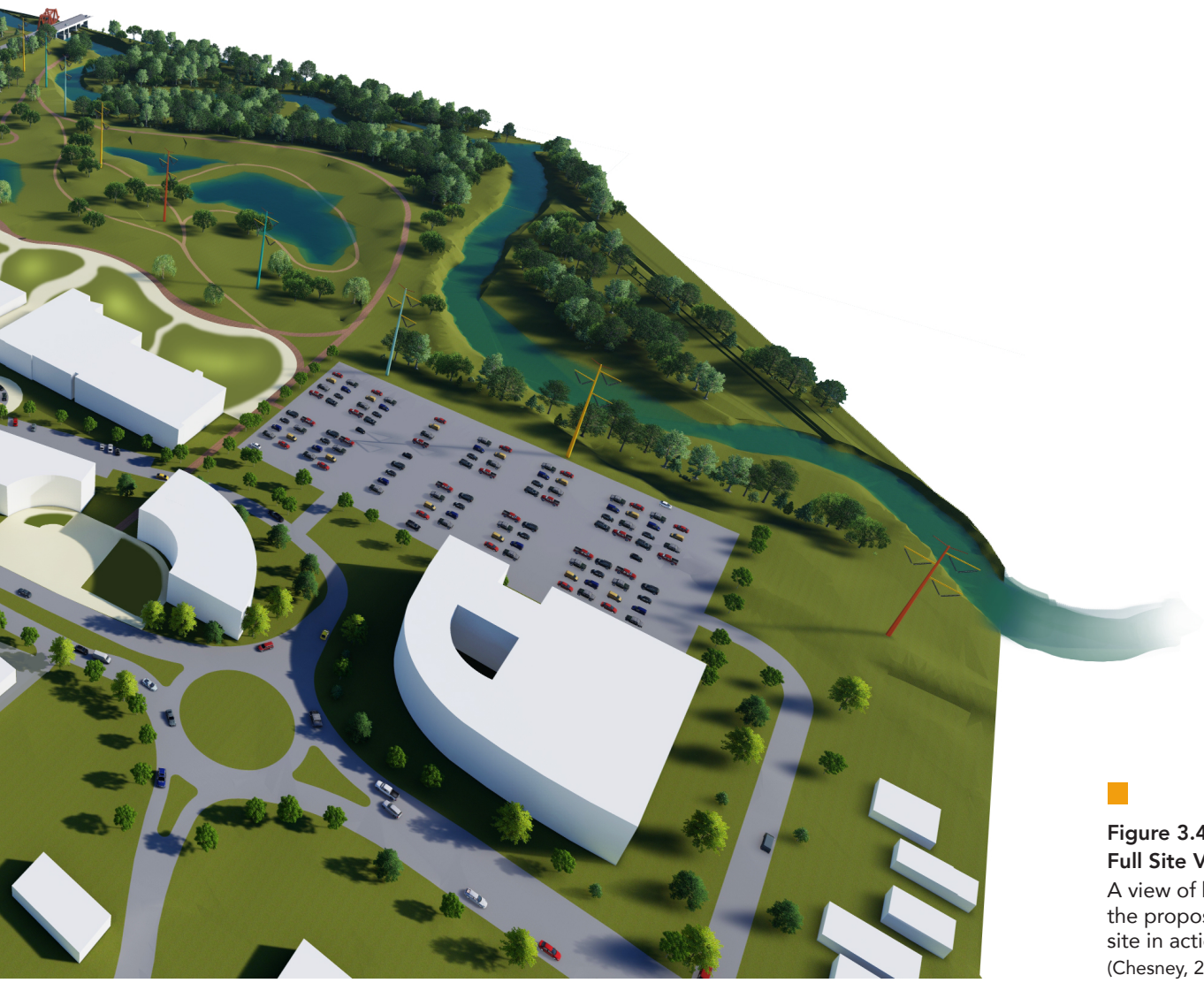


Figure 3.41
Full Site View
A view of both sides of the proposed KID-hattan site in action
(Chesney, 2019)

Appendix

West Manhattan district destination - development metrics for the KID-hattan proposal

Scenario Summary	
Description	Summary Totals
Total Parcel Areas (sf)	1,425,971
Total Parcel Area (ac)	32.74
FAR*	0.21
Residential Summary	
Total Residential SF	129,912
Total Dwelling Units (DU)	128
Avg DU/Acre	3.9
Total Residents	258
Parking Stalls Needed	277
Commercial Summary	
Total Commercial SF	119,366
Employees	178
Parking stalls Needed	477
Office Summary	
Total Office SF	55,552
Employees	111
Parking Stalls Needed	222
Civic Summary	
Total Civic SF	312,713
Employees	625
Parking Stalls Needed	726
Parking Summary	
Total Stall Needed	1,703
Parking Stalls Provided	1,230
Surface Parking Stalls	697
Streetside Parking	41
Structured Parking	492

Parcel/Bulding ID			Site Footprint Breakdown	Building							
				Building Level Allocation							
Block No.	Land Use Breakdown	Building No.	Footprint Area (sf)	Resid Levels	Comm Levels	Office Levels	Civic Levels	Parking Levels	Total Levels	Total Area (sf)	Total Hab. Area (sf)
	Bldg- Office	1a	13,888	0.00	0.00	4.00	0.00	0.00	4.00	55,552	55,552
	Struct Prkg - Office	1b	27,500	0.00	0.00	0.00	0.00	3.00	3.00	82,500	0
	Bldg - Mixed Use	2	13,311	2.00	1.00	0.00	0.00	0.00	3.00	39,933	39,933
	Bldg - Mixed Use	3	11,695	2.00	1.00	0.00	0.00	0.00	3.00	35,085	35,085
	Bldg- Rec	4	41,053	0.00	0.00	0.00	1.00	0.00	1.00	41,053	0
	Bldg - Car Museum	5	53,850	0.00	0.00	0.00	1.00	0.00	1.00	53,850	0
	Bldg - Restaurant	6	6,347	0.00	1.00	0.00	0.00	0.00	1.00	6,347	6,347
	Bldg - Arcade	7	31,496	0.00	1.00	0.00	0.00	0.00	1.00	31,496	31,496
	Bldg - B&GC Daycare	8	16,567	0.00	1.00	0.00	2.00	0.00	3.00	49,701	16,567
	Bldg - Library	9a	10,000	0.00	0.00	0.00	4.00	0.00	4.00	40,000	0
	Bldg + Struct Prkg - Library	9b	40,000	0.00	0.00	0.00	2.00	2.00	4.00	160,000	0
	Bldg - Museum	10	34,676	0.00	0.00	0.00	1.00	0.00	1.00	34,676	0
	Bldg - Mized use	11	19,975	2.00	1.00	0.00	0.00	0.00	3.00	59,925	59,925
	Bldg - Mixed Use	12	19,975	2.00	1.00	0.00	0.00	0.00	3.00	59,925	59,925
	Bldg - Nature Center	13	30,000	0.00	0.00	0.00	1.00	0.00	1.00	30,000	0
	Surface Parking Lots		223,075								
	Streetside Parking		13,102								
	Sidewalks/Plazas		712,911								
	Internal Drives		106,550								
	Open Space*										
TOTALS			1,425,971							780,043	304,830
			1,425,971	(Cross-check)							

Parcel/Bulding ID			Residential (DU = Dwelling Units)								
Block No.	Land Use Breakdown	Building No.	Type Description	Total Gross Resid. (sf)	DU Size sf*	DU	Res./DU*	Residents	Parking Utilization Rate (%)	Standard Pkg Spc per DU*	Prkg Spaces Needed
0	Bldg- Office	1a		0	0	0	0.00	0	100%	1.50	0
0	Struct Prkg - Office	1b		0	0	0	0.00	0	100%	1.50	
0	Bldg - Mixed Use	2		26,622	850	31	1.00	31	100%	1.50	47
0	Bldg - Mixed Use	3		23,390	1,000	23	2.00	47	100%	3.00	70
0	Bldg- Rec	4		0	0	0	0.00	0	100%	1.50	0
0	Bldg - Car Museum	5		0	0	0	0.00	0	100%	1.50	0
0	Bldg - Restaurant	6		0	0	0	0.00	0	100%	1.50	0
0	Bldg - Arcade	7		0	0	0	0.00	0	100%	1.50	0
0	Bldg - B&GC Daycare	8		0	0	0	0.00	0	100%	1.50	0
0	Bldg - Library	9a		0			0.00	0	100%	1.50	
0	Bldg + Struct Prkg - Library	9b		0	0	0	0.00	0	100%	1.50	0
0	Bldg - Museum	10		0	0	0	0.00	0	100%	1.50	0
0	Bldg - Mized use	11		39,950	1,000	40	2.00	80	100%	1.50	60
0	Bldg - Mixed Use	12		39,950	1,200	33	3.00	100	100%	3.00	100
0	Bldg - Nature Center	13		0	0	0	2.00	0	100%	1.50	0
			TOTALS	129,912		128		258			277

Figure 3.42
Development Metric Calculations
(Chesney, 2019)

Parcel/Bulding ID		Commercial						
Land Use Breakdown	Building No.	Type Description	Commercial Area (sf)	Sq Ft per Comm. Emp.	Employees	Parking Utilization Rate (%)	Standard Prkg Spc per 1K sf*	Prkg Spaces Needed
Bldg- Office	1a		0	750		100%	4.00	0
			0	750		100%	4.00	
Bldg - Mixed Use	2		13,311	750	18	100%	4.00	53
Bldg - Mixed Use	3		11,695	750	16	100%	4.00	47
Bldg- Rec	4		0	750		100%	4.00	0
Bldg - Car Museum	5		0	750		100%	4.00	0
Bldg - Restaurant	6		6,347	750	8	100%	4.00	25
Bldg - Arcade	7		31,496	750	42	100%	4.00	126
Bldg - B&GC Daycare	8		16,567	400	41	100%	4.00	66
Bldg - Library	9a		0			100%	4.00	
Bldg + Struct Prkg - Library	9b		0	750		100%	4.00	0
Bldg - Museum	10		0	750		100%	4.00	0
Bldg - Mized use	11		19,975	750	27	100%	4.00	80
Bldg - Mixed Use	12		19,975	750	27	100%	4.00	80
Bldg - Nature Center	13		0	750		100%	4.00	0
		TOTALS	119,366		178			477

Parking Required		
Building No.	Pkg paces	Parking Area (sf)
1a	222	73,329
1b	0	0
2	100	33,074
3	117	38,594
4	82	27,095
5	135	44,426
6	25	8,378
7	126	41,575
8	149	49,204
9a	80	26,400
9b	200	66,000
10	87	28,608
11	140	46,142
12	180	59,326
13	60	19,800
	1,703	561,950

Parcel/Bulding ID		Office						
Land Use Breakdown	Building No.	Type Description	Office Area (sf)	SF per Off Emp	Employees	Parking Utilization Rate (%)	Standard Prkg Spc per 1K sf*	Prkg Spaces Needed
Bldg- Office	1a		55,552	500	111	100%	4.00	222
Struct Prkg - Office	1b		0	500		100%	4.00	0
Bldg - Mixed Use	2		0	500		100%	4.00	0
Bldg - Mixed Use	3		0	500		100%	4.00	0
Bldg- Rec	4		0	500		100%	4.00	0
Bldg - Car Museum	5		0	500		100%	4.00	0
Bldg - Restaurant	6		0	500		100%	4.00	0
Bldg - Arcade	7		0	500		100%	4.00	0
Bldg - B&GC Daycare	8		0	500		100%	4.00	0
Bldg - Library	9a		0	500		100%	4.00	0
Bldg + Struct Prkg - Library	9b		0	500		100%	4.00	0
Bldg - Museum	10		0	500		100%	4.00	0
Bldg - Mized use	11		0	500		100%	4.00	0
Bldg - Mixed Use	12		0	500		100%	4.00	0
Bldg - Nature Center	13		0	500		100%	4.00	0
		TOTALS	55,552		111			222

Parking Being Provided			
Type	Levels	Parking Area (sf)	Stalls Provided
	0.00	0	0
	3.00	82,500	250
	0.00	0	0
	0.00	0	0
	0.00	0	0
	0.00	0	0
	0.00	0	0
	0.00	0	0
	0.00	0	0
	0.00	0	0
	0.00	0	0
	2.00	80,000	242
	0.00	0	0
	0.00	0	0
	0.00	0	0
	0.00	0	0
	Pkg Lots	223,075	697
	SS Pkg	13,102	41
TOTALS		398,677	1,230

Parcel/Bulding ID		Civic						
Land Use Breakdown	Building No.	Type Description	Civic Area (sf)	SF per Civic Emp	Employees	Parking Utilization Rate (%)	Standard Prkg Spc per 1K sf*	Prkg Spaces Needed
Bldg- Office	1a		0	500		100%	0.00	0
Struct Prkg - Office	1b		0	500		100%	0.00	
Bldg - Mixed Use	2		0	500		100%	0.00	0
Bldg - Mixed Use	3		0	500		100%	0.00	0
Bldg- Rec	4	Rec Center	41,053	500	82	100%	2.00	82
Bldg - Car Museum	5	Museum	53,850	500	108	100%	2.50	135
Bldg - Restaurant	6		0	500		100%	0.00	0
Bldg - Arcade	7		0	500		100%	0.00	0
Bldg - B&GC Daycare	8	B&GC + Library	33,134	500	66	100%	2.50	83
Bldg - Library	9a	Library	40,000	500	80	100%	2.00	80
Bldg + Struct Prkg - Library	9b	Library	80,000	500	160	100%	2.50	200
Bldg - Museum	10	Museum	34,676	500	69	100%	2.50	87
Bldg - Mized use	11		0	500		100%	0.00	0
Bldg - Mixed Use	12		0	500		100%	0.00	0
Bldg - Nature Center	13	Nature Center	30,000	500	60	100%	2.00	60
		TOTALS	312,713		625			726

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Figure 3.6

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Photoshop Diagram.

Figure 3.7
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Figure 3.12
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Figure 3.16
Chesney, Paden. 2019. "Proposed Flood Conditions." Kansas State University, LAR 646 2019.
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Figure 3.34

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Figure 3.36

Pasowicz, Grant. 2019. "West Side Earthwork Summary." Kansas State University, LAR 646 2019. Source program: AutoCAD Civil 3D

Figure 3.37

Pasowicz, Grant. 2019. "**Eastside Earthwork Grading Summary**." Kansas State University, LAR 646 2019. Source program: AutoCAD Civil 3D

Figure 3.38

Madsen, Rainie. 2019. "Land Use Plan." Kansas State University, LAR 646 2019. Photoshop Rendering over Sketchup

Figure 3.39

Pasowicz. 2019. "Existing vs. Proposed Land Use." Kansas State University, LAR 646 2019. Illustrator Diagram.

Figure 3.40

Chesney, Paden. 2019. “Phasing.” Kansas State University, LAR 646 2019. Photoshop Diagram, Base Line Work from AutoCAD Civil 3D

Figure 3.41
Chesney, Paden. 2019. “Full Site View.” Kansas State University, LAR 646 2019. Photoshop Rendering over Lumion

Figure 3.42
Chesney, Paden. 2019. “Development Metrics.” Kansas State University, LAR 646 2019. Source Excel, “LAR646_2017_Metrics.” Edited.



4



The Compass

Jessie Carmichael
Madelyn Cole
Kastasya Jackson
August Titus

The Compass

Pointing to a Healthy Lifestyle in Manhattan's New Wellness District

Concept

The Wellness District of Plaza West, called The Compass, is a mixed-use development that embodies the benefits of physical, social, mental and spiritual well-being for local residents. A variety of different therapeutic services, both indoors and outdoors, as well as entertainment spaces, promote a healthy and empowering lifestyle for a variety of user and special needs groups. The Compass Wellness District promotes a healthy body and mind through several design implementations as well as enhancement of existing amenities.

Being next to Wildcat Creek, and using it as an amenity, there are several other amenities such as a community garden, library, music hall, dining, indoor and outdoor gym equipment as well as other water features, such as pools and fountains, to give the surrounding community a new respite from daily life. The mid-rise development is a step toward increasing density within Manhattan's city limits, and will highlight natural features of the land for residents to enjoy for years to come.



Figure 4.1
Bird's Eye View over the Wellness District
Early morning sun shines down on Plaza West's new Wellness District. (Madelyn Cole, August Titus, 2019)

Goals and Objectives

- Physical - exercise, walking/running loops, swimming, biking, yoga, dance
- Social - spaces for gathering, individual reflection
- Mental - natural distractions, cognitive effects in particular settings
- Spiritual - internal healing, oneness, inner peace, reconnection with self/ experiencing one's internal nature

Background Information

Historical and Community Context

Currently, the West Plaza site is a large parking lot with a series of small businesses to the west, a fitness center and car museum to the south, a bank to the north and abandoned buildings on the east adjacent to Seth Child Road. Across Seth Child Road, there are quite a few apartment buildings that were flooded multiple times within the past decade.

Overall, the site is rather bare and lacks attractions that would encourage consistent occupancy. Many of the small businesses on site hardly get any customers because of their location, and the overbearing parking lot deters many from entering. Not many pedestrians come to the area on a regular basis, and the streetscape is not a friendly experience for walkers. The northern half of the site is in open sun all times of the day, and the southern portion is somewhat overgrown but shaded.

Physical and visual access to Wildcat Creek is very limited and monotonous; the two ways to access it is from the old railroad bridge and a rogue, overgrown trail leading to the edge of the bank.





Figure 4.2
Existing Parking Lot
The parking lot is expansive, open to the elements, and is uncomfortable for pedestrians.
(Kastasya Jackson, 2019)

Figure 4.3
Sidewalk under Seth Child
The Seth Child overpass separates the halves of the district.
(Kastasya Jackson, 2019)





Figure 4.4
Old Railroad Bridge
The Linear Trail crosses Wildcat Creek via a former railroad bridge.
(Kastasya Jackson, 2019)

Figure 4.5
Overgrown Trail
This is the trail that leads to the east side of the site from underneath the Seth Child bridge.
(Kastasya Jackson, 2019)

Background Information

Existing Land Use

The west side of the site, known as Plaza West, consists of commercial buildings such as small restaurants, a fitness center, bank, and car museum. The side east of Seth Child Road supports commercial and residential buildings. The buildings closest to Wildcat Creek have been flooded and are now condemned. Many of the remaining buildings have been restored from flood damage at significant cost.

On the eastern site, Garden Way, there are apartment buildings that also received flood damage within the past decade. Some buildings cannot be re-occupied because of the damage, while the lower levels of other buildings have since been repaired.



Figure 4.6
Transmission Lines and Abandoned Buildings
Most buildings on the western side of Plaza West were severely damaged by flooding and are now abandoned. (Kastasya Jackson, 2019)



Figure 4.7
Garden Way Abandoned Apartment Building
The building has suffered from severe flood damage and is no longer suitable for occupation.
(Kastasya Jackson, 2019)



Figure 4.8
Evergreen Apartments in Garden Way
These apartments have had some flood damage on the lower levels. The upper levels are untouched and occupied.
(Kastasya Jackson, 2019)

Major Problems Being Addressed

Transmission Lines

Large power line corridors are along the perimeter of Plaza West on the north, east, and south sides. The massive power line supports along Anderson Avenue are particularly visually obtrusive. With the implementation of the wellness district, the transmission lines along Anderson Avenue are proposed to be undergrounded to make the new streetscape more inviting and visually appealing.





Figures 4.9 and 4.10
Power lines along Anderson Avenue
Dominating power poles parallel to Anderson Avenue and the expansive parking lot of Plaza West.
(Howard Hahn, 2019)

Elevation Change and Flood Plain

Below is a picture of the flooding that occurred on Labor Day weekend in 2018. To mitigate flood damage that comes from Wildcat Creek, new buildings will be placed on pads of earthwork fill. Fill will be generated from cutting away elevated Seth Child Road and the old railroad bed, and excavating wetland areas. This method allows the sculpting of landforms and creating new plant communities.



Figure 4.11
Site Flooding Event on Labor Day Weekend 2018
Flood levels almost reached Anderson Avenue and the buildings closest to Seth Child were flooded to the eaves causing irreversible damage to the property.
(City of Manhattan, 2018)

Major Problems Being Addressed

Health Facilities and Services

The are several services for mental and physical health in Manhattan; however, the locations are primarily on the eastside of Manhattan. To fill the gap, Plaza West will become a Wellness District to cater to all aspects of health by providing accessible services to residents on the west side of Manhattan. The four pillars of the design program are mental, physical, social and spiritual health. Throughout the district, both indoor and outdoor service areas maximize the site's potential for healing.

Wildcat Creek Edge Treatment

Wildcat Creek is a great natural feature that users may not be able to access easily. Some may not know of this natural amenity due to concealment behind thick bank vegetation. The edge treatment will be designed to stabilize erosion and be more accessible to users. The experience of being next to a natural water feature will be enticing and enriching to occupants, and will highlight the magnificent qualities of this powerful natural resource. Being a part of the therapeutic landscape, water is a crucial feature to highlight for the healing process.



Figure 4.12
Wildcat Creek Bank Erosion
The cutback on the bank of the creek is very severe and is a hazard for anyone who may come in contact with it. The creek is a nice natural amenity and should be a safe place for users to enjoy.
(August Titus, 2019)

Design Framework

Major Design Ideas

Phase #1

Demolition of existing buildings and grading the therapeutic landscape to generate pad fill is the first phase of the implementation. The walking loops, outdoor exercise equipment, community gardens, and a new and improved Linear Trail are all part of the outdoor experience. The series of outdoor spaces complement the indoor services.

Phase #2

The main campus is the semicircular arrangement of buildings, plazas, and the circle drive that constitutes the second phase of the new Wellness District in West Plaza.

Phase #3

The Farmer's Market and entertainment buildings will be introduced after the main campus. These buildings complement the main campus' functionality with outlets to aid in healing processes.

Phase #4

The dedicated residential portion is in the final phase. This provides housing to those who wish to live closer to nature, conveniently access wellness amenities or seek affordable living in general.



Figure 4.13
Oblique Looking South
The early morning sun shines down the main axis of the central campus to the entry plaza on Wreath and Anderson Avenues
(Madelyn Cole, 2019)

Site Plan

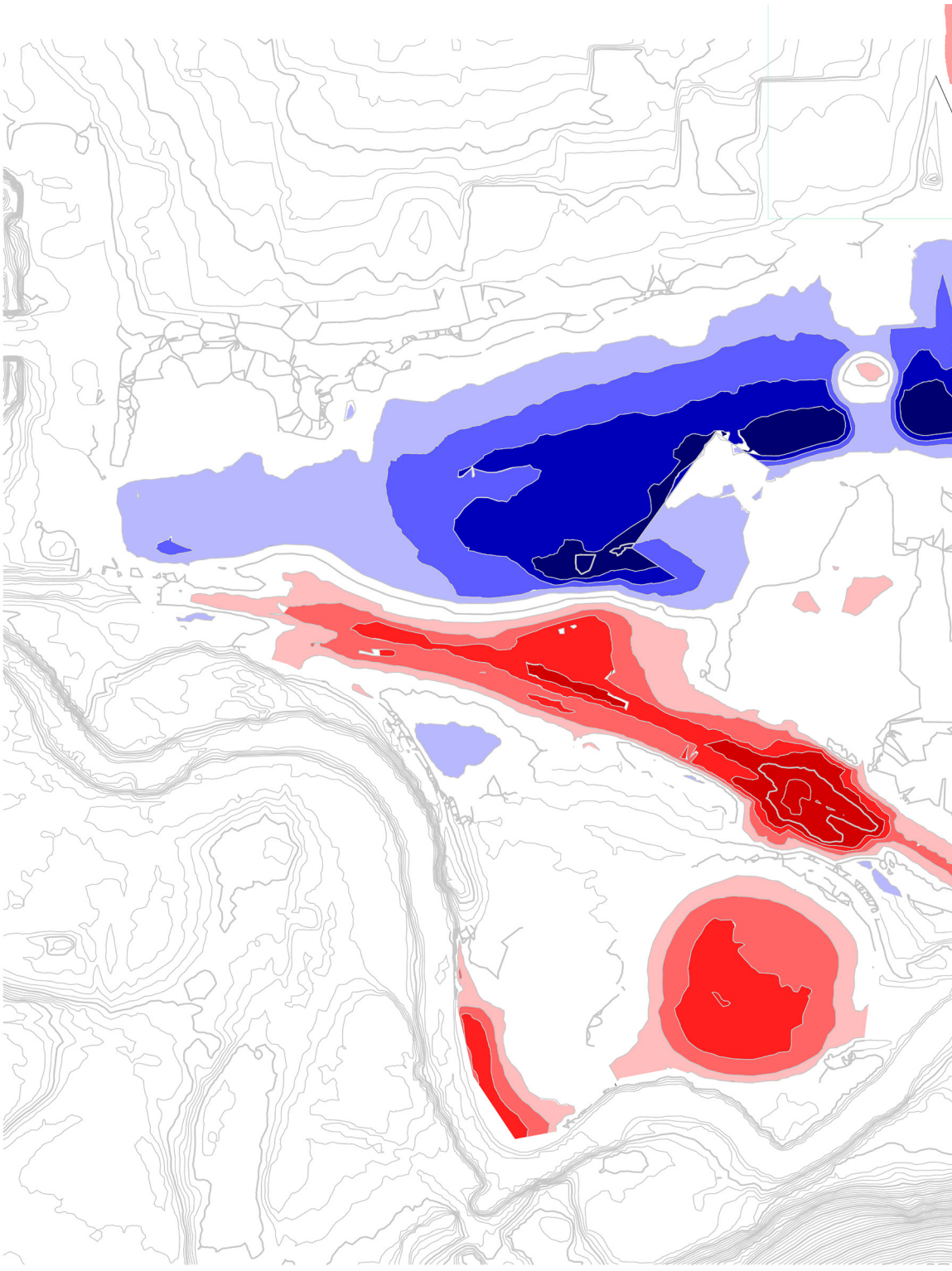

Burnett Automotive
Waters St
Wreath Ave
Anderson Ave
B
Entry Plaza
Car Museum
Job Training and Entertainment Campus
Star Plaza
Main Wellness Campus
Amphitheater
Main Plaza
Farmer's Market
P
Exercise Loop
Wildcat Creek
Linear Trail
B'
Pleasure Gardens
Wetland
Creek Amphitheater
A'
A



Figure 4.14
Illustrative Plan
The plan shows the overall design scheme for the wellness district in relationship to the removal of Seth Child Road overpass. The trail system connects the main development to Wildcat Creek.
(Kastasya Jackson, August Titus, 2019)

Phase 1 - Demolition and Earthworks

Making way for Plaza West's new Wellness District



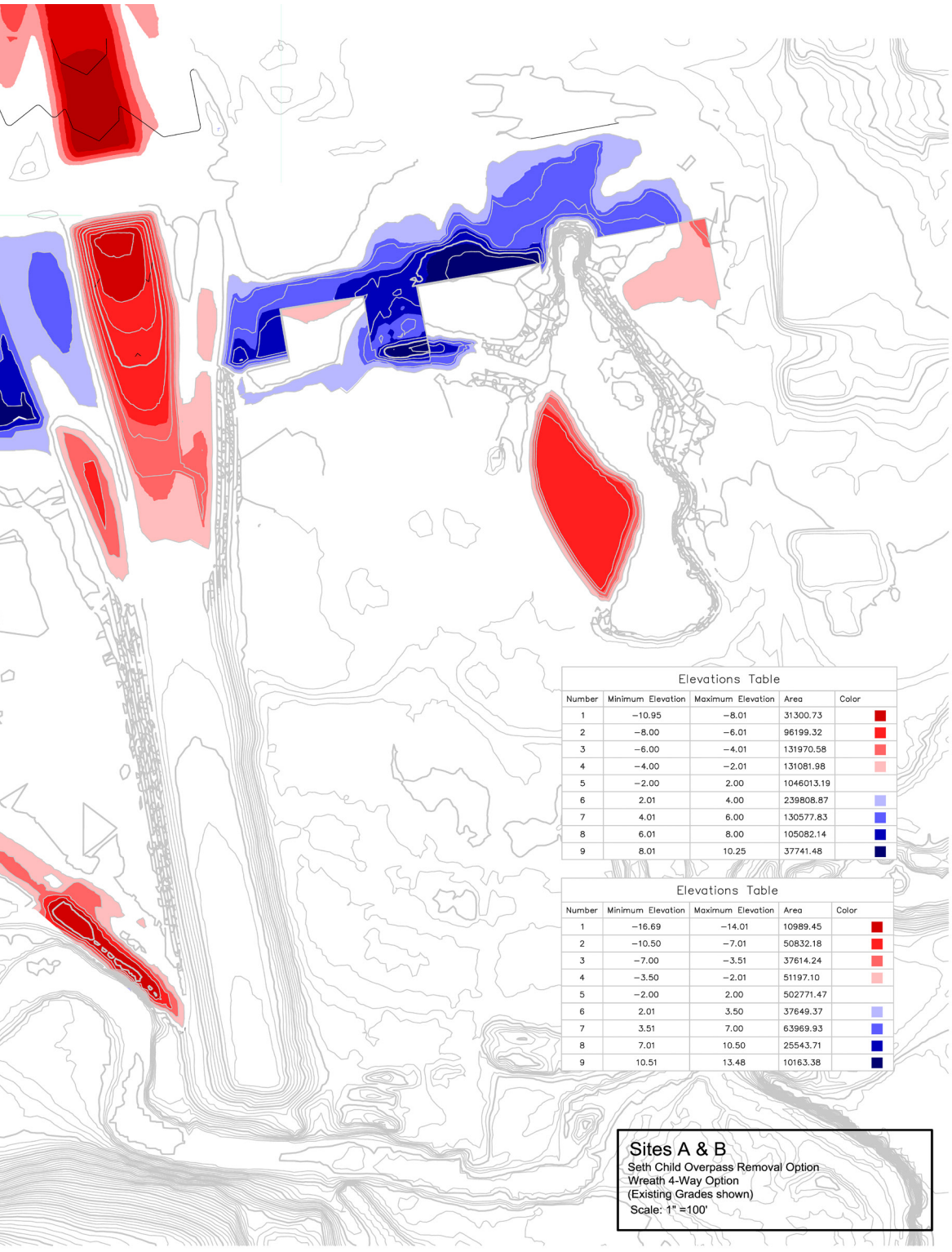


Figure 4.15
Site Cut and Fill
Large area grading will remove the Anderson Avenue/Seth Child Road grade separated interchange, the existing elevated railbed, and excavate detention areas to generate pad fill to locate high value assets. Most surface parking will not be located on high cost fill areas.
(Kastasya Jackson, August Titus, 2019)

Phase 1 Continued - Therapeutic Landscape and Wildcat Creek

Admiring and reconnecting with nature

Constructing a therapeutic landscape that integrates with Wildcat Creek is part of the first phase of implementation. This space is composed of a community garden, pleasure garden, exercise loop, wetland boardwalk creekside overlook, and relocated Linear Trail. Portions of Wildcat Creek will incorporate a hard edge treatment to facilitate gathering and better creek access. The elevation will need to be set high enough to prevent frequent over-washing of muddy water to minimize mud clean-up on paved surfaces.

The walking trails tie the spaces together and connect residents and visitors to natural areas along Wildcat Creek on both sides of Seth Child Road.

This exterior design complements the indoor services and reinforces the healing quality of nature for immersed users. Exercise and sitting among greenery helps relieve stress in people. As a wellness district, it is imperative to design for health in every aspect.





Figure 4.16
Kicking Back at Wildcat Creek
This new edge of the creek will have the entire neighborhood out and splashing around. The fire pit is an extra bonus to the feature and brings another element to the landscape for users to get lost in and enjoy.
(Madelyn Cole, August Titus, 2019)



Figure 4.17
Elevated stroll on the wetland boardwalk
The boardwalk provides users close contact with nature as a means of restoration.
(Jessie Carmichael, Madelyn Cole, 2019)



Phase 2 - Main Campus

New and improved wellness services

The main campus includes three central plaza spaces, therapeutic indoor services, as well as rooftop green spaces, and an interior courtyard space. The entry plaza is on axis with the main plaza and features a reflection pool which can be transformed into an ice skating rink in the winter. The star plaza is on a counter axis that is fixed from the main plaza to allow for visual and physical connectivity.

The main campus is the hub for healing and is bordered by the circle drive which offers on-street parking allowing for quick access to wellness and commercial services. The crosswalks lead pedestrians safely to key locations adjacent to the main campus. Below are images of the imagined plazas and building configurations.



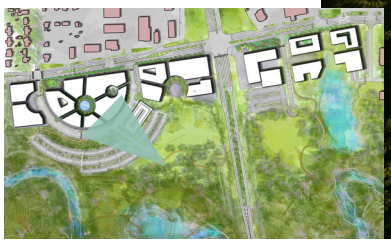


Figure 4.18
Bird's Eye View looking North
The central campus is composed of a series of spaces that are shaped by the buildings. The balconies overlooking the main plaza can be seen here as well.
(Madelyn Cole, 2019)



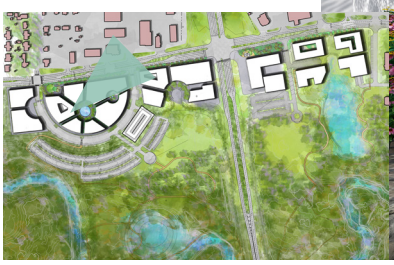


Figure 4.19
Main Plaza
The main plaza functions as a reflective space in the center of the central campus. The vast pool serves as a calming device for those in the space.
(Madelyn Cole, 2019)



Figure 4.20
Anderson Avenue Streetscape
People would enjoy walking along this new district streetscape. Early afternoon strolls and spots to stop and rest amid the hustle and bustle contribute to pedestrian comfort.
(Madelyn Cole, 2019)

Phase 3 - Job Training and Entertainment

Working hard and playing hard - balance

The job training and entertainment areas feature an in-ground amphitheater, an interior courtyard and farmers' market. This area helps clients develop or rehabilitate skills necessary to re-enter the workplace or society.

Entertainment will also be provided here to enhance social wellness. There will be a library extension with an interior courtyard, music hall and many places for crafting and fine arts. The amphitheater serves as an outdoor gathering space for performances, gallery shows and other large gatherings. The grading of the site merges into the amphitheater allowing views out into the lawn to the south.

The farmer's market is on the opposite side of the main campus and has its own plaza area to extend the interior space to the exterior for displaying the produce.





Figure 4.21
Enjoying A Day in the Amphitheater
A children's performance in the amphitheater brings delight and a carefree atmosphere to the space.
(Madelyn Cole, 2019)

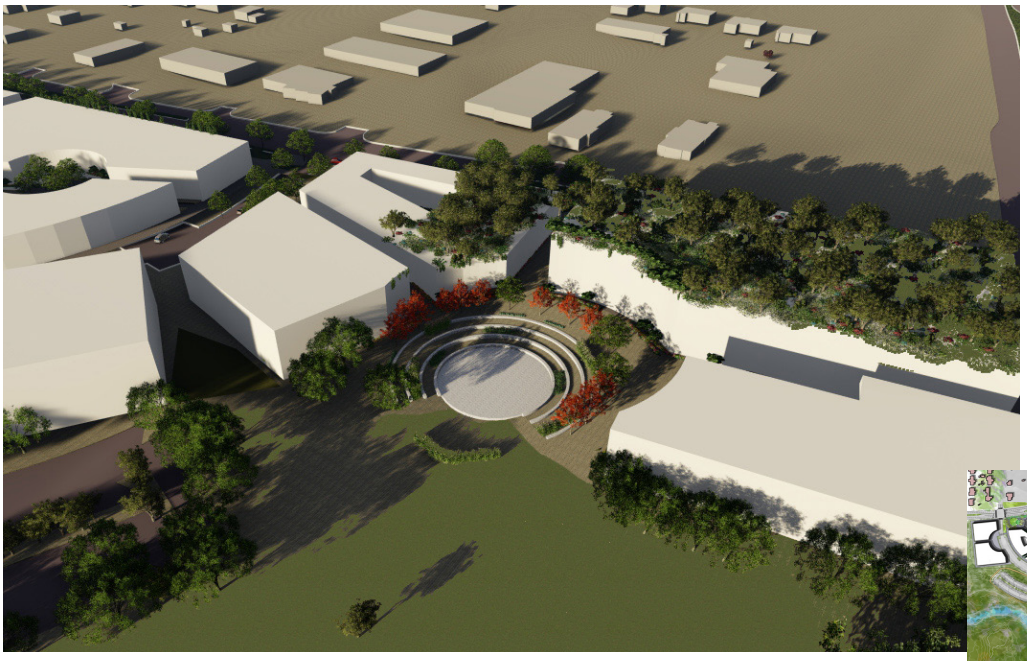




Figure 4.22
Aerial view of the Education and Entertainment Campus
Rooftop garden for private gatherings and sessions for trainees and guests. An in-ground amphitheater adjacent to the buildings for performances and galleries.
(Jessie Carmichael, Madelyn Cole, 2019)



Phase 4 - Residential Development

New living experiences up close and personal with nature

In the residential development, there will be multi-story buildings and interior courtyard spaces to accommodate the residents' needs. The primary amenities of this landscape are the residential pond and the trail loop around it. Currently there is a body of water in this east site location, however it is enclosed by wild vegetation and is inaccessible. The newly developed Garden Way will highlight the pond as a natural amenity and allow residents to embrace its beauty and calming aspects.

Not only does the pond serve aesthetic purposes, it also captures stormwater runoff to help mitigate the current flooding issue. The walking loop around the pond promotes exercise and encourages people to walk more during all seasons.

The street-side plaza/seating area along Anderson Avenue is the primary entry point for pedestrians. It serves as a new and inviting streetscape along Anderson Avenue that provides shade for climatic comfort. For those who enjoy the hustle and bustle of the street, they can relax here and watch passersby.

This development offers affordable housing that could appeal to Manhattan residents who seek alternate housing options combined with wellness promoting conditions. The wellness district is intended to be a holistic environment for both residents and visitors.



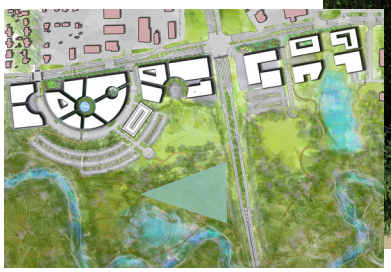


Figure 4.23
Enjoying Linear Trail
Wildflowers and other green vegetation adorns the sides of the trail to foster an appreciation of nature.
(Jessie Carmichael, Madelyn Cole, 2019)



Figure 4.24
Stroll Alongside the Pond
Water elements help soothe the brain and spirit; even watching the wildlife from a short distance is peaceful.
(Madelyn Cole, 2019)



Figure 4.25
Enjoying the Streetscape
Upgraded Anderson Avenue allows pedestrians to be buffered from traffic in a plant-rich and shady streetscape.
(Madelyn Cole, 2019)

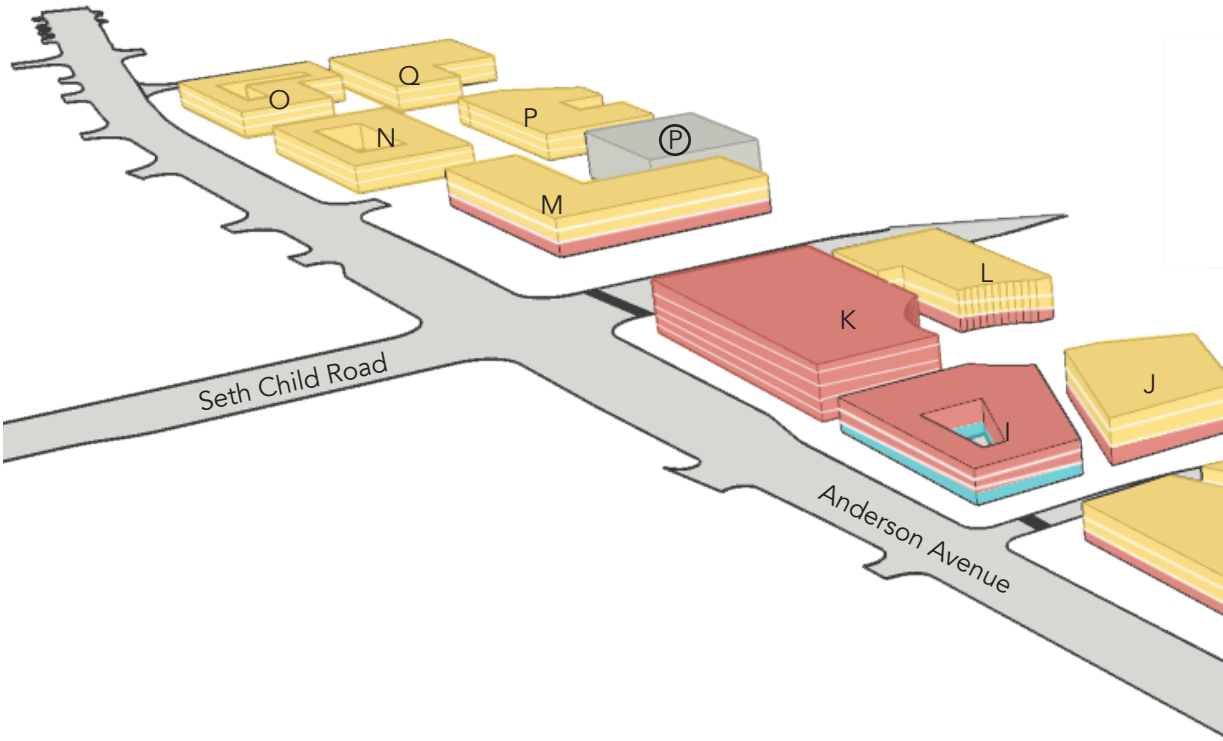


Figure 4.26
A Grove of Trees on Anderson Avenue
Pedestrians can stop and have a nice shady break out of the way from the movement on the sidewalk and the street.
(Madelyn Cole, 2019)

Mixed-use Breakdown and Metrics

Legend

- Civic Space
- Housing
- Commercial/ Office Space
- Parking Ⓟ



- Open Space
- Building Footprint
- Structured Parking
- Surface Parking



Total FAR:	.55
Residential Summary (sf):	713,095
Dwelling Units:	891
Residents:	1,783
Commercial Summary (sf):	311,520
Parking Needed:	3,150
Office Summary (sf):	367,744
Employees:	735
Parking Summary (sf):	311,400
Stalls Provided:	1,557

Total Developed Area (sf):	1,392,359
Total Build-able Area (sf):	2,510,612

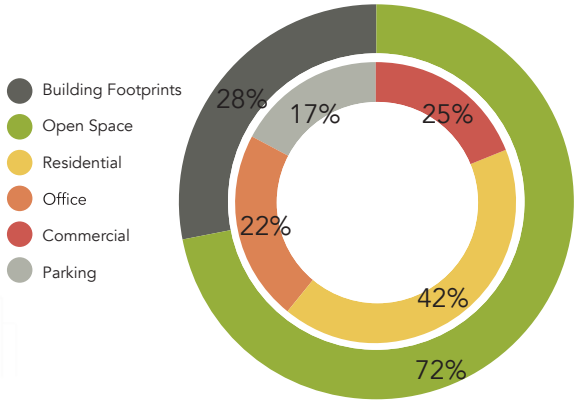
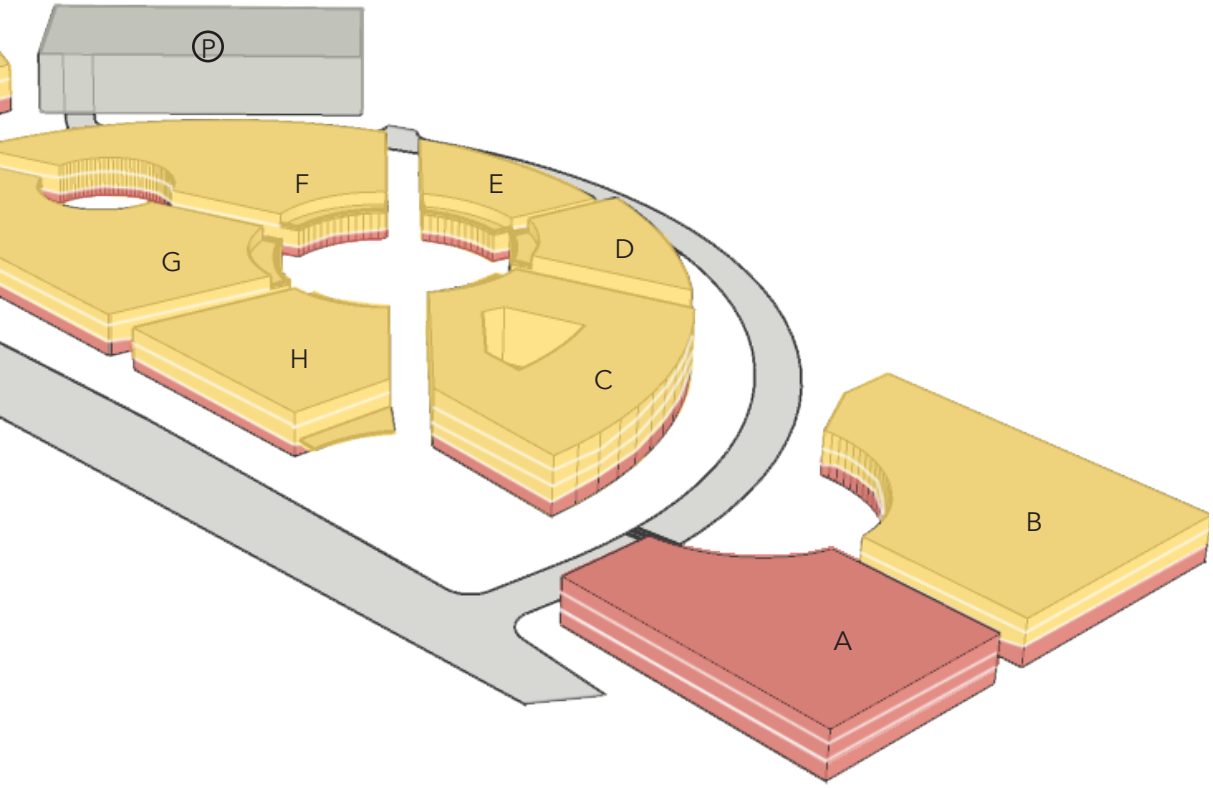


Figure 4.27
Building Use Diagram and Metrics
Visualizing the multi-level use for each building on the site. Use ranges from civic space, commercial space, office space and housing units. (Madelyn Cole, 2019)



Land Use Strategy

Promoting and maintaining the health of the population

As a wellness district, Plaza West is intended to have a long term positive impact on the population by encouraging a holistic environment promoting exercise, mental restoration, and affordable living. A series of plazas function as outdoor rooms that provide dappled shade and serene water features magnifying the natural allure of water. Plaza sizes vary to accommodate therapy meetings, small gatherings, performances, individual relaxation and produce sales from the farmer's market.

The amphitheater is the key spot for large gatherings, and feeds into the lawn that is a part of the therapeutic landscape. This spatial overlap allows for a vast amount of people to occupy the space simultaneously, and encourages exploration of the natural landscape beyond.

The physical grading and fill of the site combats flooding that comes from Wildcat Creek during the rainy season. The wetland area acts as a floodplain for Wildcat Creek and the pond on the east side of the site functions as a large detention basin for excess stormwater. This process slows down the water rising level in the creek helping to ultimately reduce flooding further down the watershed.

The fill generated on site forms the elevated pad where new buildings will be located and the slope down to the creek is gradual. The pad protects the buildings from flood damage and helps create the wetland and pond.

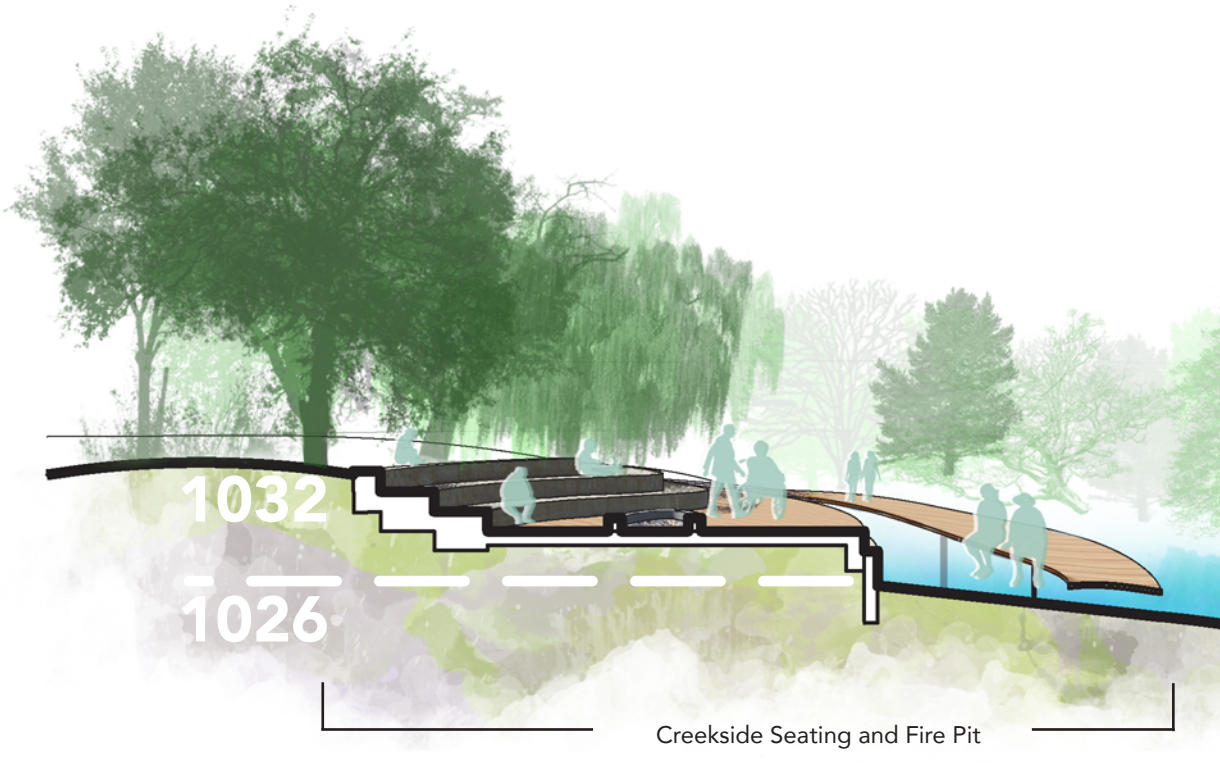


Figure 4.28
Spatial Relationship between the Creek and Edge Seating
Users down by the creek enjoy the natural scenery and roasting snacks on the fire. Kayakers enjoy the gentle current, while connecting with nature.
(Madelyn Cole, August Titus, 2019)

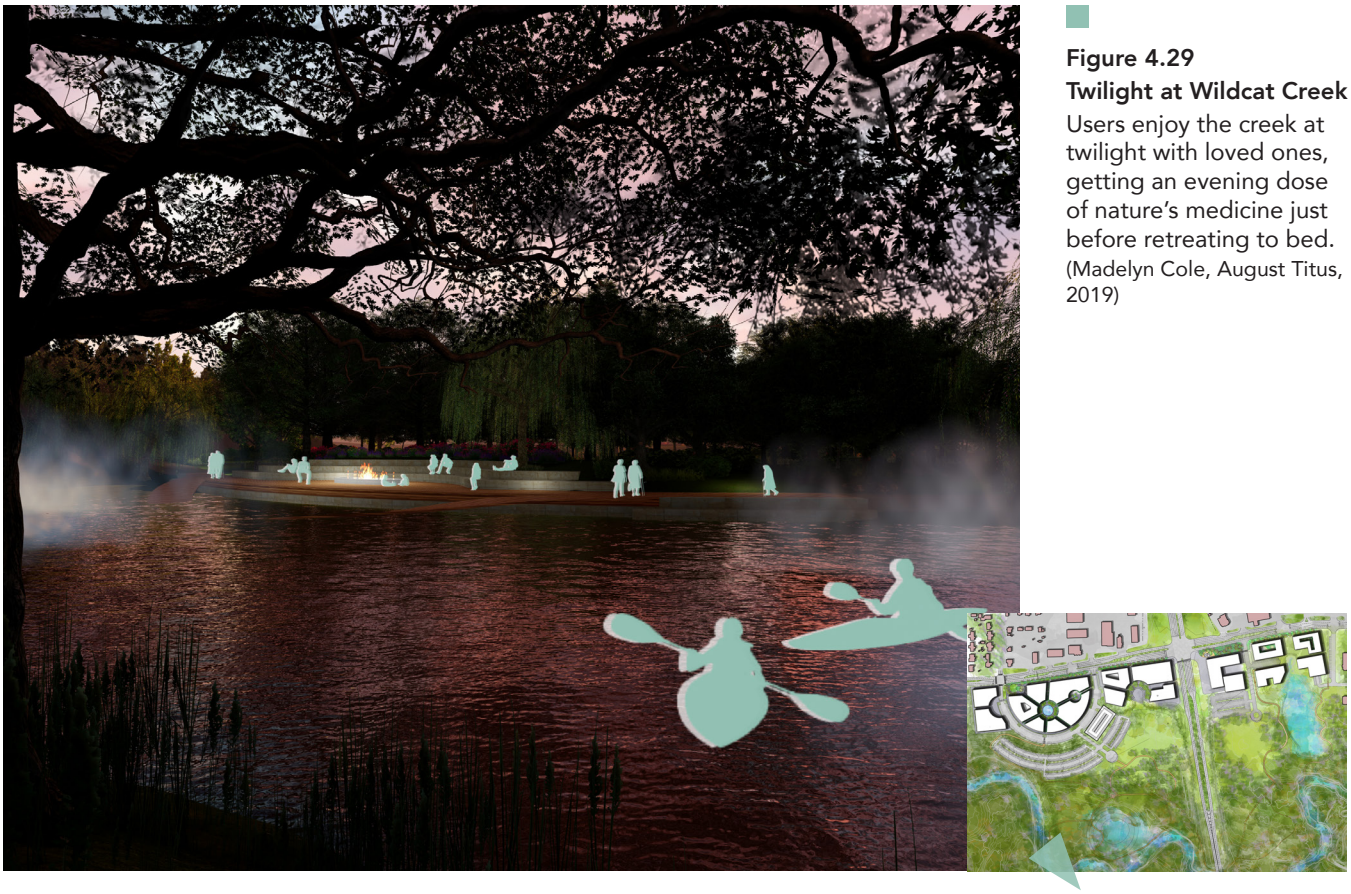


Figure 4.29
Twilight at Wildcat Creek
Users enjoy the creek at twilight with loved ones, getting an evening dose of nature's medicine just before retreating to bed.
(Madelyn Cole, August Titus, 2019)

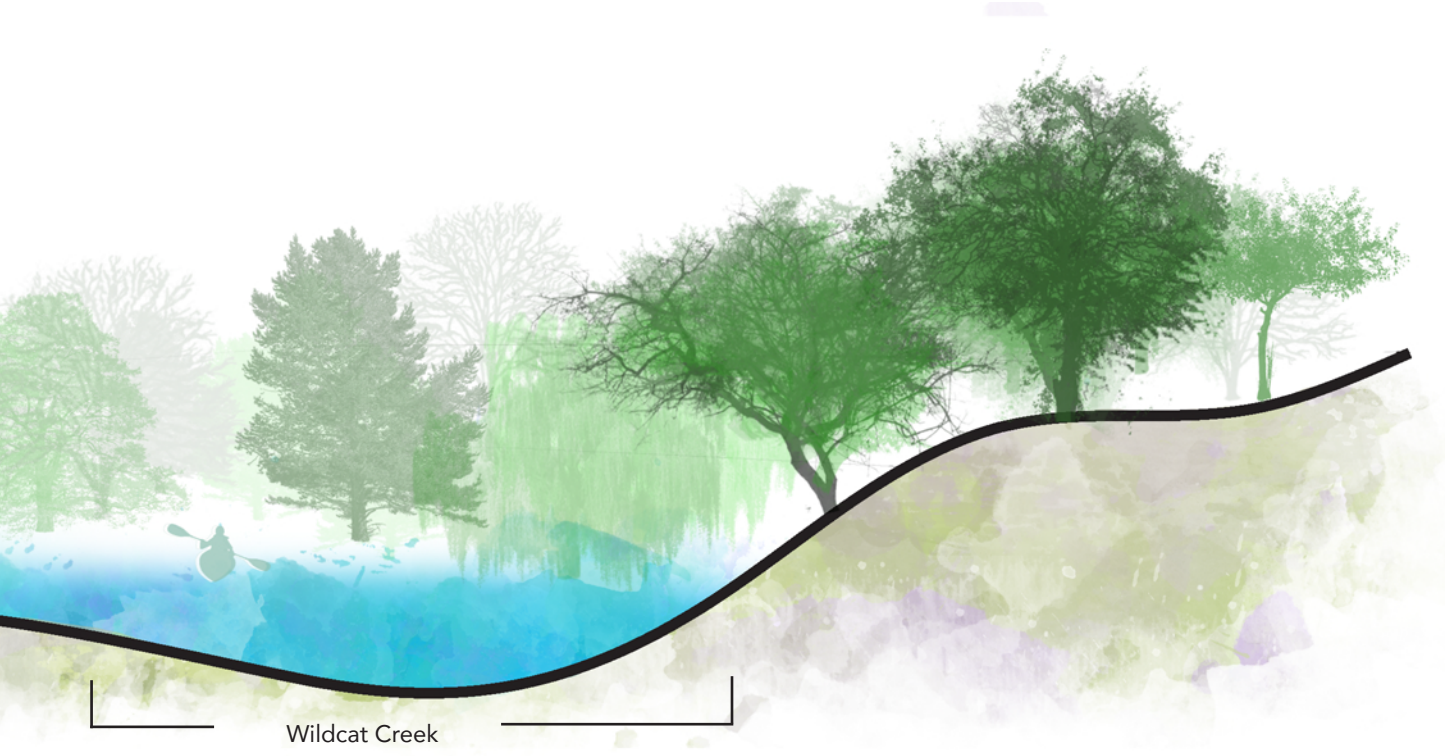




Figure 4.30
Flood Levels On Site
Illustration showing the new flood levels with the landforms.
(Jessie Carmichael, Kastasya Jackson, 2019)

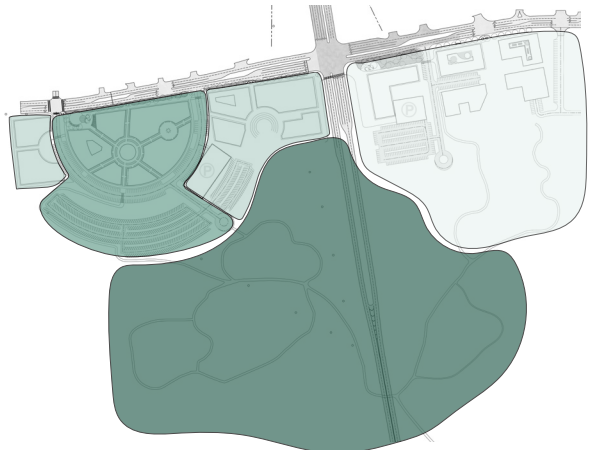


Figure 4.31
Phasing Diagram
Illustrating the parts of the site that will be completed chronologically.
(August Titus, 2019)

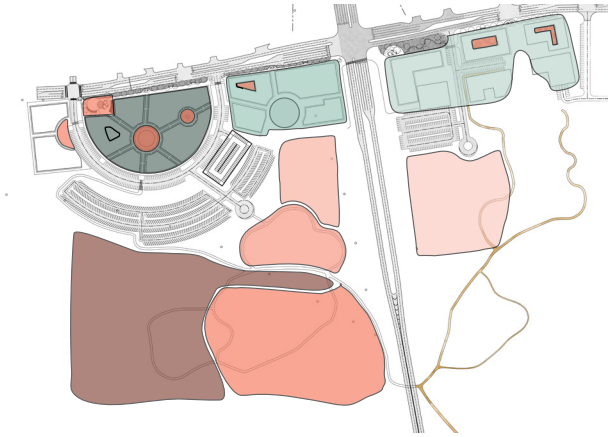


Figure 4.32
Spatial Use Diagram
Illustration showing the various site spaces used for different types of healing from physical to spiritual.
(Jessie Carmichael, August Titus, 2019)

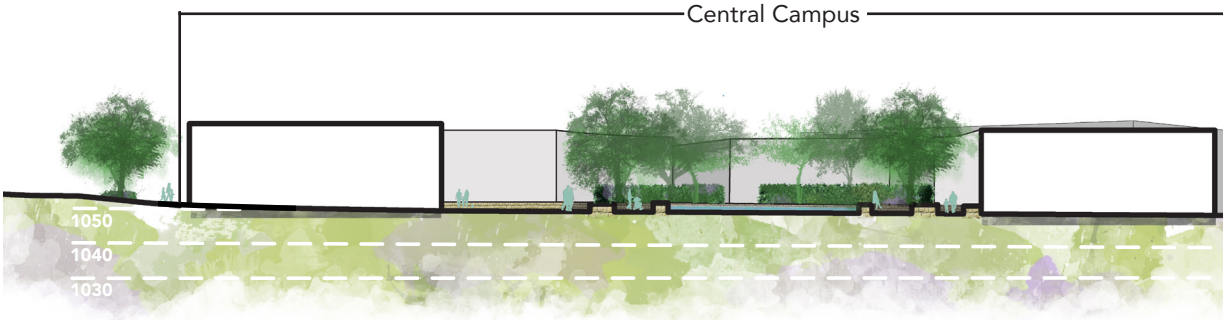


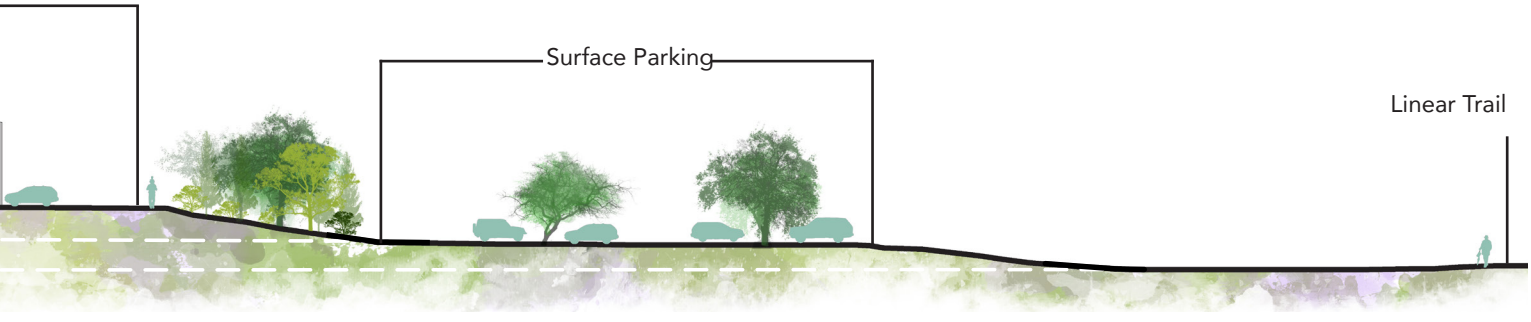
Figure 4.33
Spatial Relationship between the Central Campus and the Therapeutic Landscape
The central campus is on a pad and following down the slope is the parking lot that divides the landscape from the development.
(Madelyn Cole, August Titus, 2019)

Distinguished Characteristics

The entire district is dedicated to a healthier mind, body and spirit for the city of Manhattan

The new Plaza West Wellness District is unique in Manhattan. Not only does it give existing health services new quarters, but it also emphasizes living a more physically, mentally and spiritually healthy lifestyle. The existing wellness services are primarily indoors and closer to the east side of Manhattan. With the addition of the therapeutic landscape adjacent to the new indoor services, the Compass Wellness District increases the chances for a holistic healing process for users. The housing units allow for low income families and individuals, active retirees and others to have direct access to wellness promoting services and the landscape. The residents of this area should see their health improving and better health means a better life for Manhattanites.

THE COMPASS — GUIDING MANHATTAN TO BETTER HEALTH



Appendix

Figure 4.34
Overall Site Metrics
(Madelyn Cole, Howard Hahn, 2019)

Parcel/Bulding ID			Site Footprint Breakdown	Building						
				Building Level Allocation						
Block No.	Land Use Breakdown	Building No.	Footprint Area (sf)	Resid Levels	Comm Levels	Office Levels	Parking Levels	Total Levels	Total Area (sf)	Total Hab. Area (sf)
	Bldg or Struct Prkg	A	21,120	0.00	1.00	2.00	0.00	3.00	63,360	63,360
	Bldg or Struct Prkg	B	30,386	2.00	1.00	0.00	0.00	3.00	91,158	91,158
	Bldg or Struct Prkg	C	22,496	3.00	1.00	0.00	0.00	4.00	89,984	89,984
	Bldg or Struct Prkg	D	12,283	3.00	1.00	0.00	0.00	4.00	49,132	49,132
	Bldg or Struct Prkg	E	14,656	2.00	1.00	0.00	0.00	3.00	43,968	43,968
	Bldg or Struct Prkg	F	34,102	2.00	1.00	0.00	0.00	3.00	102,306	102,306
	Bldg or Struct Prkg	G	36,747	2.00	1.00	0.00	0.00	3.00	110,241	110,241
	Bldg or Struct Prkg	H	18,295	2.00	1.00	0.00	0.00	3.00	54,885	54,885
	Bldg or Struct Prkg	I	23,470	0.00	1.00	2.00	0.00	3.00	70,410	70,410
	Bldg or Struct Prkg	J	17,350	0.00	1.00	3.00	0.00	4.00	69,400	69,400
	Bldg or Struct Prkg	K	43,019	0.00	1.00	4.00	0.00	5.00	215,095	215,095
	Bldg or Struct Prkg	L	18,146	0.00	1.00	3.00	0.00	4.00	72,584	72,584
	Bldg or Struct Prkg	M2	19,450	3.00	1.00	0.00	0.00	4.00	77,800	77,800
	Bldg or Struct Prkg	N	22,693	3.00	0.00	0.00	0.00	3.00	68,079	68,079
	Bldg or Struct Prkg	O	24,637	3.00	0.00	0.00	1.00	4.00	98,548	73,911
	Bldg or Struct Prkg	P	21,396	3.00	0.00	0.00	0.00	3.00	64,188	64,188
	Bldg or Struct Prkg	Q	25,286	3.00	0.00	0.00	1.00	4.00	101,144	75,858
	Bldg or Struct Prkg	PG2	18,910	0.00	0.00	0.00	5.00	5.00	94,550	0
	Bldg or Struct Prkg	PG	18,061	0.00	0.00	0.00	5.00	5.00	90,305	0
	Surface Parking Lots		204,495							
	Streetside Parking		52,720							
	Sidewalks/Plazas		421,517							
	Internal Drives									
	Open Space*		2,750,265							
TOTALS			3,871,500						1,627,137	1,392,359
			223,350 (Cross-check)							

Residential (DU = Dwelling Units)								
Type Description	Total Gross Resid. (sf)	DU Size sf*	DU	Res./DU*	Residents	Parking Utilization Rate (%)	Standard Pkg Spc per DU*	Prkg Spaces Needed
	0	800	0	2.00	0	70%	2.00	0
	60,772	800	76	2.00	152	70%	2.00	106
	67,488	800	84	2.00	169	70%	2.00	118
	36,849	800	46	2.00	92	70%	2.00	64
	29,312	800	37	2.00	73	70%	2.00	51
	68,204	800	85	2.00	171	70%	2.00	119
	73,494	800	92	2.00	184	70%	2.00	129
	36,590	800	46	2.00	91	70%	2.00	64
	0	800	0	2.00	0	70%	2.00	0
	0	800	0	2.00	0	70%	2.00	0
	0	800	0	2.00	0	70%	2.00	0
	0	800	0	2.00	0	70%	2.00	0
	58,350	800	73	2.00	146	70%	2.00	102
	68,079	800	85	2.00	170	70%	2.00	119
	73,911	800	92	2.00	185	70%	2.00	129
	64,188	800	80	2.00	160	70%	2.00	112
	75,858	800	95	2.00	190	70%	2.00	133
	0	800	0	2.00	0	70%	2.00	0
	0	800	0	2.00	0	70%	2.00	0
TOTALS	713,095		891		1,783			1,248

Commercial						
Type Description	Commercial Area (sf)	Sq Ft per Comm. Emp.	Employees	Parking Utilization Rate (%)	Standard Prkg Spc per 1K sf*	Prkg Spaces Needed
	21,120	750	28	70%	4.00	59
	30,386	750	41	70%	4.00	85
	22,496	750	30	70%	4.00	63
	12,283	750	16	70%	4.00	34
	14,656	750	20	70%	4.00	41
	34,102	750	45	70%	4.00	95
	36,747	750	49	70%	4.00	103
	18,295	750	24	70%	4.00	51
	23,470	750	31	70%	4.00	66
	17,350	750	23	70%	4.00	49
	43,019	750	57	70%	4.00	120
	18,146	750	24	70%	4.00	51
	19,450	750	26	70%	4.00	54
	0	750		70%	4.00	0
	0	750		70%	4.00	0
	0	750		70%	4.00	0
	0	750		70%	4.00	0
	0	750		70%	4.00	0
	0	750		70%	4.00	0
TOTALS	311,520		415			872

Office						
Type Description	Office Area (sf)	SF per Off Emp	Employees	Parking Utilization Rate (%)	Standard Prkg Spc per 1K sf*	Prkg Spaces Needed
	42,240	500	84	70%	4.00	118
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	46,940	500	94	70%	4.00	131
	52,050	500	104	70%	4.00	146
	172,076	500	344	70%	4.00	482
	54,438	500	109	70%	4.00	152
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
	0	500		70%	4.00	0
TOTALS	367,744		735			1,030

Scenario Summary	
Description	Summary Totals
Total Parcel Areas (sf)	223,350
Total Parcel Area (ac)	5.13
FAR*	6.23
Residential Summary	
Total Residential SF	713,095
Total Dwelling Units (DU)	891
Avg DU/Acre	173.8
Total Residents	1,783
Parking Stalls Needed	1,248
Commercial Summary	
Total Commercial SF	311,520
Employees	415
Parking stalls Needed	872
Office Summary	
Total Office SF	367,744
Employees	735
Parking Stalls Needed	1,030
Parking Summary	
Total Stall Needed	3,150
Parking Stalls Provided	1,557
Surface Parking Stalls	706
Streetside Parking	293
Structured Parking	558

Citations

Figure 4.0

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Figure 4.1

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Figure 4.2

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Figure 4.3

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Figure 4.4

Jackson, Kastasya. 2019. "Overgrown Trail". Taken May 22, 2019. Kansas State University LAR 646 2019.

Figure 4.5

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Figure 4.6

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Figure 4.7

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Figure 4.8

Hahn, Howard. 2019. "Power lines along Anderson Avenue". Taken May 22, 2019.

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Figure 4.9

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Figure 4.10

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Figure 4.11

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Figure 4.12

Cole, Madelyn. 2019. "Oblique Looking South". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.13

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Figure 4.14

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Figure 4.15

Cole, Madelyn and August Titus. 2019. "Kicking Back at Wildcat Creek". Kansas State University LAR 646 2019. Lumion Pro, Adobe Photoshop and Rhino 3D Modeling.

Figure 4.16

Carmichael, Jessie and Madelyn Cole. 2019. "Elevated Stroll on the Boardwalk in the Wetland". Kansas State University LAR 646 2019. Lumion Pro, Adobe Photoshop and Rhino 3D Modeling.

Figure 4.17

Cole, Madelyn. 2019. "Bird's Eye View Looking North". Kansas State University LAR 646 2019. Lumion Pro.

Figure 4.18

Cole, Madelyn. 2019. "Main Plaza" Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.19

Cole, Madelyn. 2019. "Anderson Avenue Streetscape". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.20

Cole, Madelyn. 2019. "Enjoying A Day in the Amphitheater". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.21

Carmichael, Jessie and Madelyn Cole. 2019. "**Aerial view of the Education and Entertainment Campus**". Kansas State University LAR 646 2019. Lumion Pro.

Figure 4.22

Carmichael, Jessie and Madelyn Cole. 2019. "Enjoying Linear Trail". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.23

Cole, Madelyn. 2019. "Stroll Alongside the Pond". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.24

Cole, Madelyn. 2019 "Enjoying the Streetscape". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.25

Cole, Madelyn. 2019. "A Grove of Trees on Anderson Avenue". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.26

Cole, Madelyn. 2019. "Building Use Diagram and Metrics". Kansas State University

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Figure 4.27

Cole, Madelyn and August Titus. 2019. "Spatial Relationship between the Creek and the Edge Seating". Kansas State University LAR 646 2019. Lumion Pro and Adobe Photoshop.

Figure 4.28

Cole, Madelyn and August Titus. 2019. "Twilight at Wildcat Creek ". Kansas State University LAR 646 2019. Lumion Pro, Adobe Photoshop and Rhino 3D Modeling.

Figure 4.29

Carmichael, Jessie and Kastasya Jackson. 2019. "Flood Levels on Site". Kansas State University LAR 646 2019. Adobe Illustrator and Adobe Photoshop.

Figure 4.30

Titus, August. 2019. "Phasing Diagram". Kansas State University LAR 646 2019. AutoCAD Civil 3D and Adobe Illustrator.

Figure 4.31

Carmichael, Jessie and August Titus. 2019. "Spatial Use Diagram". Kansas State University LAR 646 2019. AutoCAD Civil 3D and Adobe Illustrator.

Figure 4.32

Cole, Madelyn and August Titus. 2019. "Spatial Relationship between the Central Campus and the Therapeutic Landscape". Kansas State University LAR 646 2019. Lumion Pro and Adobe Illustrator and Adobe Photoshop.

Figure 4.33

Cole, Madelyn and Howard Hahn. 2019. "Overall Site Metrics". Kansas State University LAR 646 2019. Microsoft Excel.



5



New Corporate Green

Nick Ferrara
Mikala Fitzgerald
Julia Kappelman

New Corporate Green

High density solutions create a new business/ corporate district for Manhattan's west side

Concepts

Design Ideas

Our design creates a multifaceted approach to a new business and corporate district for the west side of Manhattan, KS. The new district, located just north of Wildcat Creek, would also be elevated on pads in order to prevent flooding damage that has occurred in the past. The design proposal also examines the potential of Anderson Avenue to become a precedent streetscape for the city to model. Additionally, the intersection of Anderson Ave. and Seth Child Rd. would be a defining gateway for the new westside district.



Figure 5.2: Present Site Conditions
The present day site at Plaza West does not feature many amenities or assets in its current state. Most of the site is parking lot. Several buildings are now vacant because of flooding (Ferrara, 2019).

Goals and Objectives

Intent and Purposes

- Provide a space for businesses and professionals to work in a comfortable and well-designed environment
- Incorporate shops, restaurants, and vendors along the new and improved streets
- Include new residential buildings and spaces for young professionals seeking a more densified semi-urban district
- Provide new site amenities and infrastructural elements that people who work and live in the area can use on a regular basis
- Integrate sustainable site design strategies
- Protect vulnerable buildings from flooding
- Develop a cohesive phasing strategy
- Redirect Linear Trail to weave through the newly created wetland
- Develop an earthworks strategy that creates a cut-fill balance and the desired 1.2:1.0 cut/fill ratio





Figure 5.3:
Existing Apartments
Collection of apartments in the Garden Way area that are at risk of flooding. (Ferrara, 2019).

Figure 5.4:
Existing Senior Living
Senior living community in Garden Way area that flooded recently (Ferrara, 2019).

Abstract

The site proposal brings Manhattan the opportunity to enhance the west side of the city and provide a primary business district for locals and newcomers seeking to bring their business ideas and expertise into the city. Professionals will be able to enjoy their office space in multi-story buildings and have access to amenities professional might need. Conveniently, the site is near a local grocery, banks, and a retail shopping store. The site is intended to provide walkable streets and spaces where people could regularly shop, dine, and take care of their daily to weekly needs without having to drive to a distant location. Examining other precedents, the design of the New Corporate Green would hopefully incorporate businesses, residents, and amenities together into a functional, convenient, and aesthetically pleasing setting.

Precedents from around the U.S.

Precedents that examine small urban densities, siting along major arterial roads, and ideas for wetland integration.

Woodbury Town Center - Irvine, CA

A distinguished shopping center which is home to several shops and restaurants.



Figure 4.5: Woodbury Irvine, CA
Gateway entry into Woodbury Town Center shopping district
(Irvine Company Retail Properties)

Prairiefire Shopping Center - Overland Park, KS

A shopping venue that features incorporated wetlands and a Natural History Museum.



Figure 5.6 & Figure 5.7: Prairiefire Streetscape
The street design of Prairiefire is particularly beautiful because they incorporate wetlands into the strategy and aesthetic of the site.
(Merrill Companies, LLC, 2014)

Half-Mile Line - West Stockbridge, MA

A private wetland designed by Reed-Hilderbrand to connect the homeowner to the native landscape.



Figure 5.8 & Figure 5.9: Boardwalks of the Half Mile Line
This design evokes the natural qualities of the landscape and demonstrates how hovering above nature can be an experience of beauty.
(Reed-Hilderbrand, 2012)

Existing Site Conditions

Community Context and Wildcat Creek

The site is conveniently located for people who live on the west side of town which makes it a prime area for a business/corporate district. The Anderson Avenue and Seth Child intersection is one of the busiest in Manhattan. Wildcat Creek runs along the southern edge of the district and frequently floods causing extensive damage. An existing powerline corridor runs through the south woodland of the site, along Seth Child Road, and along Anderson Avenue. Linear trail runs up into the very southern end of the Garden Way woods, under the bridge, and then straight into the woodland south of Plaza West. The site is convenient because of its proximity to additional business areas, amenities, and neighborhoods.

Site Photographs, Context, & Landforms

Plaza West is an under performing shopping center that leases to several shops and restaurants.





Figure 5.10:
Plaza West at Dusk
Plaza West currently features fifteen open businesses
(Ferrara, 2019).

Figure 5.11:
Linear Trail Bridge
This is the point where Linear Trail enters the site. Cyclists and pedestrians frequent the trail
(Ferrara, 2019).





Figure 5.12:
Wildcat Creek view west
Wildcat Creek is prone to flooding and has flooded the site multiple times.
(Ferrara, 2019)

Figure 5.13:
Optimist Park
Few may realize that just across Wildcat Creek there is a small baseball park. It is somewhat hidden and access is not apparent.
(Ferrara, 2019)

Major Issues Being Addressed

Problems on site being specifically addressed in the new plan

Powerlines

Three powerlines through the site dominate site views

Extensive grading and construction will temporarily interfere with the existing powerline corridors. There are currently three major powerline corridors running through the site. One runs along Seth Child Rd., another runs along Anderson Ave, and the third runs through the south woodland. These powerlines would be moved horizontally or vertically and preferably undergrounded where financially feasible.





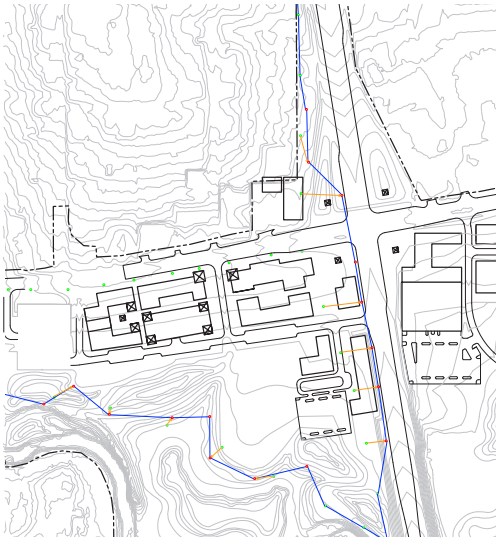


Figure 5.14 & Figure 5.15: Powerline Corridor South Woodland
This powerline runs parallel to Linear Trail just north of the creek (Ferrara, 2019).

Figure 5.16: Powerline Shifting Plan
This plan is a suggestion of where powerlines should be shifted (Ferrara, 2019).

Linear Trail

Opportunity to relocate linear trail to follow newly graded landform

Currently Linear Trail runs along the old railway bed which does not meet levee standards for Plaza West. To accommodate grading and earthwork, the railway bed will be removed and linear trail will need to be rerouted. With the current design of the landform, Linear Trail will weave through the newly created wetlands and give users other trail options.

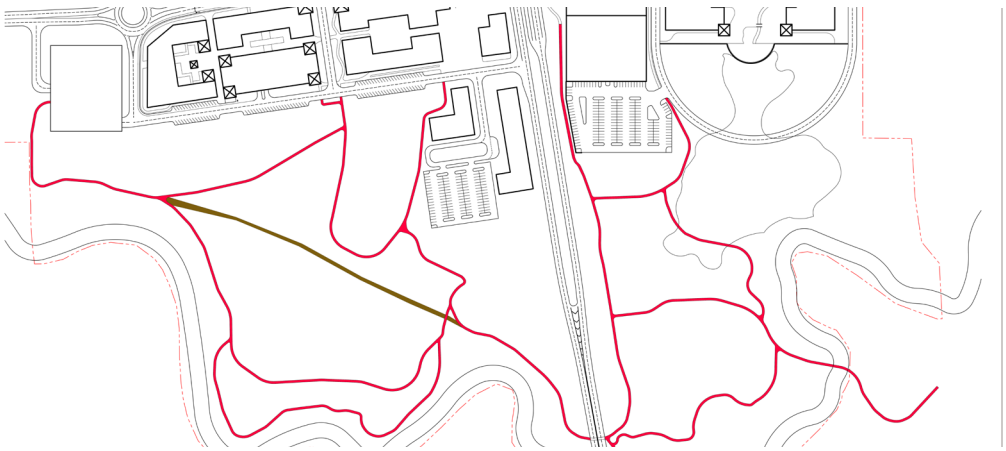


Figure 5.17: New Linear Trail Route
Linear Trail would bring people through the various wetlands and route users closer to Wildcat Creek (Ferrara, 2019).

Flooding

All new buildings will be located close to Anderson Avenue on elevated pads above flood levels

The site, both on the east and west side of Seth Child Road, have been raised onto pads. This should prevent major flooding of most buildings on site. Other flood resilient strategies should be implemented to ensure maximum flood protection.

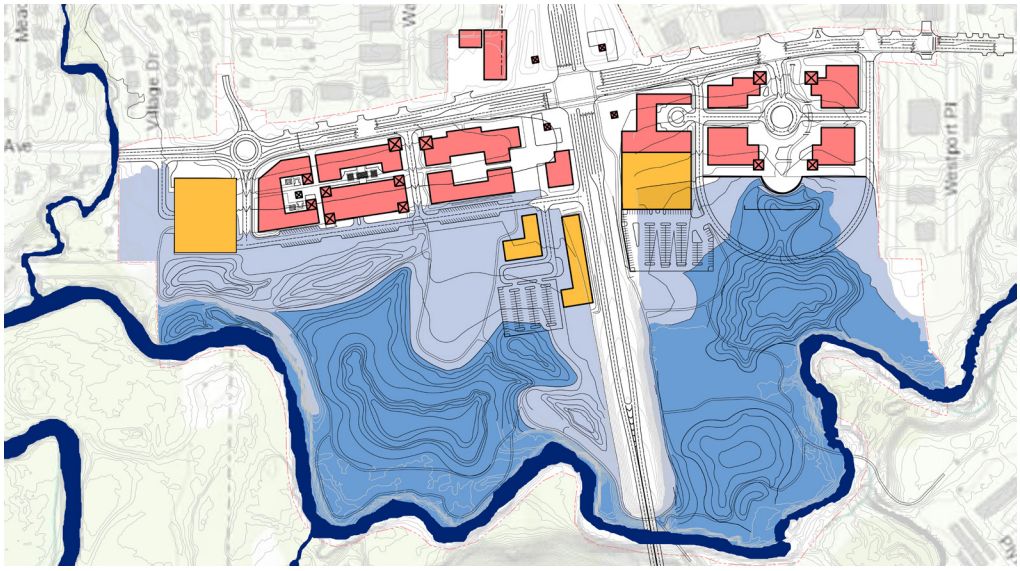


Figure 5.18
Adjusted Flood Levels Map
Site structures are now closer to Anderson and have been pushed up onto pads which are above record flood levels (Ferrara, 2019).

East Manhattan vs. West Manhattan

Most offices and businesses are located in Manhattan's east side; the west side would benefit from a major business district

The east side of Manhattan is currently where most of the offices are found. The west side would benefit from a business district.



Figure 5.19 and Figure 5.20
East to West Comparrison
By providing a business district on both sides of the city, it would create new opportunities for entrepreneurs and investors in the greater Manhattan area. (Ferrara, Google Earth, 2019).

Site Grading and Earthwork

Ensuring a balance of cut/fill is both required and sustainable

The earthwork and grading necessary to complete this design proposal would be substantial. However, the large buildings and higher end development that is proposed justifies the infrastructure cost.

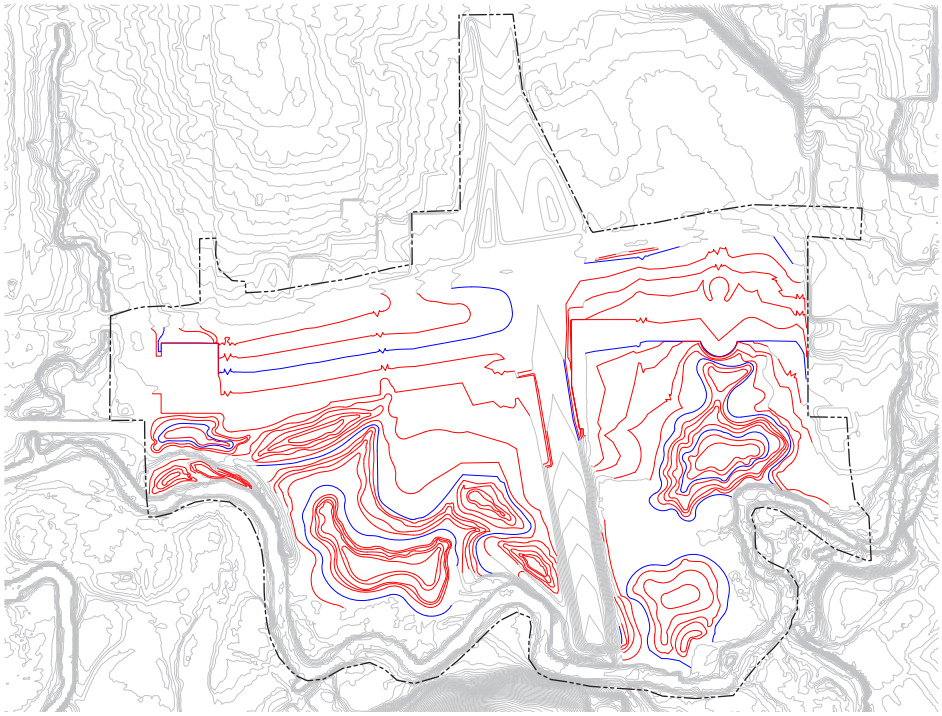


Figure 5.21
Site Grading Plan
The diagram displays the grading scheme to be used. A balance was achieved by grading down Seth Child Rd. to meet Anderson Ave. at a four-way intersection, remove the elevated rail bed, and excavating wetland and detention areas
(Ferrara, 2019).

Figure 5.22 & Figure 5.23:
Earthworks Cut/Fill Calculations Charts
The earthwork calculations indicated that after grading is complete, the development proposal would meet city standards
(Ferrara, 2019).

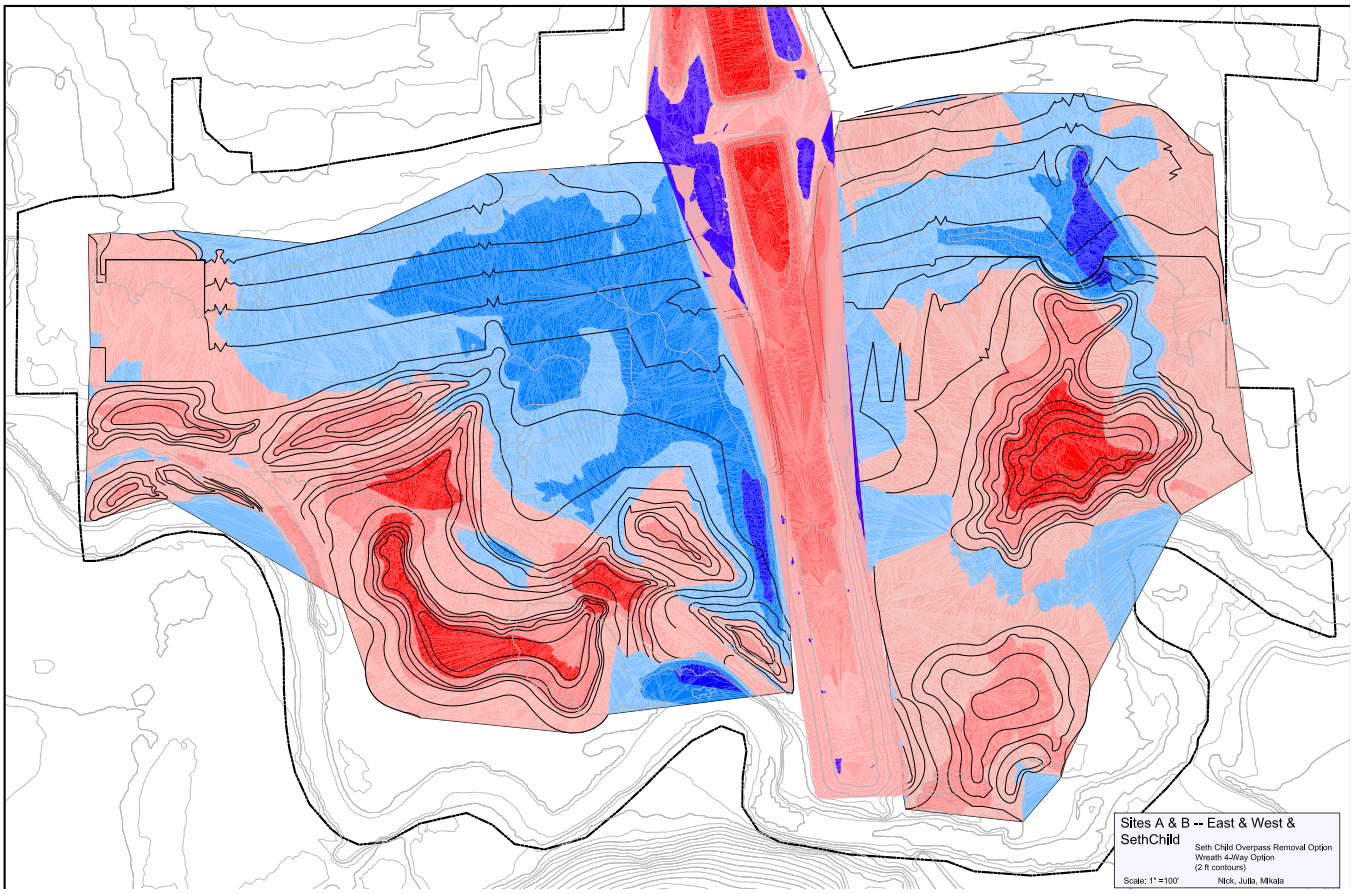
West Side - Cut Fill Volume Statistics	
Cut Factor	1.000
Fill Factor	1.100
Cut Volume (adjusted)	162,550 Cu. Yd.
Fill Volume (adjusted)	159,449 Cu. Yd.
Net Volume (adjusted)	3,100 Cu. Yd. <CUT>
Cut Volume (unadjusted)	162, 550 Cu. Yd.
Fill Volume (unadjusted)	144,954 Cu. Yd.
Net Volume (unadjusted)	17, 595 Cu. Yd. <CUT>

East Side - Cut Fill Volume Statistics	
Cut Factor	1.000
Fill Factor	1.100
Cut Volume (adjusted)	125,371 Cu. Yd.
Fill Volume (adjusted)	94.746 Cu. Yd.
Net Volume (adjusted)	30,624 Cu. Yd. <CUT>
Cut Volume (unadjusted)	125,371 Cu. Yd.
Fill Volume (unadjusted)	86,133 Cu. Yd.
Net Volume (unadjusted)	39, 238 Cu. Yd. <CUT>

Figure 5.24 & Figure 5.25:
Earthworks Cut/Fill Calculations Charts
The earthwork calculations indicated that after grading is complete, the development proposal would meet city standards
(Ferrara, 2019).

Sethchild Rd. - Cut Fill Volume Statistics	
Cut Factor	1.000
Fill Factor	1.100
Cut Volume (adjusted)	117,334 Cu. Yd.
Fill Volume (adjusted)	3,387 Cu. Yd.
Net Volume (adjusted)	113,946 Cu. Yd. <CUT>
Cut Volume (unadjusted)	117,334 Cu. Yd.
Fill Volume (unadjusted)	3,079 Cu. Yd.
Net Volume (unadjusted)	114,254 Cu. Yd. <CUT>

Total Earthwork - Cut Fill Volume Statistics	
Cut Factor	1.000
Fill Factor	1.100
Cut Volume (adjusted)	405,255 Cu. Yd.
Fill Volume (adjusted)	257,583 Cu. Yd.
Net Volume (adjusted)	147,672 Cu. Yd. <CUT>
Cut Volume (unadjusted)	405,255 Cu. Yd.
Fill Volume (unadjusted)	234,166 Cu. Yd.
Net Volume (unadjusted)	171,089 Cu. Yd. <CUT>



East Side Elevations Table			
Levels	Minimum Elevation	Maximum Elevation	Color
1	-20.00′	-13.00′	
2	-13.00′	-7.00′	
3	-7.00′	0′	
4	0′	7.00′	
5	7.00′	13.00′	
6	13.00′	17.00′	

West Side Elevations Table			
Levels	Minimum Elevation	Maximum Elevation	Color
1	-17.00′	-11.00′	
2	-11.00′	-6.00′	
3	-6.00′	0′	
4	0′	4.00′	
5	4.00′	8.00′	
6	8.00′	13.00′	

Seth Child Elevations Table			
Levels	Minimum Elevation	Maximum Elevation	Color
1	-18.00′	-11.00′	
2	-11.00′	-6.00′	
3	-6.00′	-3.00′	
4	-3.00′	-1.00′	
5	-1.00′	0′	
6	0′	15.00′	

Figure 5.26 (above) Earthworks Diagram
The earthwork depicts where cut can be generated and where fill will be necessary
(Ferrara, 2019).

Figure 5.27 , Figure 5.28 & Figure 5.29 (left) Elevations Tables
These tables display accurate values depths of either cut or fill which correspond to a color on the diagram above. The color RED indicates CUT. The color BLUE represents FILL
(Ferrara, 2019).



Figure 5.30 - The New Corporate Green Development
The new development for the Plaza West and Garden Way areas would feature a new dense semi-urban space where young business professionals can work and the existing population can seek recreation and entertainment.
(Fitzgerald and Kappelman, 2019).



Figure 5.31 - Linear Trail along Wildcat Creek at Dusk
In order to work out a functionging grading scheme, Linear Trail had to be shifted. The proposed design brings the trail much closer to Wildcat Creek allowing users to get closer to the waters edge, creating picturesque views.
(Fitzgerald and Kappelman, 2019).

Design Strategies

1. Removal of Seth Child creates new district advantage

Grading down Seth Child Road to create a new four way traffic stop at the intersection of Anderson Avenue and Seth Child Road. This would create sight lines and allow for new opportunities along the street.

2. Unite the four quadrants of Anderson and Sethchild and promote district identity along streetscapes

Use streets to promote the new development in place. Various branding techniques, signage, and creative use of materials can reinforce district identity.

3. Spine orders building massing and links courtyards

A key strategy in the formation of the new development at Plaza West is ordering the buildings and the space between them around a clear linear spine stretching across the development.

4. Preserve visual axis from the core Anderson - Seth Child intersection to constructed wetland

One of the other major factors driving the design was preserving views to the constructed wetlands and event space area within the development.

5. Provide detention basins to accommodate impervious surface run-off coming from the north

In order to ensure that the new development does not heavily contribute to downcreek flooding from Wildcat Creek, several detention basins were created. These "mini wetlands" will be able to manage runoff produced on site and contain it through green infrastructure.

6. Create flood protection pads that are also aesthetic and blend with the regraded landform serving as new open space

In order to ensure flood protection during major storm events, new buildings along Anderson will be placed on elevated pads. Targeted excavation and removal of the Seth Child overpass makes this possible.

7. Preserve existing drainage pattern through creation of aesthetic ephemeral creek, waterfall, and to the southeast quadrant

One factor that pertains primarily to the eastern side of the site is the existing pond within the residential area. This pond is fed from sheet flow coming off of the West Loop parking lot and overland flow from the north. This drainage was preserved and converted to an aesthetic amenity.

8. Create a strong district edge along Anderson through significant building massing and street frontage

Anderson Avenue on the west side of Seth Child Road is not particularly friendly to pedestrians. Reinforcing this distinct traffic route with closer building frontage and a more comfortable and safe pedestrian environment will enhance the district's character.

Illustrative Site Plan



Rendered Site Plan



Figure 5.32
Rendered Site Plan
The proposal for the New Corporate Green includes space for offices, commercial businesses, apartments, lofts, condos, and a new community center
(Kappelman 2019)

Strategy 1 - The removal of Seth Child creates advantages for the new district

Currently, the Anderson and Seth Child interchange is the busiest crossroad in Manhattan. Reorganizing this interchange is going to be an incredible challenge. Creating a four-way intersection would create better sight lines across Seth Child and help visually unite the existing interchange quadrants into a single district. It would also allow the city to implement new streetscape elements such as LED street signs, street light banners, cyclist lanes, sheltered bus stops, etc. Such elements would highlight the new business district making it stand out and would improve the already existing West Loop shopping area. Ideally, this would help show that the city is interested in improving this area and hopefully attract new investors looking to open businesses along Anderson and bring people and professionals to live in the area.



Figure 5.33
Anderson and Seth Child Interchange
Seth Child Road is currently a higher speed route with an overpass over Anderson Avenue. This configuration maximizes highway efficiency, but the grade separation divides the district (Kappelman, 2019).

2. Unite the four quadrants of Anderson and Sethchild and promote district identity along streetscapes

Uniting the four areas around the Anderson and Seth Child interchange will be crucial in making this new district work. Unifying them through use of district labeling and branding will help create an all-around stronger identity for the area and promote the use of streetscapes by people who shop and live in the new district. Being able to walk to the store or to a restaurant offers a huge advantage over having to get in your car every time you leave your home. The diagonal placement of the major and minor intersection towers serves to unify all four quadrants. In uniting the four quadrants there would have to be an adequate number of crosswalks across Anderson and good solid connections across Seth Child Rd. Providing wider sidewalks, improved medians, and safer commercial parking lot entrances would be required. The overall intent of this strategy is to use better signage, create safer access, and rearrange existing streets configurations so that the district is more navigable by pedestrians, cyclists, and vehicles alike.



Figure 5.34
Street Section
Branding the streets could be a powerful way to unify the area. Similiar street trees, signage, and wide sidewalks would greatly improve the quality of street life
(Ferrara, 2019).

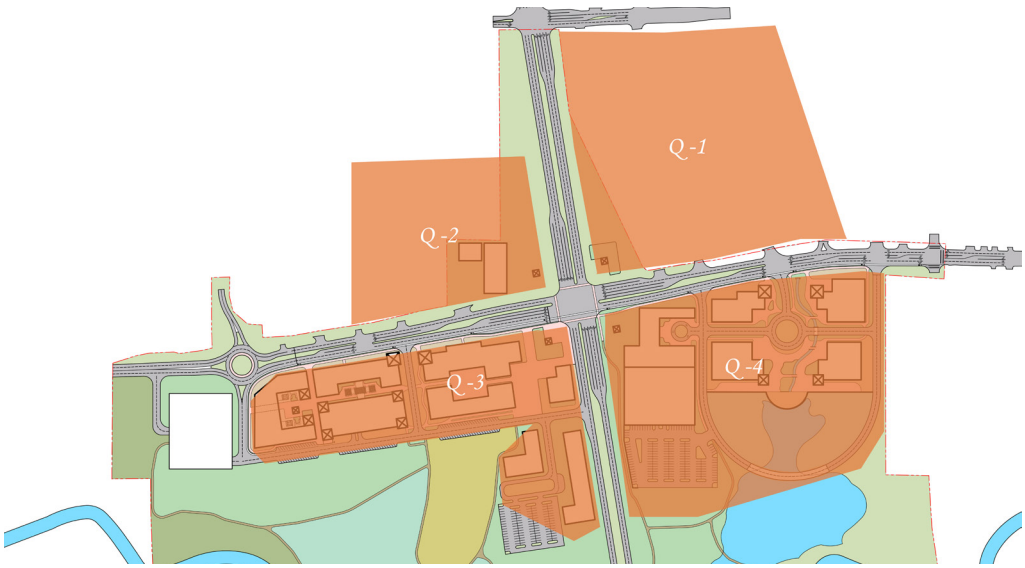


Figure 5.35
Four Quadrants of Anderson Avenue
Currently, there are four quadrants around the intersection and they all feel separate. Uniting the four sections could prove advantageous for making the area seem whole.
(Ferrara, 2019).

3. Spine orders building massing, links courtyards, and provides landscape spaces

A key strategy in the formation of the new development at Plaza West is ordering the buildings and the space between them around a clear linear spine stretching across the development. This spine would not only feature several plazas and fountains, but would also help provide space to implement drainage systems that will serve the new site. The spaces can use a variety of rain gardens, permeable paving, and outflow drainage pipes which would connect to the wetlands created on the southern portion of the site. The courtyards and plazas would each be unique in their own regard and provide the different opportunities for potential business looking to open shop on the ground floor of these buildings. Restaurants could have outdoor seating, shops could have custom designed storefronts, and hardscape elements within the plazas could be designed to match the business themes.

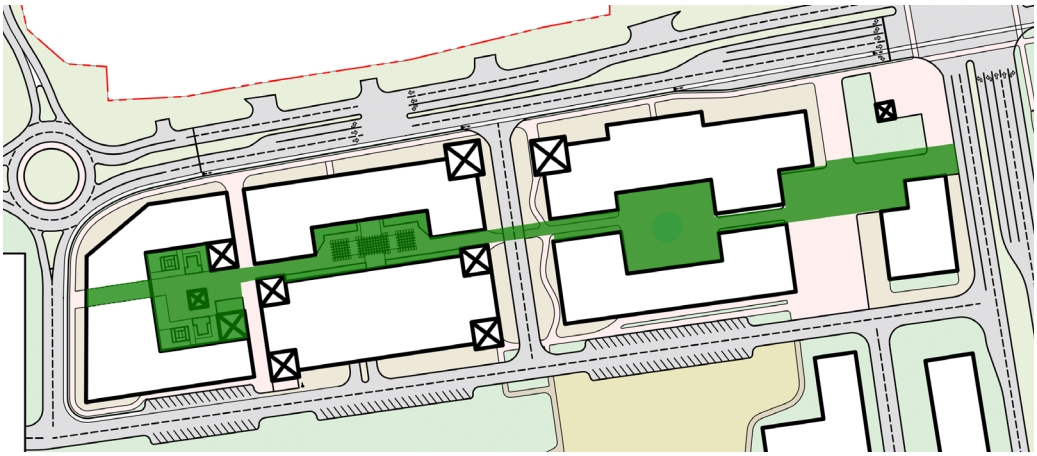


Figure 5.36
Green Spine
The spine acts as an ordering element, linking the various courtyards, plazas, and buildings as a single development
(Ferrara, 2019).



Figure 5.37
Inner Plaza
An example of the inner working of one of the plazas found on the west side of the site along the spine
(Fitzgerald and Kappelman, 2019).

4. Preserve visual axis from the core Anderson - Sethchild intersection to constructed wetland and activity space

One of the major elements of the design was to preserve the view from the corner of Anderson Avenue and Seth Child Road through the new office development into the designed wetland and activity space. This proposed space can serve as both an open meadow with a wetland overlook pavilion or an event space which could host small concerts or even theatrical performances in a park-like setting. We felt that being able to peer into the development and see this feature would serve as an attraction which would draw in potential investors, clients, shoppers, and residents to make this new business district feel like a destination. At the same time, the picturesque views of nature and the new trail system throughout the south wetlands would attract people looking for exercise and adventure in a semi-urban setting.

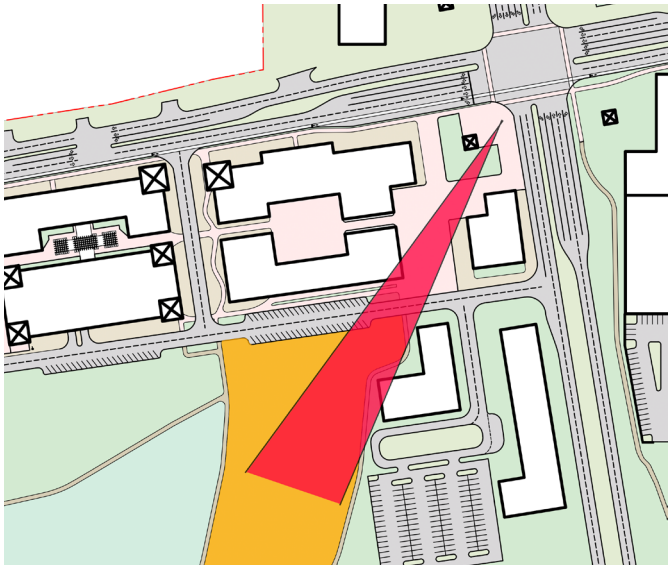


Figure 5.38
Visual Axis
The view through the development is crucial to the overall design. It helps show transparency and how connected the site is to the wetland space. (Ferrara, 2019).



Figure 5.39
Anderson and Seth Child Intersection
The proposed street corner comes alive with featured open space, vegetation, and space for gathering and seating. (Fitzgerald and Kappelman, 2019).

5. Provide detention basins to accommodate impervious surface run-off coming from the north

The creation of several detention basins, or mini wetlands, would help mitigate the amount of stormwater runoff generated on site and from Anderson Avenue during a storm. However, these detention basins will not prevent flooding from Wildcat Creek. This project can impact the amount of runoff water, generated on site, that actually reaches Wildcat Creek and increases downstream flooding. Therefore, these wetlands retain runoff water so that it does not enter the Wildcat Creek stream system. These wetlands would also perform very important bioremediatory functions and reduce the amount of pollution entering the stream system. On site pollutants and trash would be collected in these basins and could be properly removed. Selecting the proper plants would be crucial in order to ensure bank stability of both Wildcat Creek and the detention basins. Native plantings would include a variety of grass shrub and tree species. It is of utmost importance that native species are selected so as to ensure planting success so that viable habitats can be reestablished for insects, pollinator species, as well as provide shelter and cover for native reptile and mammal species.

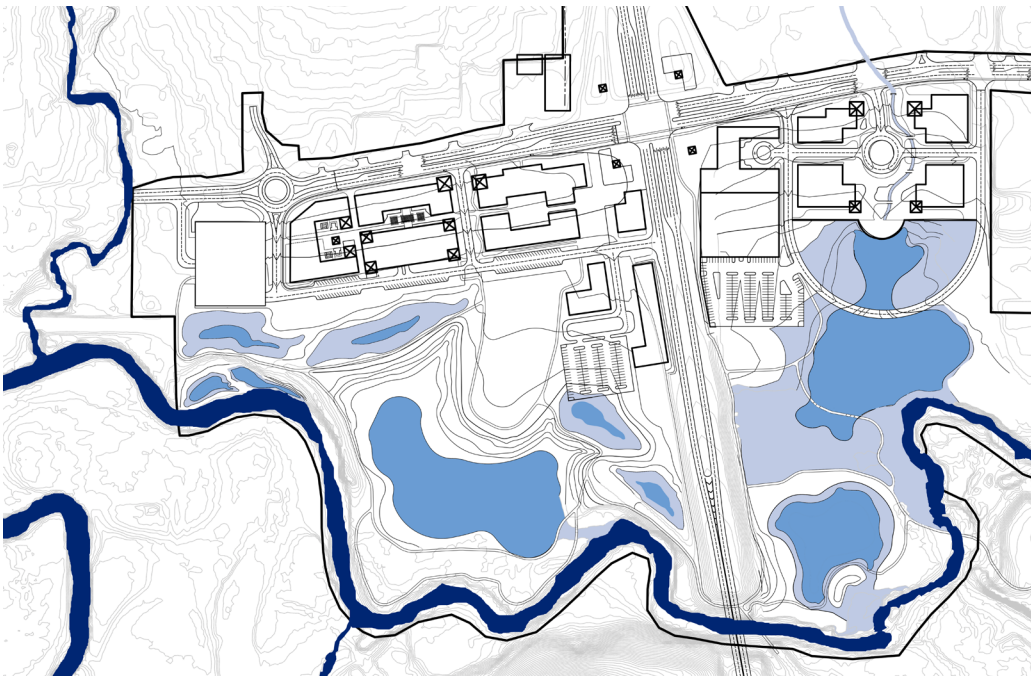


Figure 5.40
Detention Basins acting as Wetlands
In the southern portion of the site, a series of wetlands were created to deal with on-site runoff and generate fill (Ferrara, 2019).

6. Create elevated development pads that mitigate flooding and aesthetically blend with regraded landform to serve as new open space

In order to ensure the safety and longevity of the new development on both the west and east side of the site, elevated pads have been created to prevent the new development from flooding. The pads were built up to historic flood level elevations so it is possible, however unlikely, that water might reach the very edge of the new development. There are three structures that are not on or entirely on the elevated pads. These structures would need to use flood resilient strategies in order prevent severe damage to the building structures themselves (see flood resilient strategies in Chapter 6, Map 3.4). There are five flood resilient strategies and each situation is different, therefore in order to determine the correct strategy, a more thorough analysis would be necessary. These pads are situated so that drainage flows to the south of the site where all runoff water can be collected in the mini wetlands mentioned on the previous page.

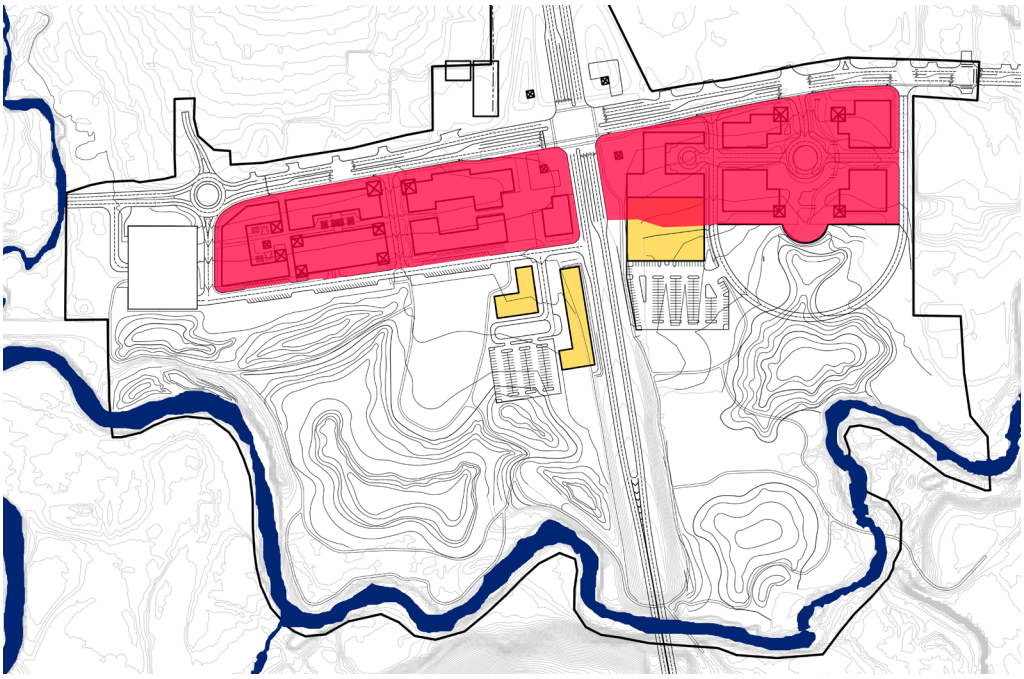


Figure 5.41
Development Pads
After careful analysis, pushing earth up towards the road to generate pads is the best way to ensure safety from floods. Most of the buildings are found on the pads. The three buildings indicated in yellow should be protected using other flood resilient strategies. (Ferrara, 2019).

7. Preserve existing drainage pattern by creating an aesthetic ephemeral creek, waterfall, and pond for the southeast quadrant

All of the parking lot runoff from Westloop Plaza and several parcels to the north are picked up and piped underneath Anderson Avenue where an open channel in the Garden Way apartment area feeds a retention pond. We are proposing to retain this channel and pond but reconfigure it for dual use as a functional drainage and aesthetic water feature for a new plaza and water fall. It would begin as a planted waterway, transition to a plaza runnel, and then cascade down a waterfall into the pond. When there is not a storm event, a water recirculatory system would pump water from the pond back up into the waterfall.A dual water system is proposed to isolate and treat water that would be in contact with children.

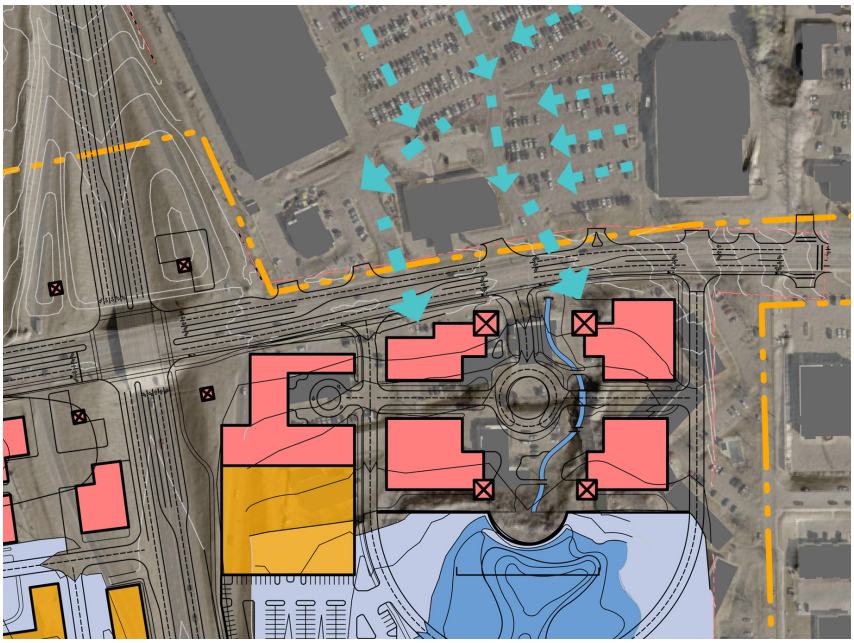


Figure 5.42
Westloop Drainage
Much of the drainage from the Westloop area feeds the Pond amongst the apartments to the south. Preserving this drainage via an ephemeral stream bed is crucial
(Ferrara, 2019)

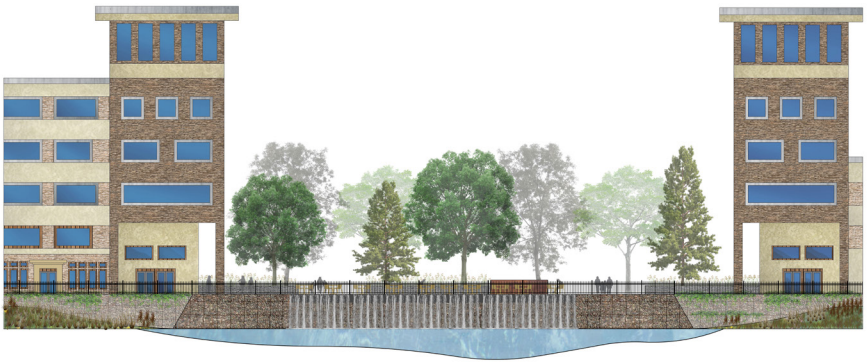


Figure 5.43
East Plaza and Waterfall Section
The ephemeral stream bed feeds this waterfall when it rains. When it is not raining, a secondary pump system is activated so that the waterfall still functions
(Ferrara, 2019).



Figure 5.44 - Waterfall and East Plaza
The East plaza features a large open space with an ephemeral creek running through it in order to maintain existing drainage patterns. This creates an opportunity for a unique waterfall to mark the southern end of the development
(Ferrara, Fitzgerald and Kappelman, 2019).



Figure 5.45 - Ephemeral Creek through East Plaza
This creek which flows through the east plaza is actually part of the existing drainage network coming from the north and the runoff from West Loop area.
(Fitzgerald and Kappelman, 2019).

8. Create a strong district edge along Anderson through significant building massing and street frontage

Anderson Avenue is one of the core streets that connects Manhattan from east to west. This also makes it one of the most traveled streets of the city. In order to promote both the street and our new development, creating a strong district edge along Anderson is necessary. Having a variety of storefront access, business fronts, and adequate streetscape elements will help to ensure the long-term success of the New Corporate Green. The buildings should reflect the local area as they would tower over many if not all of the existing buildings in the surrounding area. The new district edge and streetscape will not only display the prominence of this area, but help set a precedent for future streetscape improvements as the city continues to upgrade and improve its infrastructure.

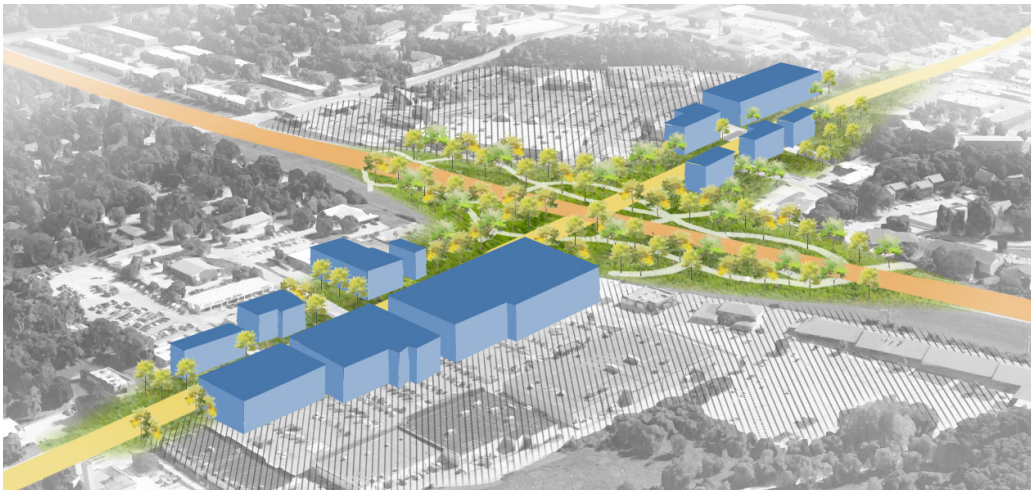


Figure 5.46
Building Massing along Anderson Avenue
By creating business front along Anderson Avenue, the area becomes more dense. The objective is to have activity along the street, instead of having several parking lots branching off the street (Kappelman, 2019).



Figure 5.47
West Business District and Street Section
This section shows the spacing between buildings and the streetscape along Anderson (Ferrara, 2019).

Conclusion

The overall design creates a strong and viable business district for the west side of Manhattan, a place where people can both live and work in a semi urban environment. People living on the west side of Manhattan would have the opportunity to experience an urban district full of shops, restaurants, and other activities. The site also supports a new trail system for recreation as well as a new recreation center. The proposal features three mainly residential buildings on both the eastern and western portions of the site. One of the eastern buildings could be easily adapted to serve a senior living community or if necessary, even a low-income group. The proposed grading plan does much to alleviate the flooding issue that Wildcat Creek creates. The land is sculpted in such a way that the main attraction of the site is right along Anderson Avenue. Through careful analysis, a new traffic and road alignment strategy is being considered by the city which would enable the Seth Child overpass to be removed, thus lowering the road to a four-way intersection. It is our belief this would benefit both the site and its surrounding context in many ways because it would improve sight lines and help reinforce district identity. The four quadrants around Anderson could be re-imagined so that they are unified under a common name and style.

Land Use Plan

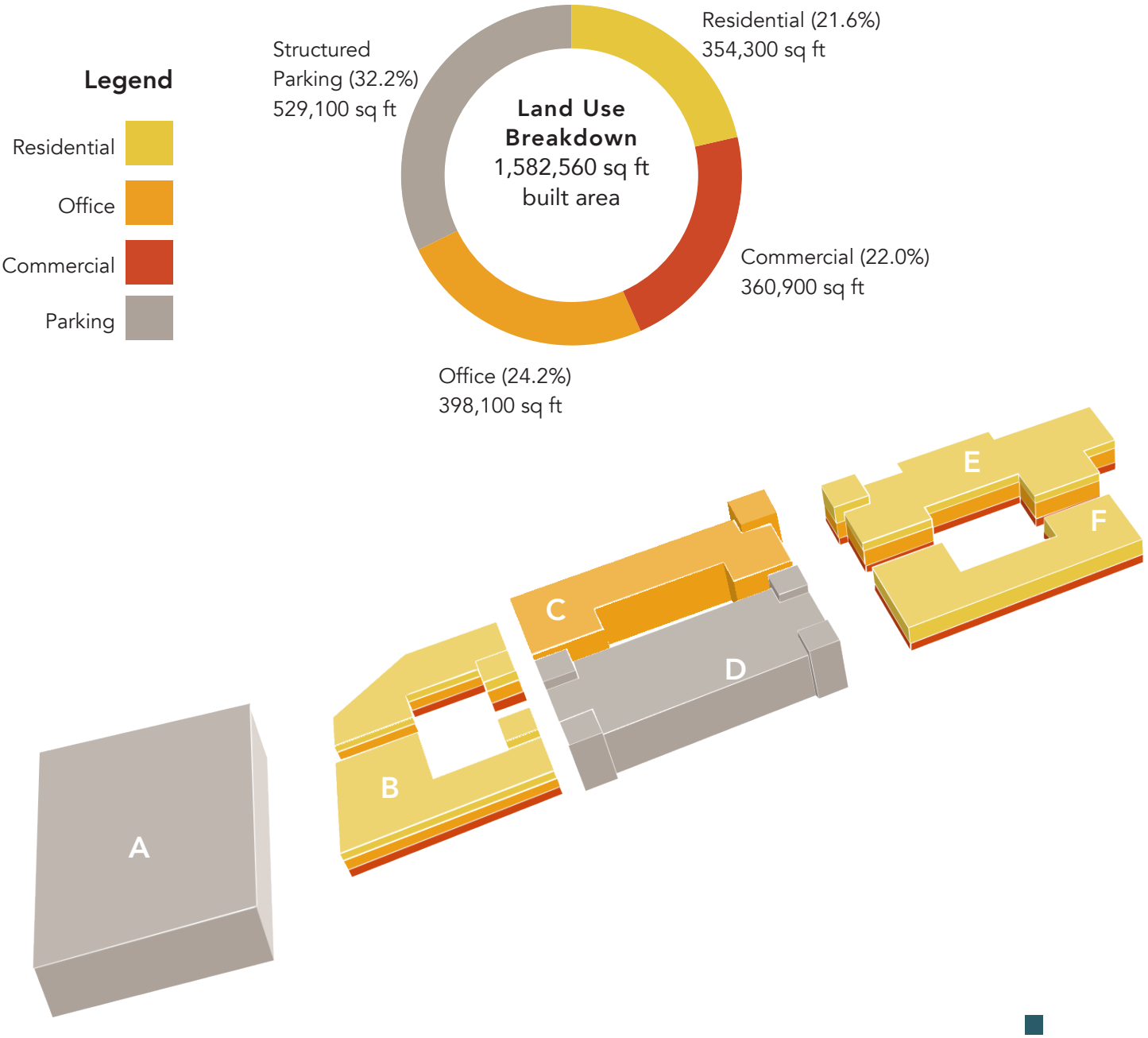


Figure 5.48 and 5.49
Land Use Axonometric and Pie Graph
Building massings are colored according to land use for each building floor (above). The land use breakdown analyzes each building type for its percentage of total built area and square footage, as shown in the pie chart (right)
(Kappelman, 2019).

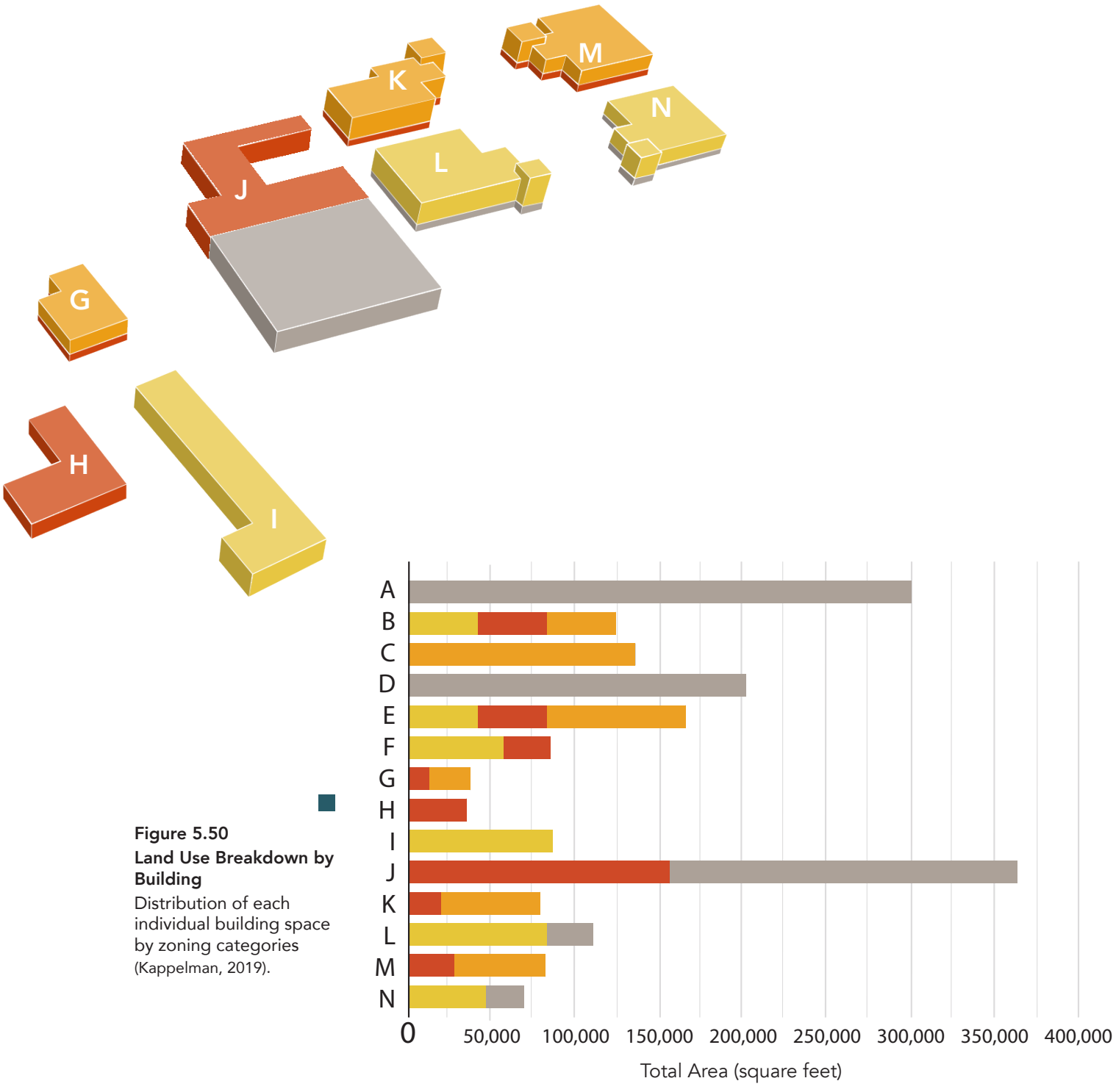


Figure 5.50
Land Use Breakdown by Building
Distribution of each individual building space by zoning categories (Kappelman, 2019).

Land Use Strategy

As the highest density land use strategy, our team strives to create a balance of office space, commercial retail, and residential housing. The proposed development is a high end solution to make the former Plaza West/Garden Way areas into a viable business district that generates revenue for the city.

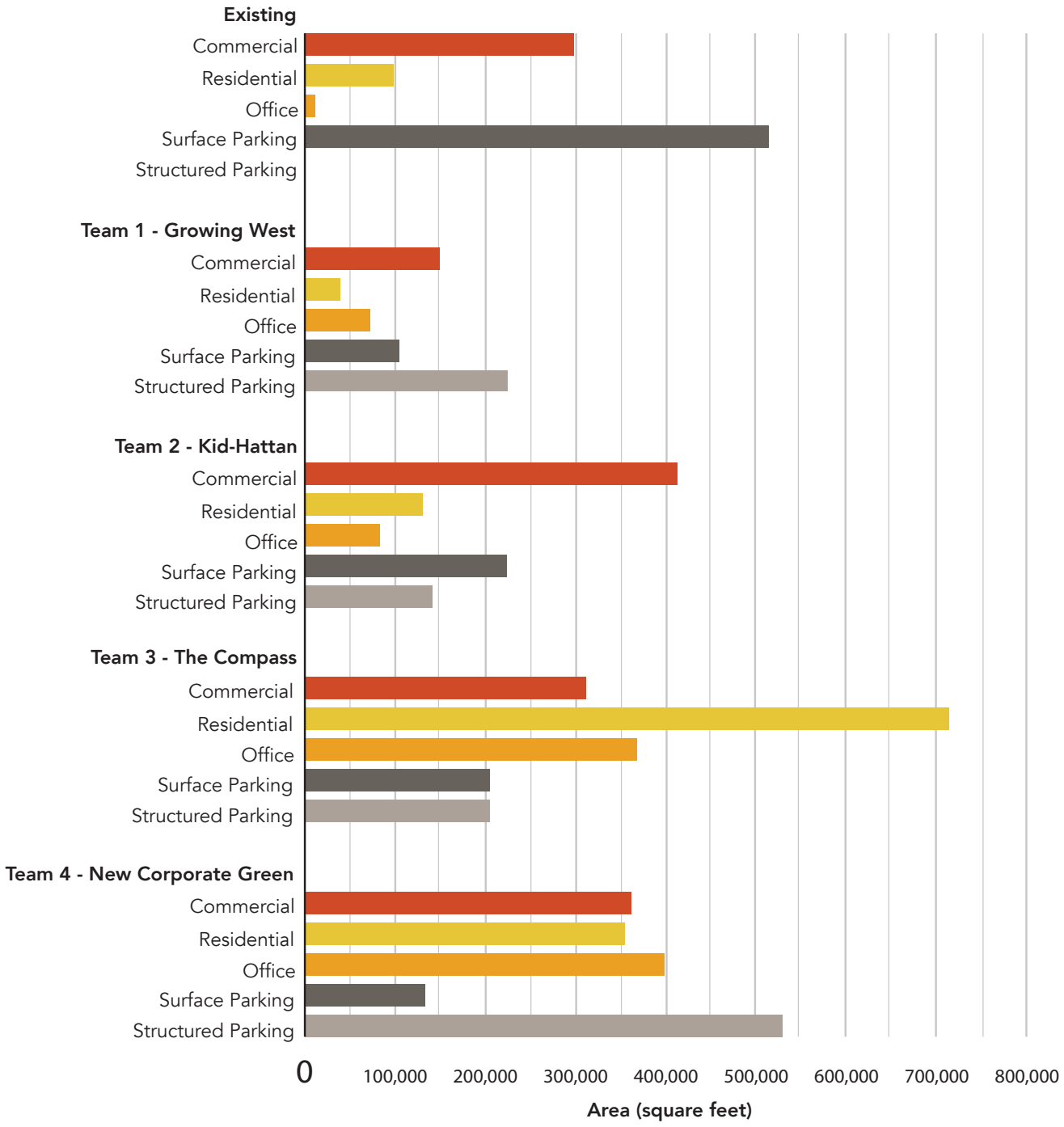
Figure 5.51
Summarized Building Metrics and Occupancy
Each building area divided by square footage per zoning category, and total number of resident and employee occupancy (Kappelman, 2019).

Building	Residential (sq ft)	Residents[1]	Commercial/Civic (sq ft)	Employees[2]	Office (sq ft)	Employees[3]	Structured Parking (sq ft)	Stalls[4]
A	0	0	0	0	0	0	300000	909
B	41300	103	41300	55	41300	83	0	0
C	0	0	0	0	135500	271	0	0
D	0	0	0	0	0	0	201500	611
E	41400	104	41400	55	82800	166	0	0
F	56600	142	28300	38	0	0	0	0
G	0	0	12400	17	24800	50	0	0
H	0	0	34800	46	0	0	0	0
I	86100	215	0	0	0	0	0	0
J	0	0	155700	208	0	0	207600	629
K	0	0	19700	26	59100	118	0	0
L	82800	207	0		0	0	27600	84
M	0	0	27300	36	54600	109	0	0
N	46100	115	0	0	0		23050	70
Total	354300	886	360900	481	398100	797	759750	2303

[1] 400 sq ft per resident | [2] 750 sq ft per commercial employee | [3] 500 sq ft per office employee | [4] 330 sq ft per parking stall

In comparison to other teams, our strategy provides the highest amount of office space and parking structures. This design is intended to create a district where professionals can work, live and enjoy the recreational opportunities the site has to offer. Our district has a healthy balance of commercial storefront, residential apartments and lofts, and open outdoor space that fosters an environment that is attractive to young professionals in the area.

Figure 5.52
Team Comparison of Land Use
Each team's land use categorized by zoning and total area per category (Kappelman, 2019).



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6

Critical Mapping

Truth Maps

These maps draw out significant conditions from the expanse of available data. There are three types of truth maps: classification maps extract and categorize site conditions; correlation maps identify two or more variables an the site which correlate the phenomenon; and comparison maps compare study area conditions with an implemented design in another location or with practices being used elsewhere.

Value: Evaluation Maps

The second type, Evaluation Maps, build on the Truth Map findings and match existing conditions with community agendas. These findings are documented as opportunity maps or dilemma maps.

Value: Proposal Maps

Lastly, strategy maps identify ways to accomplish opportunities or overcome dilemmas.

These maps were produced as a progressive and matched series, and are presented on the following pages, grouped by topic, The Map Number followed by a letter "a" corresponds to a truth map, a letter "b" corresponds to an evaluation map; and a "c" corresponds to a proposal map.

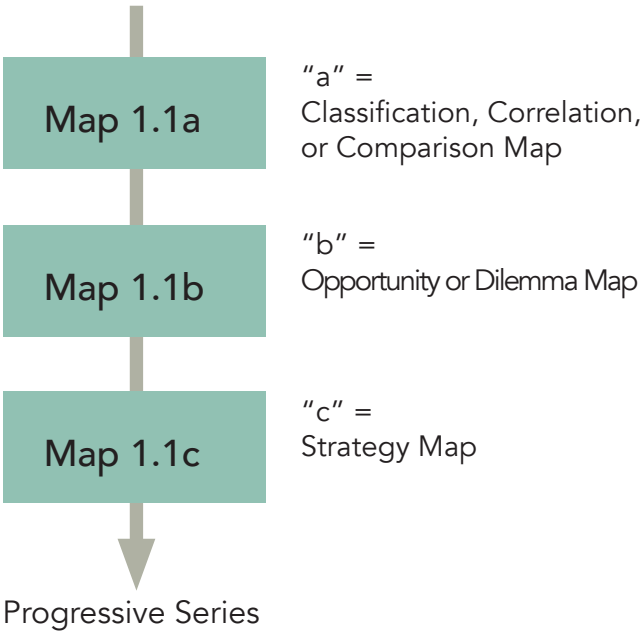

Table of Context

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6.2 Page #223
Streets

6.3 Page 237
Flooding

6.4 Page 263
Creek

6.5 Page 277
Citations

Critical Mapping Framework

Type*	Research Inquiry	Critical Map Type	Description
Truth Maps onal	To what group does this thing (these things) belong?	Classification	Maps that extract and categorize things or conditions in a study area.
	What conditions or processes correlate to phenomena?	Correlation	Maps that identify correlations and potential reasons why a certain condition has come to be in a particular place. Correlations have at least two related variables.
olance	How is our site like another site?	Comparative	(1) Maps that compare current conditions with an implemented design in another location (precedent study). (2) Maps that compare current conditions or strategies of our site with conditions or practices that are being used elsewhere.
Value Maps ion	What do these site conditions mean for the goals of our project?	Dilemma or Opportu	Maps that apply the agendas of a client, stakeholder, or designer to current site conditions.
al	How can we change undesirable conditions or introduce something new and desirable?	Strategy	Maps that make a claim about how to accomplish one or more project goals. Strategies proposed should be big moves that lay the foundation for future action, and often require additional research.

"*Critical mapping types are based on 5 claim types used for making arguments.
Ramage, John D., John C. Bean, and June Johnson. 2010. Writing Arguments : a Rhetoric with Readings. Vol. 8th.

Goal	Activities	Examples
Categorize things for the purpose of simplifying complex conditions and identifying relationships. Conclusions from this map should set the stage for identifying dilemmas and/or opportunities.	Measuring, extracting, coding, plotting	Identifying differences in street types, building types, land use, or ecosystem health. Identifying proximity of extractions to one another.
Describe why something has come to be. - OR - Describe the consequences of past actions. Conclusions from this map should set the stage for identifying dilemmas and/or opportunities.	Relating, extracting, coding, plotting	Explaining potential causes for vacancy in an area, erosion in a particular location, or land values.
Emphasize similarities and differences. Conclusions from this map should set the stage for identifying dilemmas and/or opportunities.	Comparing, extracting, coding, plotting	Identifying an urban design proposal from another city and placing it in our study area to see how it might fit. Comparing budget spending in another city to that of our study area. (Later - comparing one of your strategies to those implemented in another place to evaluate cost, timeframe, or another unknown.)
Identify either (1) obstacles to achieving goals or (2) locations or processes well positioned for achieving goals. Conclusions from this map should set the stage for identifying one or more design strategies.	Applying, evaluating, abstracting	Dilemma: Infrastructure that limits desired growth expansion. Specific conditions that prevent desirable pedestrian environments. Developed areas that prevent ecological connections. Opportunity: Vacant or partially vacant parcels. Large contiguous parcels, or parcels that could be easily assembled for redevelopment.
Propose new ideas for accomplishing goals. Conclusions from this map should articulate how the strategy will overcome dilemmas or leverage opportunities, and should identify how to move forward. What additional information is needed? Should it be combined with one or more different strategies?	Projecting, proposing, abstracting	Proposing new infrastructure to bridge gaps in connectivity. Proposing new land use policy that will promote desired redevelopment. Proposing new forms of transportation. Proposing green infrastructure solutions that accomplish multiple goals.

New York: Pearson Longman. “

(Belanger, 2012)

6.1

Critical Mapping

Context

Proximity of Amenities in Manhattan Shows Lack on West Side

Many of the cities amenitites are located on the east side of town, providing minimal options for the west side residents

Fitzgeraldma_LAR646_Sum19_Critical-Maps

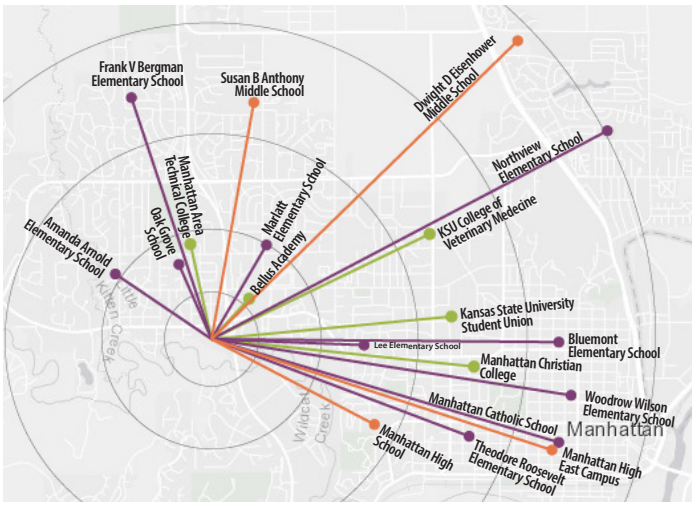

Figure 01. Education Centers in Manhattan
Source: Fitzgerald, Mikala 2019

Legend

- Higher Education
- Middle/High School
- Elementary Schools



Figure 02. Vocational Training in Manhattan
Source: Fitzgerald, Mikala 2019

Legend

- Vocational Training Center
- College/University
- Vocational Training

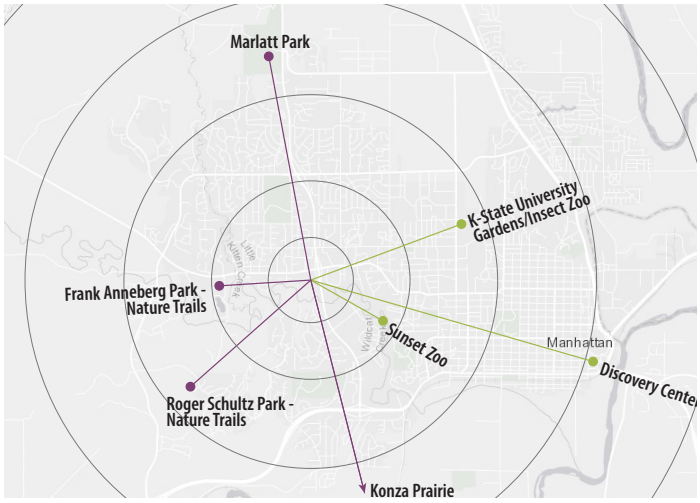

Figure 03. Nature Education Sites in Manhattan
Source: Fitzgerald, Mikala 2019

Legend

- Guided Instruction
- Informal Instruction

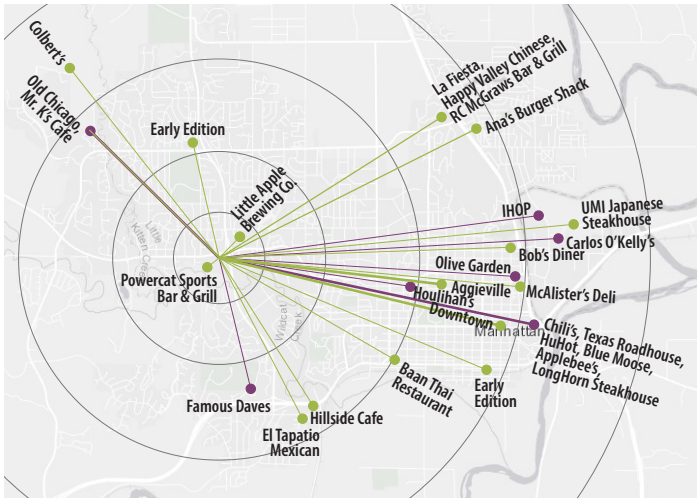

Figure 04. Resturants in Manhattan
Source: Fitzgerald, Mikala 2019

Legend

- Local
- Chain

Downtown: The Chef, Bourbon & Baker, Harry's, Tallgrass Taphouse, Pool House Kitchen, Wine Dive + Kitchen, AJ's NY Pizzeria
Aggieville: Coco Bolos, Rock-A Belly Deli, So Long Saloon, Thai Noodle, Bluestem Bistro, Taco Lucha, Bi Bam Bap, Tasty China House, Gordo's, Keltic Star

Inquiry: What is the proximity of large economic development to the site? Who has access to the site from walking to driving distances?
Key Extractions: Locations of education centers, event spaces, vocational training campuses, and outdoor recreation spaces in proximity to the site.
Methodology: Google Maps was used to locate and map distances of each type of space around Manhattan.
Conclusions: These maps show that there is a lack of amenities on the west side of Manhattan. Family activities are largely under represented, with the closest being one mile away. Event space is also minimal, including only outdoor space, at Anneberg park and the fairgrounds. This site has a great potential for users, including elementary aged students, and students at vocational schools including Bellus Academy and Manhattan Technical College. Along with these schools, the Flint Hills Job Corps Center is also located on the western side of town near the airport, with easy access from Anderson Ave. or Seth Child Rd.

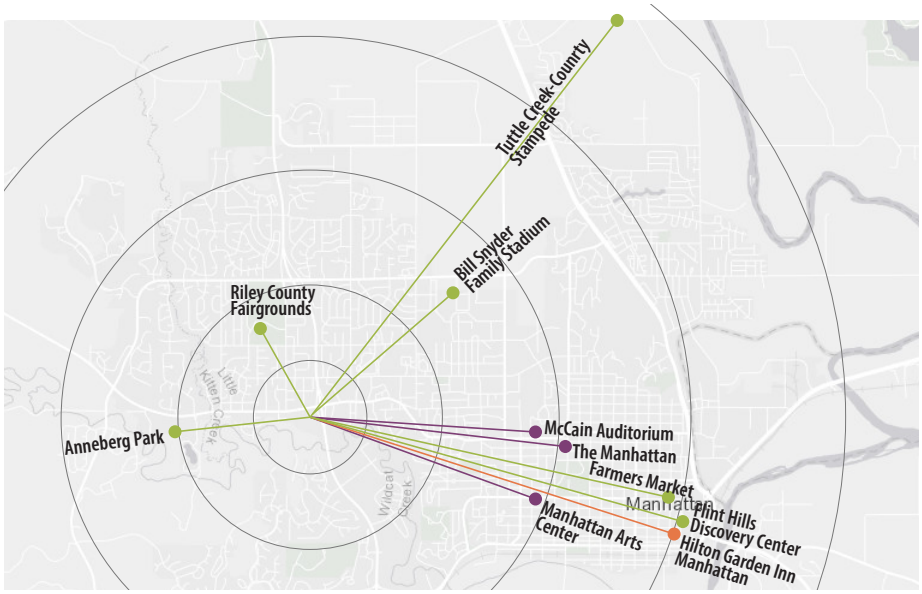

Figure 05. Event Spaces in Manhattan
Source: Fitzgerald, Mikala 2019

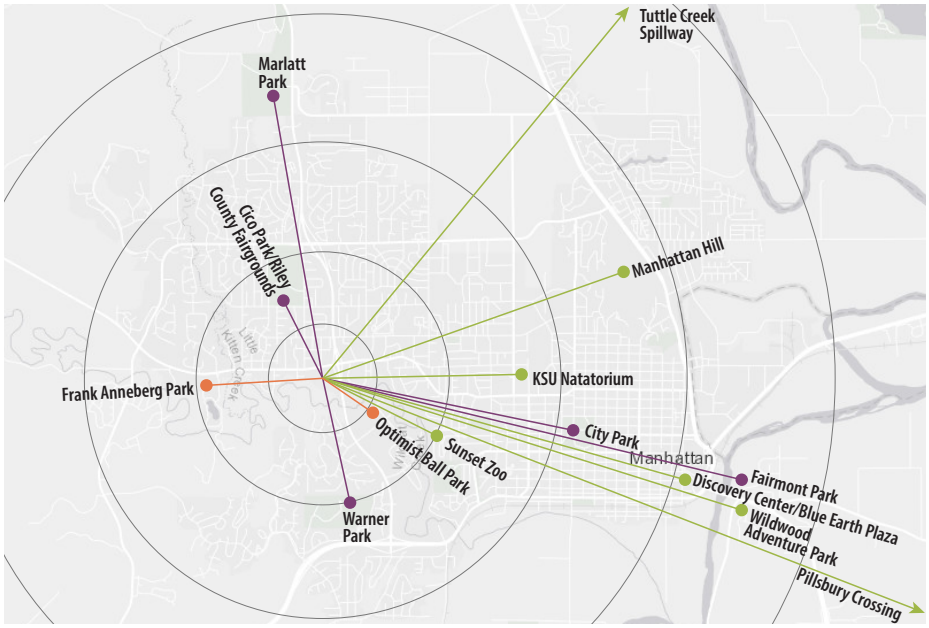

Figure 06. Recreational Spaces in Manhattan
Source: Fitzgerald, Mikala 2019

Amenities:

- Discovery Center
  - Exhibits, Theater, Outdoor Plaza, Classes, Flint Hills Inspired Activities
- Cico Park
  - Fitness Trail, Fairgrounds, Playground, Community Center, Swimming Pool
- City Park
  - Splash Pad, Tennis, Basketball, Baseball, Volleyball, Playground, Trail, Rose Garden
- Fairmont Park
  - Disc Golf, Trails, Off-Leash Dog Park
- Frank Anneberg Park
  - Reserved Soccer & Softball Fields, Nature Trails, Fishing, Grilling, Playground, Picnic Shelters
- Marlatt Park
  - Nature Trails
- Pillsbury Crossing
  - Fishing, Hiking, Canoeing
- Tuttle Creek Spillway
  - Off-Road Trails, Camping, Kayaking
- Warner Park
  - Disc Golf, Trails, Shelters
- Wildwood Adventure Park
  - Zipline & Ropes Course

Lack of Amenity Prompts New and Various Site Themes/Uses

Four main themes show oppertunity for the west side

Fitzgeraldma_LAR646_Sum19_Critical-Maps

Wellness District:

- Housing
- Community Center
  - Indoor Recreation - Hockey, Swimming, Etc.
- Health Facility
  - Therapy/PTSD Center
- Indoor/Outdoor Recreation Center
  - Could be connected to Community Center

*Therapy/Healing Gardens

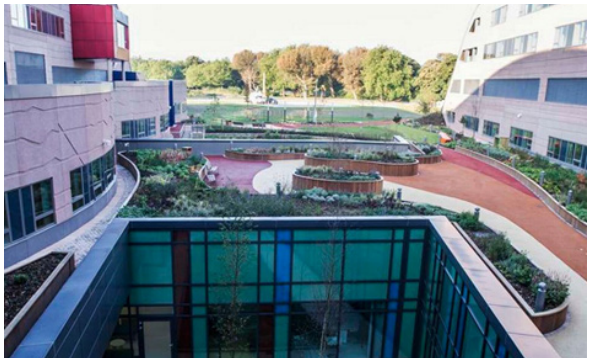

Figure 01. Alder Hey Children's Hospital, Liverpool, England

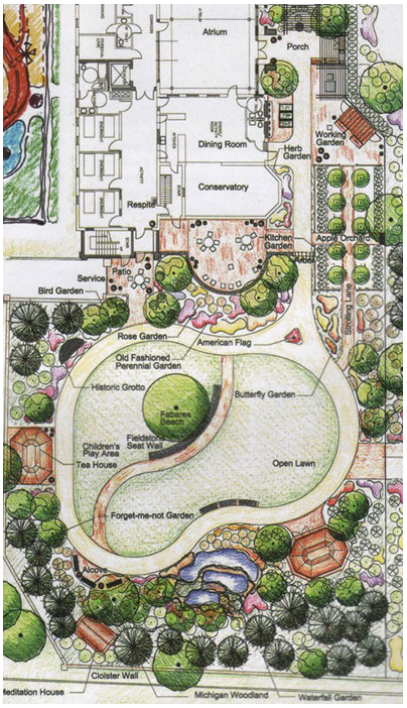

Figure 02. Plan of the Living Garden at the Family Life Center, Grand Rapids, Michigan.



Figure 03. Entry and Exit to the Living Garden at the Family Life Center.

Business/Commercial Campus District:

- Apartment/ Mixed Use Buildings
  - Young Professionals Housing
  - Office Buildings
  - Dining
- Indoor/Outdoor Gathering Spaces
- Public Outdoor Space
  - Outdoor Dining, Plaza/Seating, Gathering
- Areas for Active recreation
  - Trails, Canoeing/Kayaking, Etc.

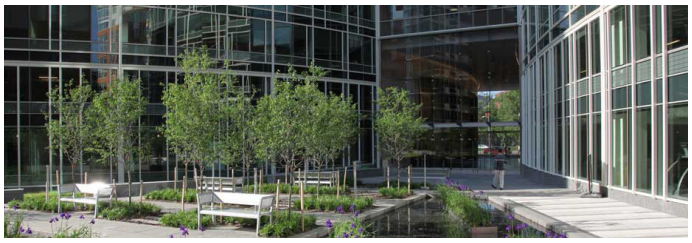

Figure 08. Interior Courtyard - The Avenue



Figure 07. Plan of The Avenue Campus designed by Sasaki



Figure 09. Street view of the corner Building - The Avenue



Figure 10. The Avenue Exterior Walkway

Inquiry: What would each site theme look like in terms of site use and amenities for the site?

Key Extractions: Locations of restaurants and nature education sites. Precedents and studies of each site theme.

Methodology: These maps were created by using google and the city of Manhattan website to locate and place each restaurant and Nature Education site in Manhattan. The list of amenities were created by using precedents and web sources to determine what people want and how the site would best be organized on site.

Conclusions: Each of these themes offer a different take on west Manhattan and provide needed oppertunities for the city and its residents. All of the options include housing and resturants, as they are seen to be most needed on the western side of Manhattan. Each district is in response to the previous studies, showing the oppertunities to solve for the lack of amenities.

Community Outreach District:

- Housing
- Community Center
- Community Gardens & Farmers Market
- Maker Spaces
- Commercial and Mixed Use Space
    - Restaurants
    - Shopping
- Indoor and Outdoor Event Spaces
- Public Park Space
    - Plaza Space, Trails, Seating, Ball Courts



Figure 04. Texas Student Designs



Figure 05. Texas Student Designs



Figure 06. Texas Student Designs

Family and Children District:

- Housing
    - Family Oriented
- Education Oriented Spaces
- Opportunity to Keep Car Museum
    - Outdoor Event Space
- Indoor event space connected to outdoor
- Mixed Use Development
    - Restaurants
- Child oriented play areas
    - Splash Pad, Playground, Trails, Wetlands, Fishing, Etc.



Figure 11. St. Patrick's Island



Figure 12. St. Patrick's Island

Design Strategy to Create Unified Designs

The design strategies lend to similar strategies with varying amenities.

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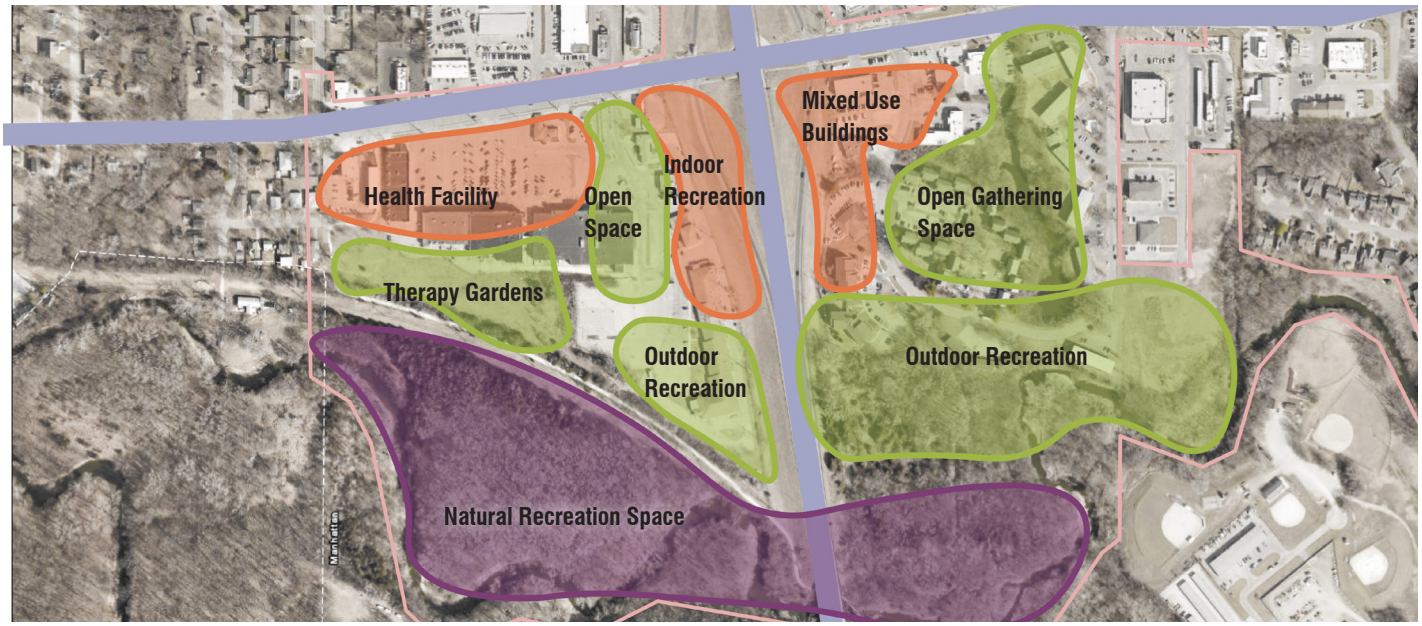


Figure 01. Wellness District
Source: Fitzgerald, Mikala 2019

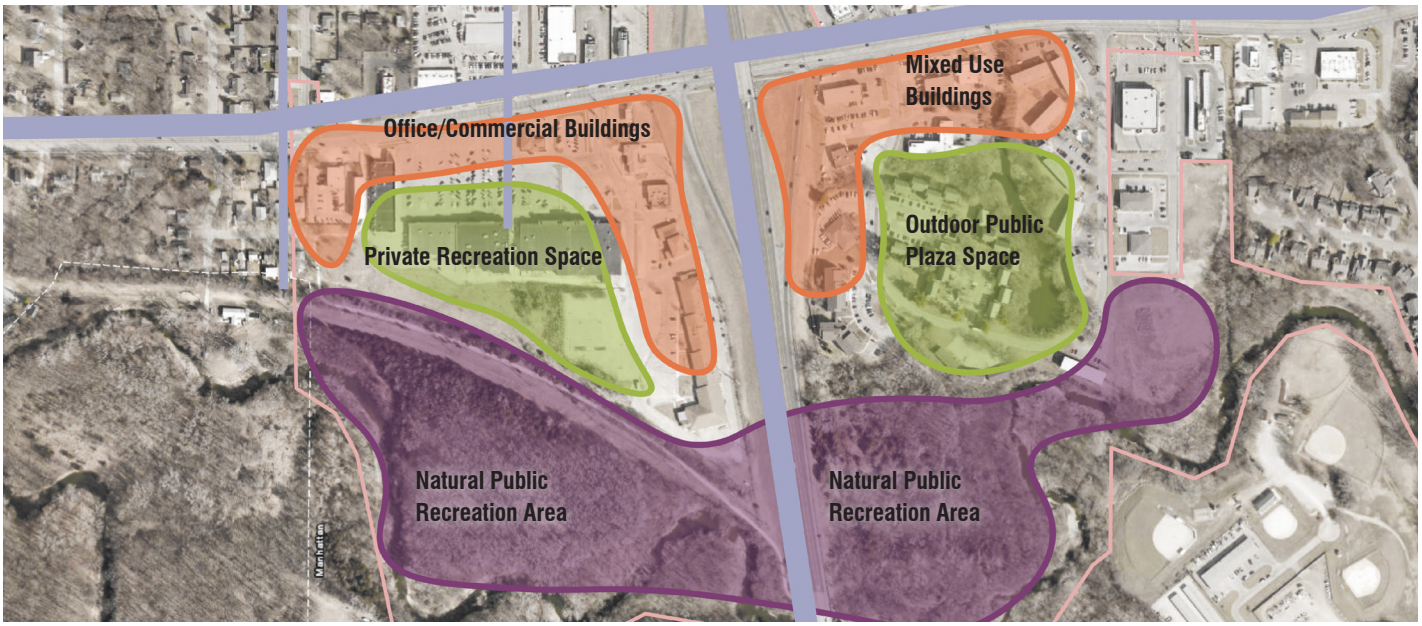


Figure 03. Business/Comemercial Campus District Map
Source: Fitzgerald, Mikala 2019

Inquiry: What is the best organization system for these themes?
Key Extractions: These maps use site analysis to determine what would be the best location for site amenities.
Methodology: Chose primary activites per site and placed them based on proximity to other activites and site layout.
Conclusions: Each of these maps provide viable options for the city of Manhattan and the oppertunities they need. The ewest side would greatly benefit from any of the options and should look into each.



Figure 02. Community Outreach District
Source: Fitzgerald, Mikala 2019



Figure 04. Family and Child District Strategy Map
Source: Fitzgerald, Mikala 2019

Manhattan Has a Good Trail System to Build Upon

Providing Key Connections and Crossings Could Further Enhance System

RM_ClassificationMap.PDF

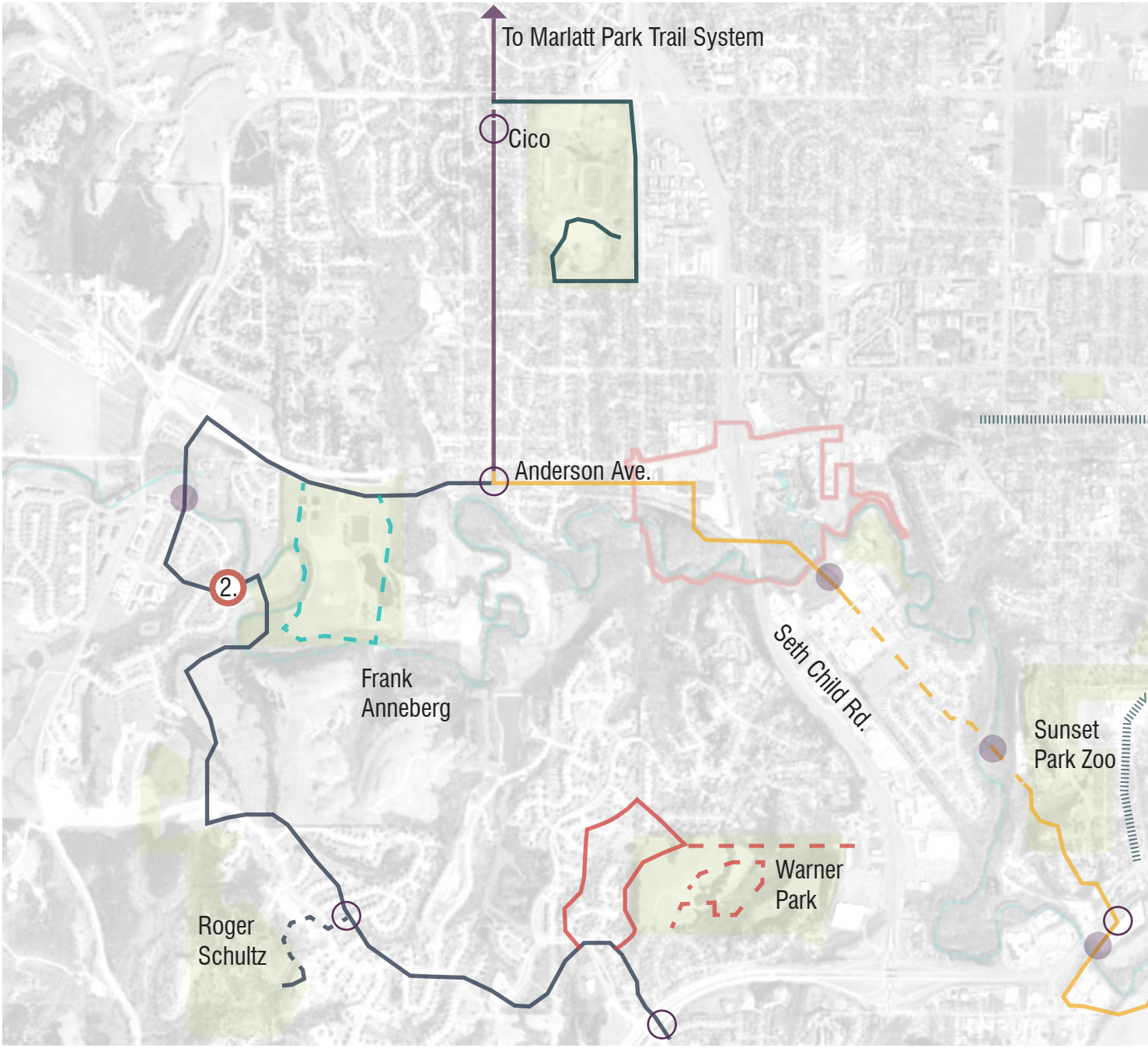
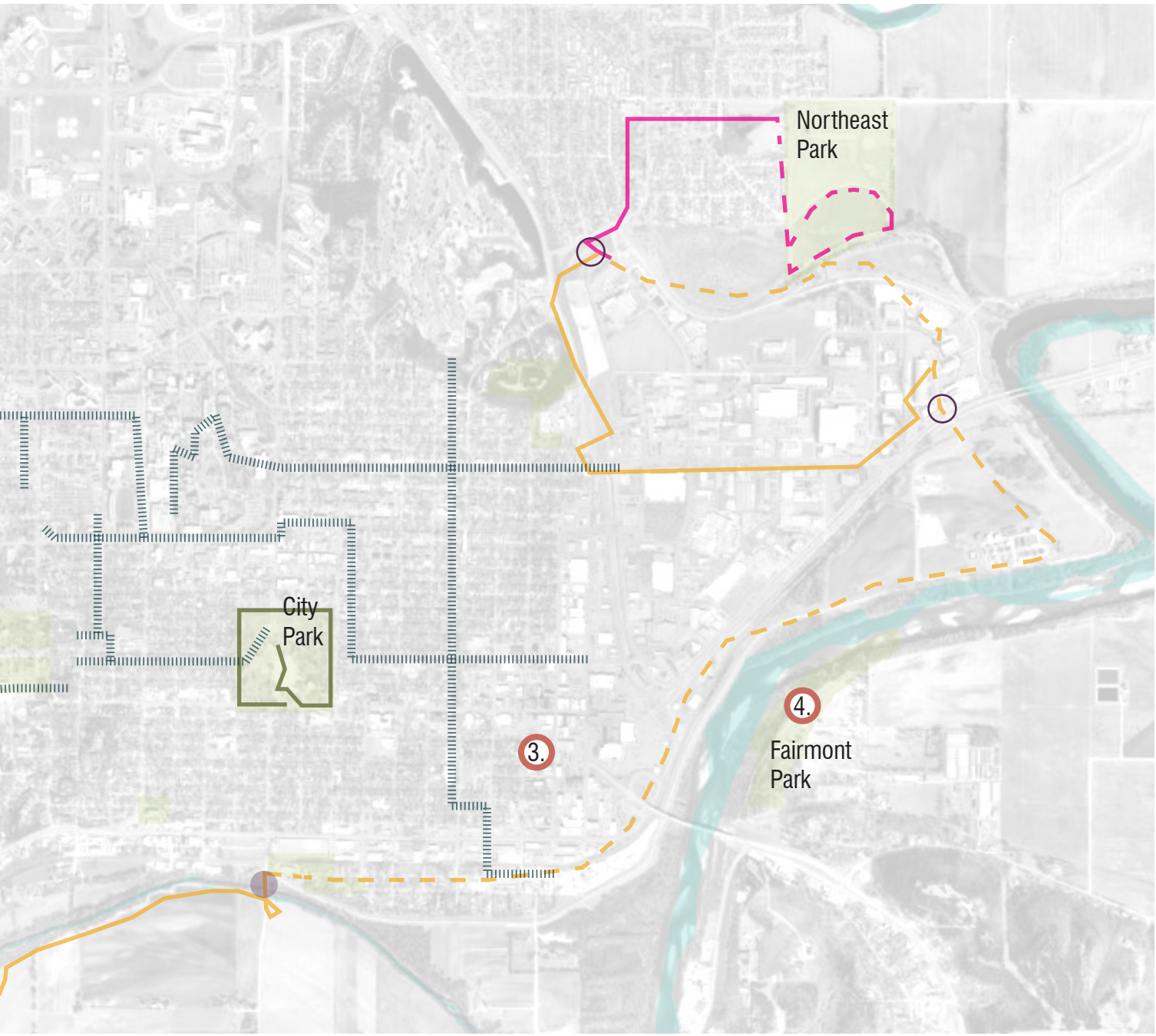


Figure 1. Classification Map
Source: Madsen/ArcGIS

Inquiry: How do people circulate to popular locations across Manhattan via trails?
Key Extractions: ESRI ArcOnline aerial Base, Manhattan Trail Map
Methodology: ArcGIS Mapping, On Site Exploration
Conclusions: Manhattan Parks and Rec have worked to provide the community with a series of trails for recreational activity. The trails are both long and exciting but currently lack destination stops as well as consistency in paving and accessible points. The entry to the trail is understated and often missed and some entry points are unknown to the majority of the community. Manhattan has many public parks which provide the community outdoor recreational options. The series of trails connect across Manhattan but could they connect more to draw people outside and to more places?



- Linear Trail
- West Anderson Trail
- Warner Park Trails
- Hudson Trail
- Frank Anneberg Park Trail
- Northeast Community Park Trail
- Cico Park Trails
- City Park



Figure 2. Linear Trail
Source: Madsen



Figure 3. Aggieville Bike Lane
Source: Kansas Cyclist



Figure 4. Kansas River
Source: Madsen

Map 1.2a

Several Opportunities Exist to Improve Trail Connections and Crossings

Trails Could Link Many Recreation Amenities Together

RM_OpportunityMap.PDF

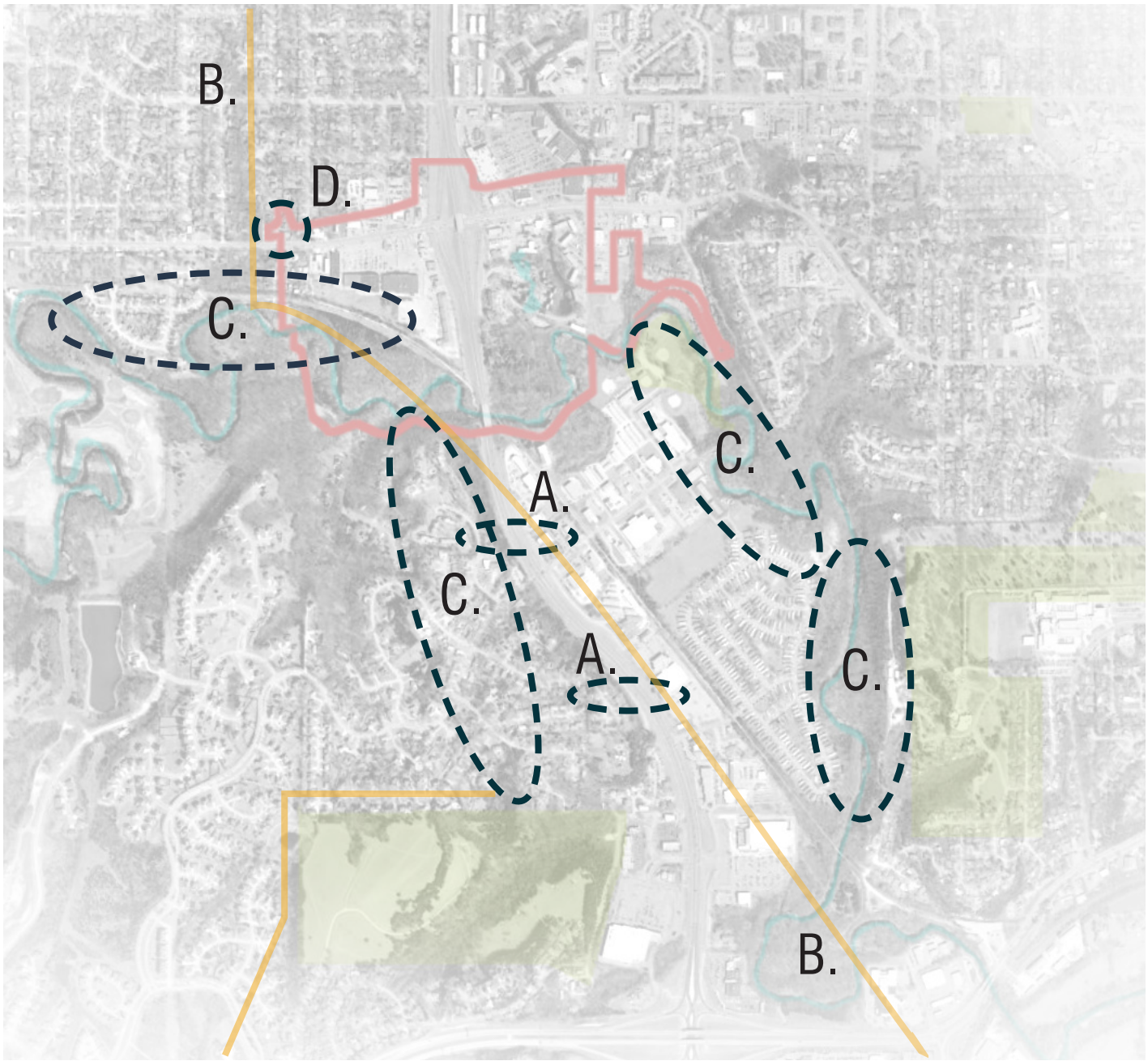


Figure 5. Opportunity Map
Source: Madsen/ArcGIS

N
0 856 ft. 1,712 ft. 3,424 ft.

Legend

- Locations of Opportunity
- Boundary
- Trails
- Water Body
- Parks & Recreation

Inquiry: How do people circulate to popular locations across Manhattan via trails? What would increase use?

Key Extractions: Manhattan has a lengthy, well used trails system.

Methodology: ArcGIS Mapping, On Site Exploration, Use of the City of Manhattans Parks and Trails existing maps. In addition using Google maps and city bike trails maps.

Conclusions: As people populate areas such as parks and the zoo there is no adequate way to circulate by walking. The existing sidewalks and trails have gaps making a disconnected loop. Irregularity of paved and not trails make it difficult for people to plan and use trail for wheelchairs and strollers. Difficulty crossing unpaved trails in addition to water flooding and creating a barrier. Lastly the spaces the trails connect are not as inviting for stops or use. There are limited cross walks where the road intersects with trails, cutting off safe circulation.

Opportunities for Better Walkability



Figure 6.
Source: ArcGIS

Intersections & Completing Connections

- At the intersection of Seth Child Rd. an Amherst Ave. the addition of sidewalks at the traffic light could increase the walkability from residence to surrounding trails.
- Adding sidewalks could also create better connections between parks like Warner and the Linear trail.
- Since the traffic light is already existing the addition of trails would not add to traffic slowing.
- New trails could inspire people to explore, especially by residential areas.



Figure 7. & 8.
Source: David Amrine, The Pathfinder

Consistency in Surface Material

- Paths on the Linear trail that exist have uneven surfaces and are unclear to people who are entering at starting points.
- Difficulties for people with strollers or wheelchairs on the gravel paths.
- Paving the trails could help people better use paths in poorer weather conditions.
- The gravel/dirt trails could be lost if poorly taken care of, why the paved trails could be clear in direction.
- Safety hazards of twisting ankles could be more likely with unpaved trails.



Figure 9.
Source: Madsen

Creating New Pathways

- Using locations of flat slope such as a utility corridor to connect park locations as well as certain residential areas.
- Connecting existing trails to possible new trail systems
- Moving people through the site with trails that branch from surrounding locations.
- Trails could lead and connect to other destinations in Manhattan and the direct site could become a destination it self.
- The site and new trails could inspire people to get more active and explore new spaces.



Figure 10.
Source: Wilderness.net

New Entry While Promoting Information & Signage

- Highlighting entrances to major trails in more prominent areas provide opportunities for more people to recognize trail locations.
- More signage in and along trails to direct and inform people.
- Informing people about more surrounding recreation space and what the trails system could connect the community to on a walkable/bike-able scale.
- Provide more entry locations for people in different locations to promote trails existence.

A More Visible Linear Trail Could Make Plaza West a Catalyst for Activity

Plaza West Could Be One of Many New Activity Nodes Along Linear Trail

RM_ColorFullMapFade_Strategy.PDF

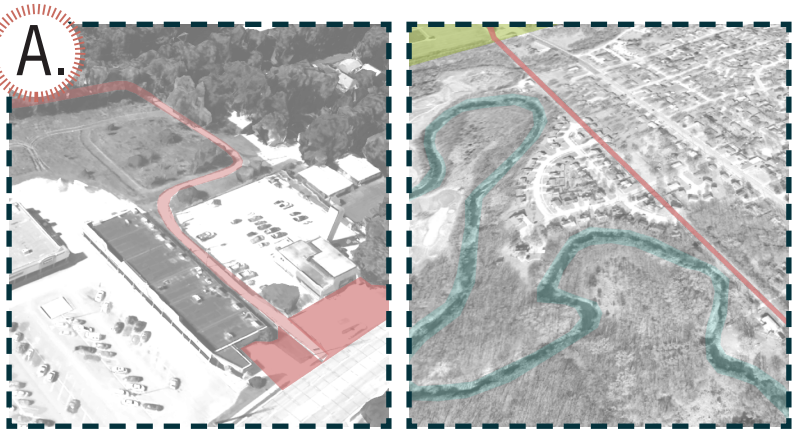


Figure 11. Site Income
Source: Madsen/ArcGIS

Figure 12. Strategy Map
Source: Madsen/ArcGIS

Inquiry: How can we influence people to use these trail systems more often?
Key Extractions: We can have trails and parks that work to inspire and make the community active.
Methodology: ArcGIS Mapping, Precedent Park & Trail Systems, Google Earth
Conclusions: Trails could work to connect people to the creek for new and relevant learning experiences. We could also connect people to the water for recreational activities. More trails could increase pedestrian walk-ability and inspire more biking, jogging, etc. The existing trail work but we can provide better access points as well as fully pave the trails so it becomes a space for all people including mothers with strollers and handicapped individuals.

A.







Propose New Linear Trail Segment and Enhanced Entry off Anderson

Figure 13. Entry & Utility Trails
The existing entry at Anderson/Wreath is overlooked. Providing a **larger entry**(13a) as well as more access points could draw more people to the trail. Locations such as the utility corridor are flat spaces with no vegetation that could become a future trail segment to replace sidewalk segment along Anderson to **Frank Anneberg Park**(13b).

B.



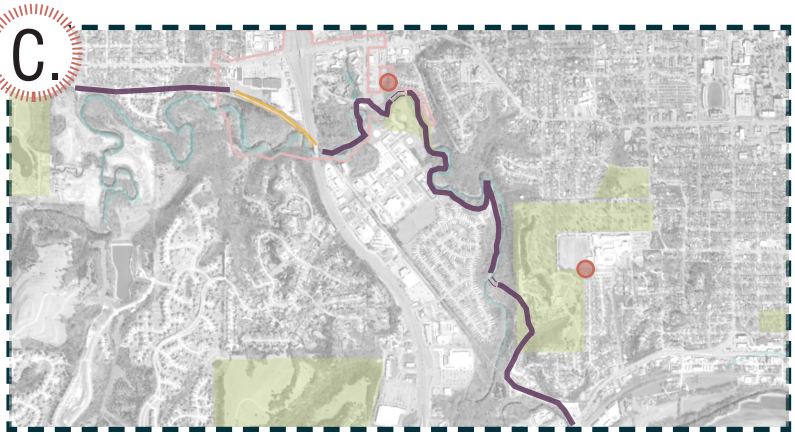




New Linear Trail off-loop to Optimist Park & Wildcat Creek

Figure 14. Park Revitalization Path and Location
The **Optimist Ball Park**(14a) is an existing underutilized outdoor recreation space. The Park could draw people to outdoor recreation space as well as bring people to the creek and **learn** (14b) about their surrounding ecology. This park could just continue the series of connections between paths and green space connecting back to our site.

C.



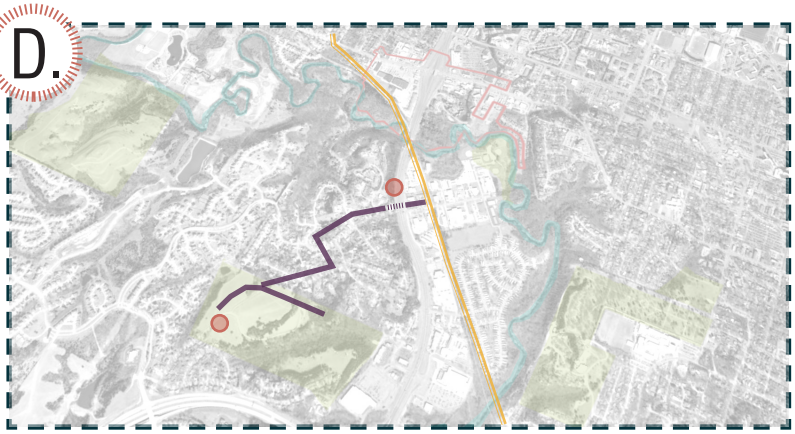




New Pathway Connecting Zoo to Trails and Site

Figure 15. Interactive New Sunset Zoo Path
Could provide connection between Plaza West and the **Zoo**(15a) People visiting the zoo could find the **bridge**(15b) and explore along Wildcat Creek to the Plaza West site and Sunset Zoo.

D.







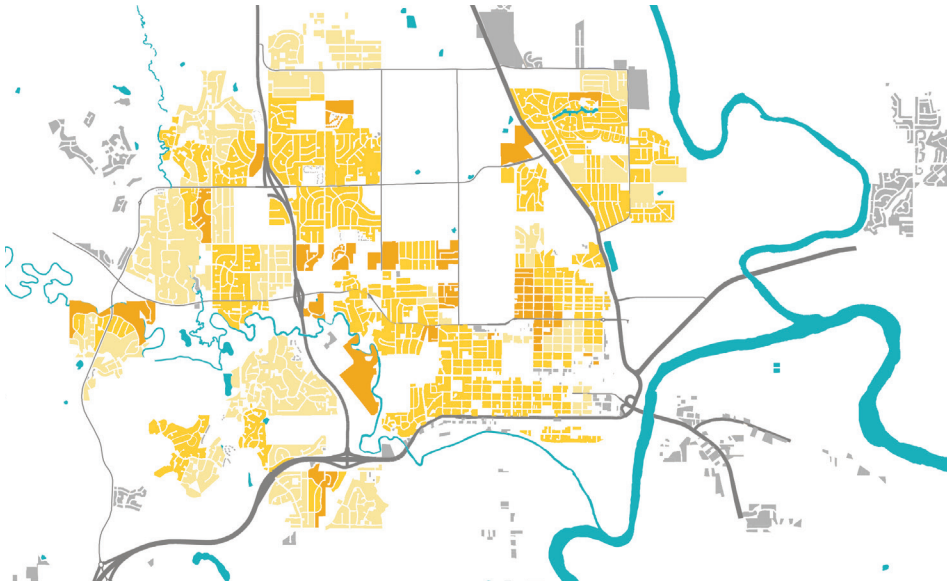
Connecting Local Green Space to Trails and Other Destinations

Figure 16. New Warner Trails Map
Adding trails to connect from a large residential/community green space could inspire more pedestrian friendly spaces as well as create safe **crossing**(16b) for park goers. The implementation of trails connecting **Warner**(16a) to Plaza West and the linear trail could finish a series of connected trails.

Manhattan is Dominated by Single Family Housing

Very little nich housing is available in Manhattan

MC01_ClassificationMap.PDF



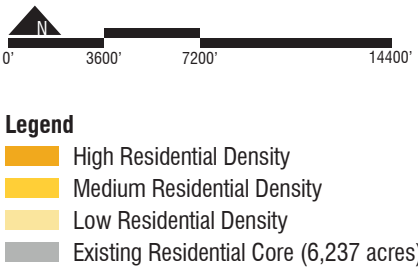
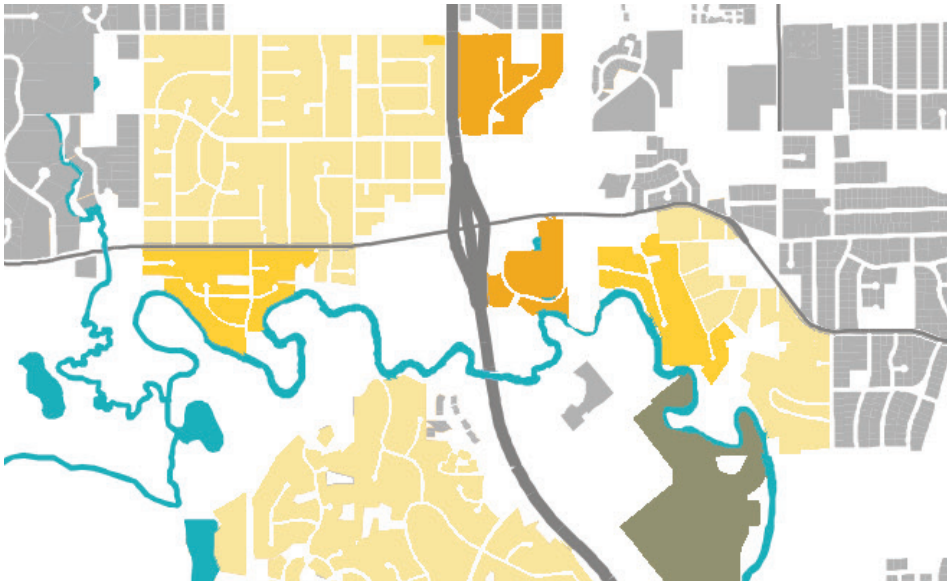


Figure 01. (Cole, 2019)

Housing Density - existing housing density in Manhattan area



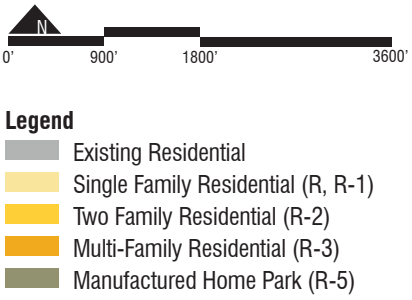


Figure 03. (Cole, 2019)

Housing Type - existing housing type and zoning around immediate site

Figure 01.- 06. Current and future residential landscape and outlook
Source: Cole. City of Manhattan. 2019.

Inquiry: What is the current housing landscape in Manhattan?
Key Extractions: A visual look at the housing landscape/market in Manhattan
Methodology: Used Manhattan residential absorption map cross referenced with estimations of, demographic makeups and housing maps.
Conclusions: The housing market of Manhattan is skewed towards either single-family residential sprawl, and densely populated multi-family units for single young, unmarried renters. The market is heavily rent dependent with few to no options for ownable units other than single-family houses. There are few lower cost housing options for elderly besides expensive retired communities or assisted living situations and most options reside outside of dense areas.This is also true for low-income housing options. Denser housing is mostly found in downtown Manhattan to the east with less density on the west side of Manhattan.

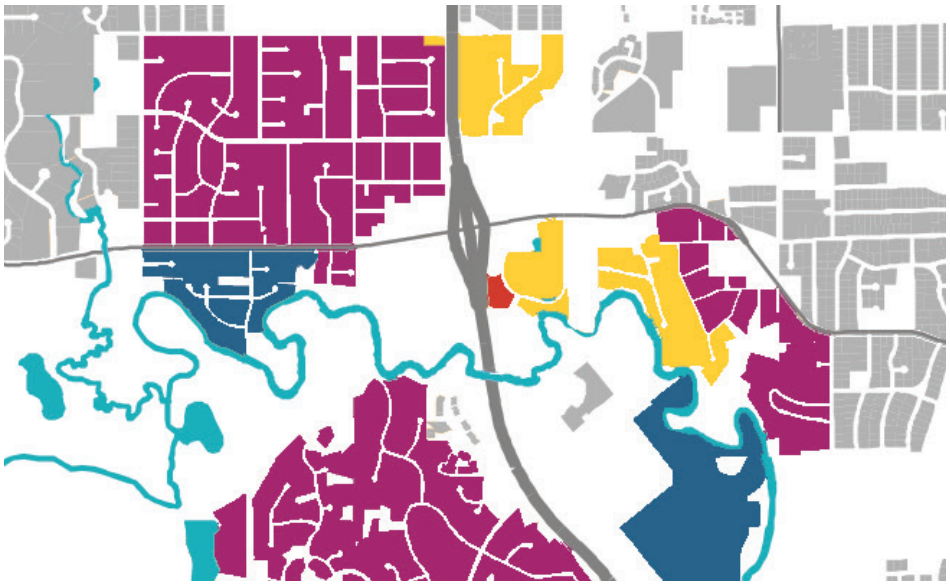


Figure 02. (Cole, 2019)
Resident Type - estimated existing housing resident type around immediate site

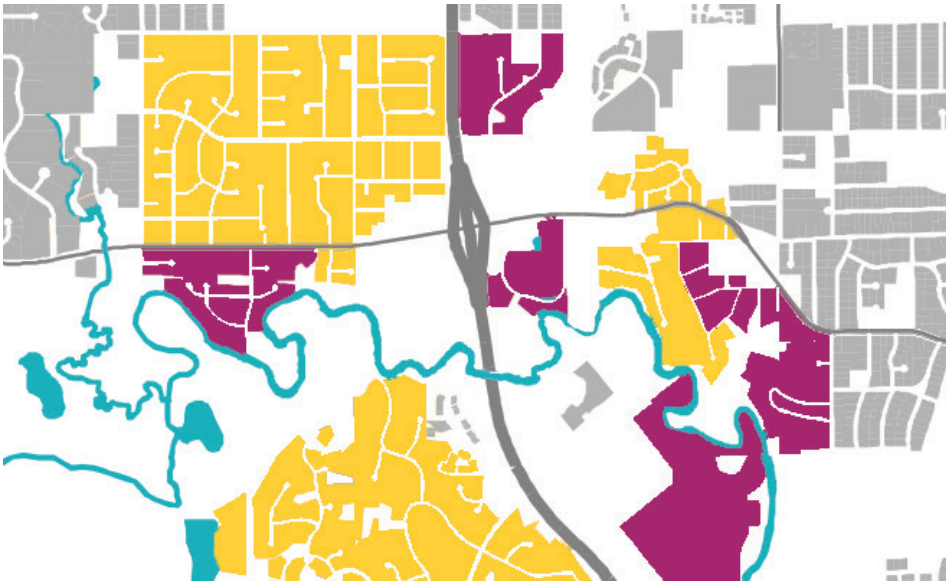
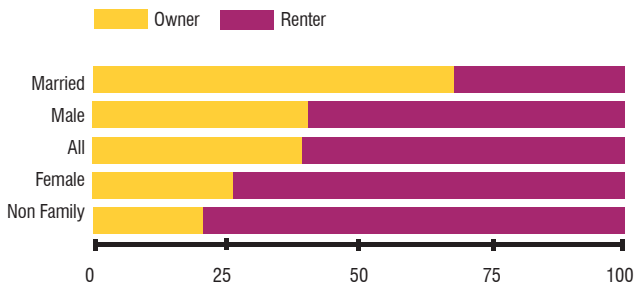
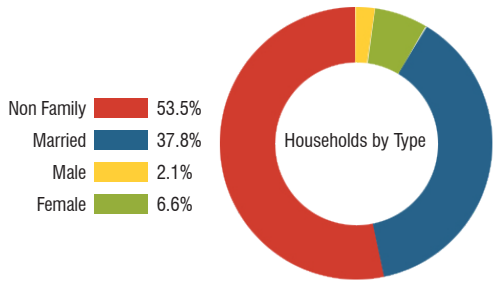


Figure 04. (Cole, 2019)
Own VS Rent - estimated existing housing tenure type around immediate site



Own VS Rent - existing demographic type around immediate site
Figure 05. ("Manhattan, Kansas Population 2019.")



Resident Type - existing demographic type around immediate site
Figure 06. ("Manhattan, Kansas Population 2019.")

Opportunities Exist for Live-Work Housing Arrangements in West Manhattan

A variety of housing types could be matched to targeted demographic profiles

MC02_OpportunityMap.PDF

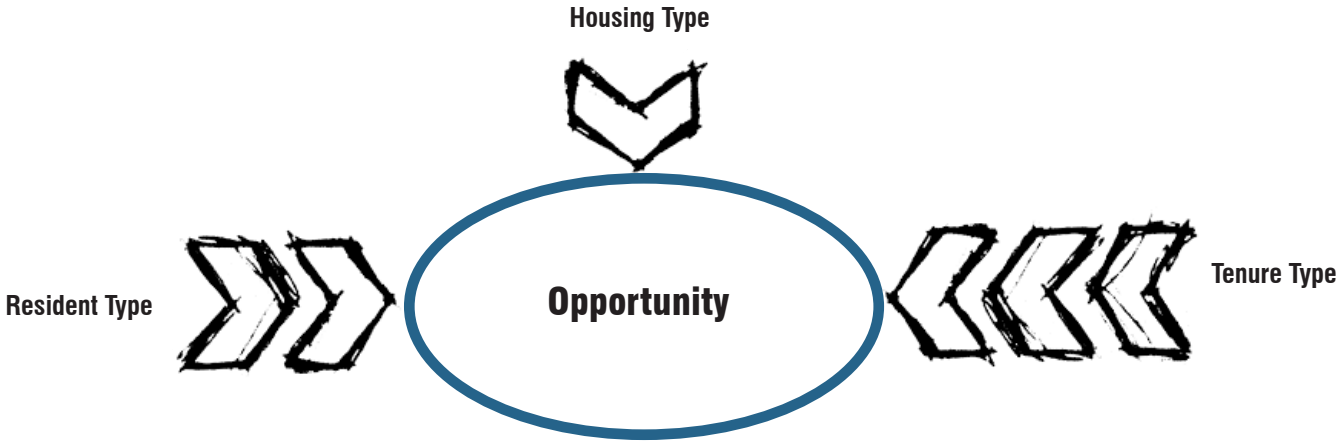


Current Housing Options:

- ✓ **Apartments**
- ✓ **Duplex**
- ✓ **Single-Family House**
- ✓ **Assisted Living**
- ✗ **Condos**
- ✗ **Co-Ops**
- ✗ **Active Retired**
- ✗ **Townhouses**
- ✗ **Low-income**

Figure 01. Looking for viable housing opportunites from current dilemmas
Source: Cole. City of Manhattan. 2019.

Inquiry: What are the current housing types that are in the immedaite area surrounding the site and what might be future neighborhood needs/desires?
Key Extractions: Opportunites found in diverse housing options and where to best locate them.
Methodology: Used Manhattan residential absorption map cross referenced with site location. Reviewed/Manhattan citizen survey related to current Manhattan and as a place of future growth and opportunities.
Conclusions: Manhattan citizens lack a wide range of housing options in the current market and could greatly benefit from a greater diversity of living accomodations and location of housing. Housing is expensive and seen as a negative aspect to Manhattan as a permanent residence. There are very few options to own as compared to rent and inhibits property value and property care with lack of ability to appreciate housing value.



Housing Desires/Options - viable options broke down into type and site location

Site A

Housing Type

- Condos(owned)
- Townhouses (owned)
- Apartments (rent)

Resident Profile

- Young professionals
- Unmarried w/o children
- Active Retired

Site B

Housing Type

- Multi-family Institution
- Duplex
- Apartments (rent)

Resident Profile

- Low-income
- Assisted Living
- Married w/o children

most desired

What needs to be done to attract young professionals to the Manhattan area?



What holds Manhattan back from realizing its full potential?



Map 1.3b

Smaller, Owned Housing for Young Professionals and Active Retirees is Desirable

A vibrant housing component could be an integral part of new, mixed-use development

MC03_StrategyMap.PDF

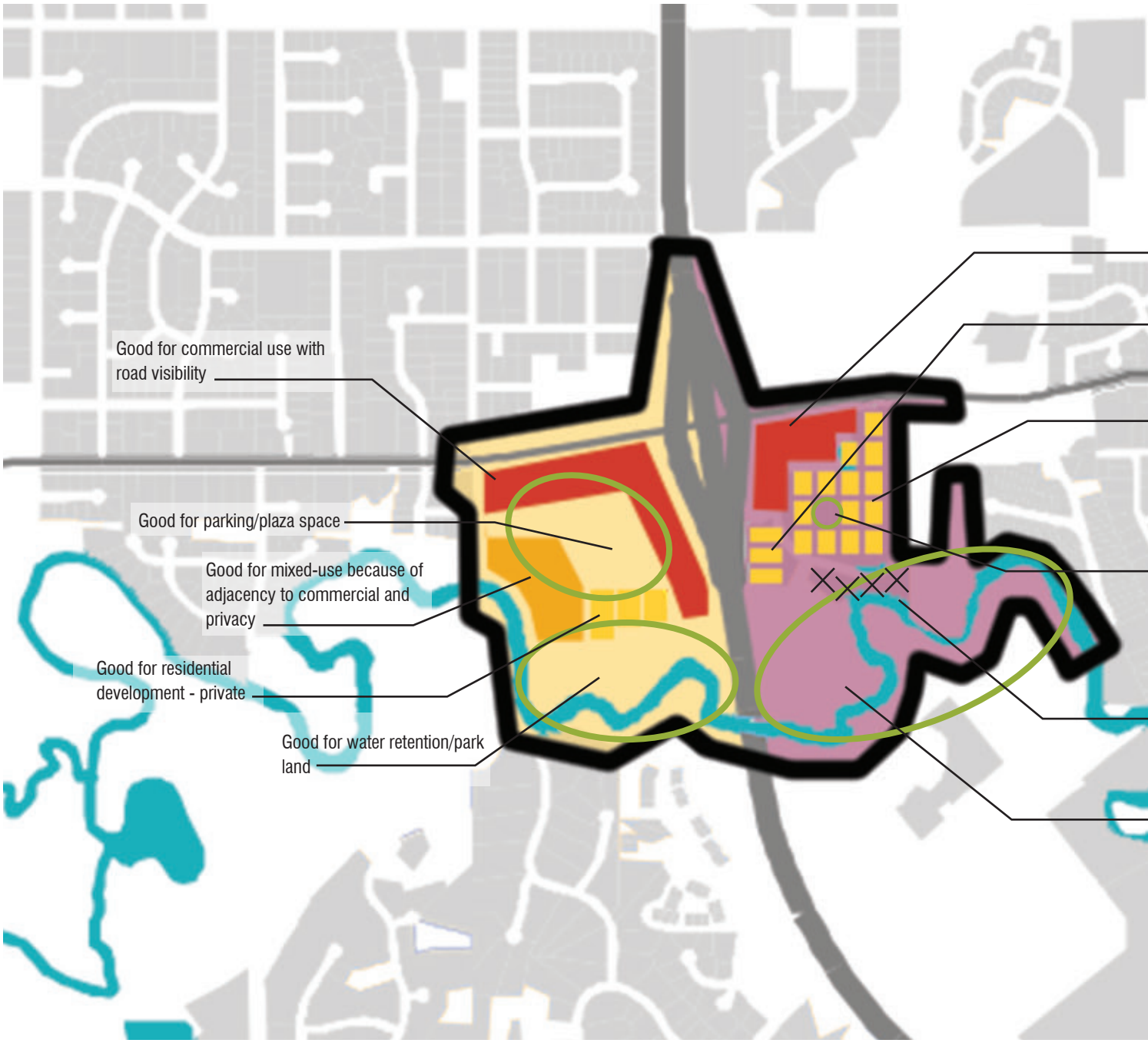
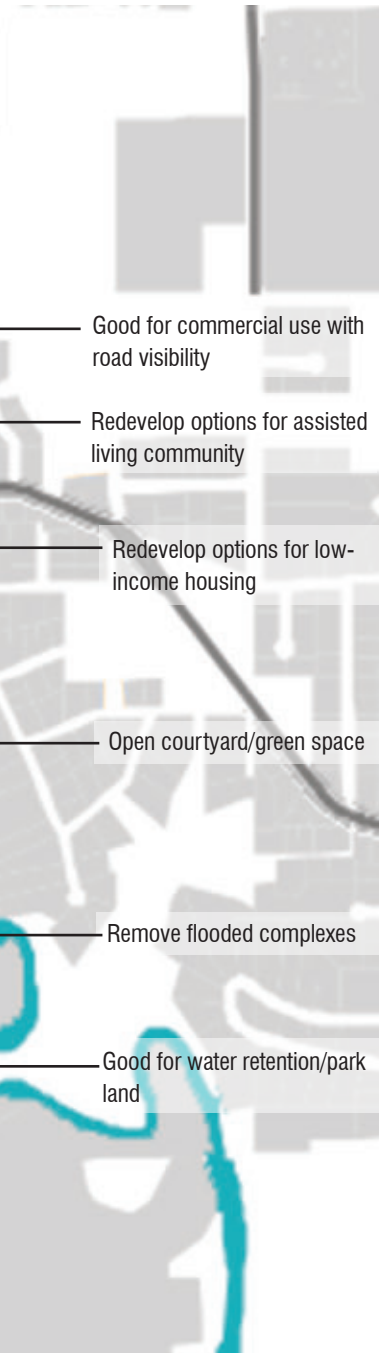


Figure 01. Strategy for proposed residential and commerical opportunites
Source: Cole. City of Manhattan. 2019.

Inquiry: How would new, dense, and diverse housing be implemented on the west side?
Key Extractions: New development would prove to be provide diverse housings options and a fresh living accomodation in Manhattan.
Methodology: Rationale founded in flood conditions, past situations and conditions, citizen surveys of desires/needs/wants, and other considerations.
Conclusions: Commerical development should front the road for better access and visibility while creating density on the Anderson corridor. New mixed-use and residential development with greater diversity of tenure type, housing type, and resident type. This will provide an overall rich collection of housing accomodations and options for the west side of Manhattan. New green space, office space, gathering space, retail shops, and dining will also greatly enrich housing livability and value as desireable amenities.



Residential Housing/Mixed-Use Precedents - architectural venacular and inspiration



Mixed-Use Housing Vernacular Precedent
Figure 02. Denver, CO



Proposed New Development Streetscape
Figure 03. Denver, CO



New Development Activation
Figure 04. Portland, OR



Mixed-Use Character Precendent
Figure 05. Omaha, NE



Pier 40: Flood Resilient Housing
Figure 06. New York City, NY



Pier 40: Resilient Housing Plaza Space
Figure 07. New York City, NY

West Manhattan Lacks Diverse Food Source Options Compared to East Side

Study area is close to one large grocery store, but few other options.

Akers_LAR646_2019_Critical_Map

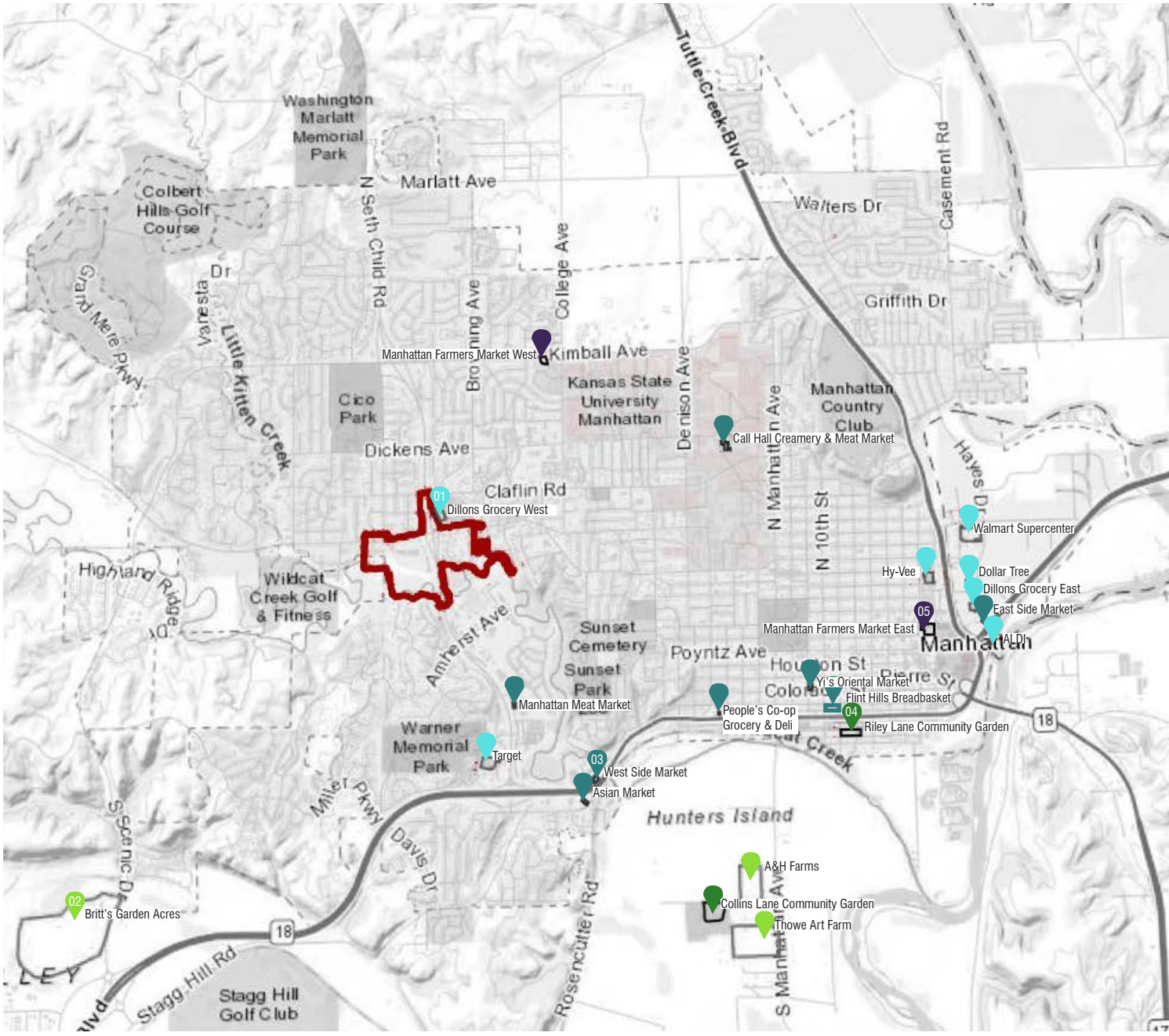


Figure 1.0 | Location of Food Sources in Manhattan, KS & Their Relation to the Site.
Source: Akers, Ashley. 2019. CriticalMapping. Source data: ArcGIS Earth. "Basemap." "Food Source". "Site Bound". C:\Users\akersam\Documents\ArcGISEarth\workspace\. 31 May 2019.

Inquiry: How are residents on the west side of town accessing fresh produce?
Key Extractions: Locations of fresh produce in relation to residential areas on the west side of Manhattan.
Methodology: Create a list of available produce source, subdivide them into categories based on types of produce production.
Conclusions: The west side of Manhattan shows a lack of pedestrian and biking access to any type of produce from the residential areas. Trends show that produce sources are located along main roadways in Manhattan, the two largest being Fort Riley Blvd. and Tuttle Creek Blvd.





01 Chain Grocery Stores | Dillons Grocery - West



02 Local Farms |Britt's Garden Acres



03 Local Grocery Stores | Westside Market



04 Community Gardens | Riley Lane Community Garden



05 Farmers Markets |East Summer Location



Legend

- Site Boundary
- Local Grocery Store
- Chain Grocery Store
- Community Garden
- Local Farms
- Farmers Market
- Major Streets in Manhattan

Map 1.4a

West Side Lacks Pedestrian Access to Locally Grown Food

Project could be a site or distribution hub for locally grown food.

Akers_LAR646_2019_Dilemma

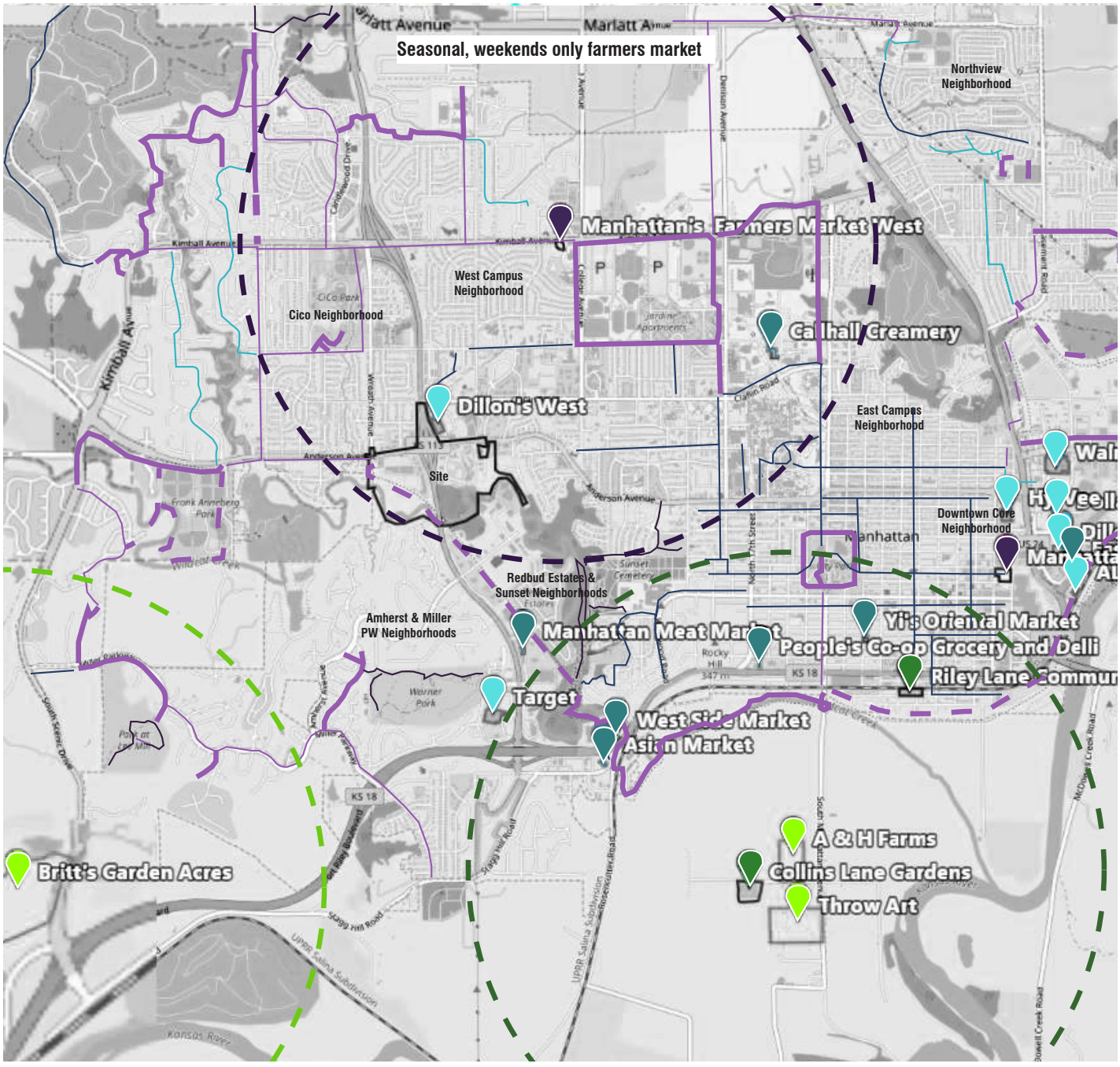


Figure 1.1 |Relation of site to surrounding food sources using a 1.0 mile radius around food sources.
Source: Akers, Ashley. 2019. CriticalMapping. Source data: ArcGIS Earth. "Basemap." "Food Source". "Site Bound". C:\Users\akersam\Documents\ArcGISEarth\workspace\. 31 May 2019.

Inquiry: Is it possible to create a central location for food production to serve the residents living on the west side of Manhattan?
Key Extractions: The project is located adjacent to large single family neighborhoods which can be better linked by existing trails.
Methodology: 1.0 mile radius perimeter rings placed around food sources of all types on the west side show the relationship between westside residents and those food sources. The trails map show existing pedestrian and biking trails around Manhattan that could potentially link residents on the west side to food sources.
Conclusions: Major roadways and lack of pedestrian sidewalks, coupled with a lack of locally grown food sources, make it difficult for residents to reach the sources unless they have a car.

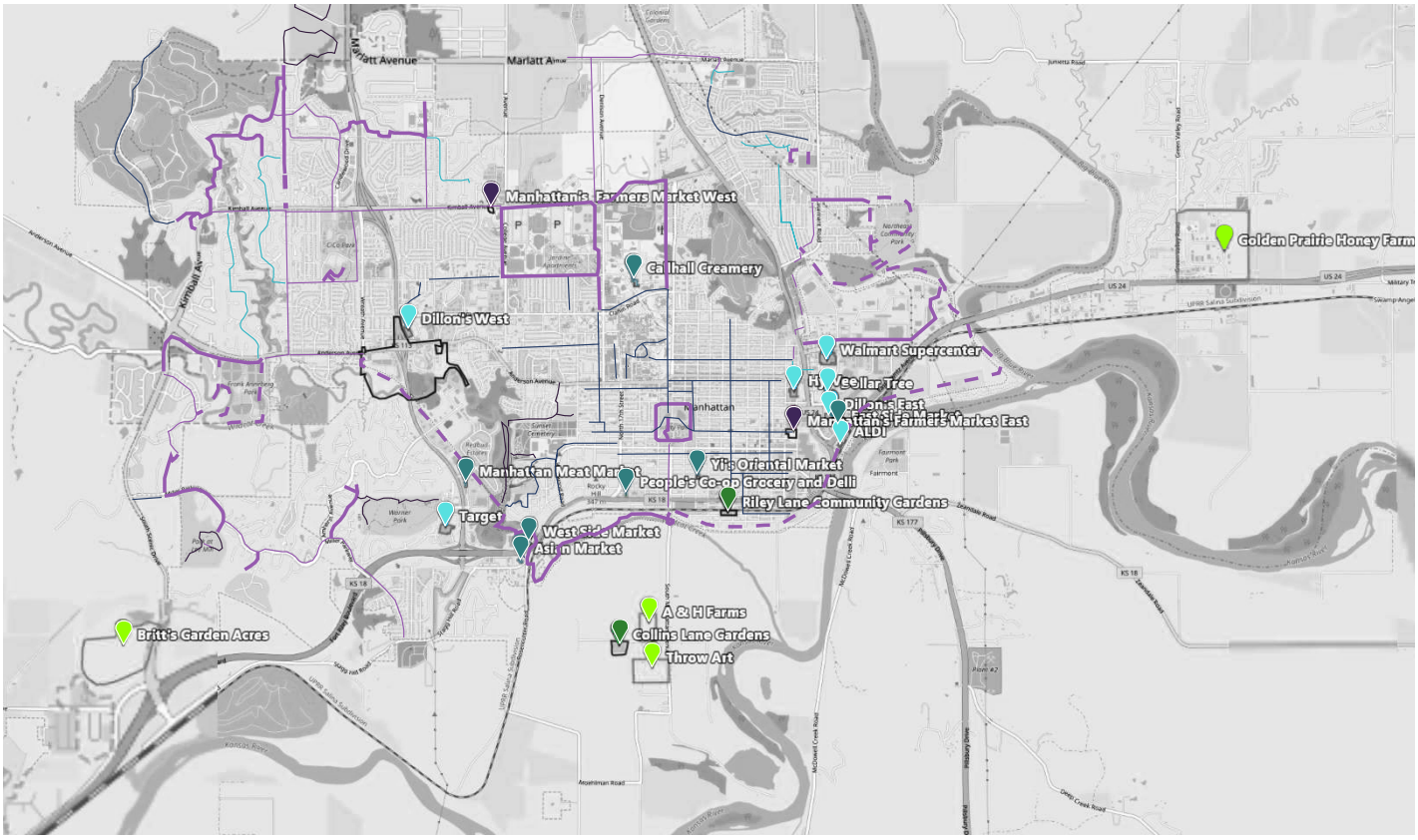


Figure 1.2 | Map of Existing Trails in Manhattan in Relation to Food Sites and Neighborhoods
Source: Akers, Ashley. 2019. CriticalMapping. Source data: ArcGIS Earth. "Basemap." "Food Source". "Site Bound". C:\Users\akersam\Documents\ArcGISEarth\workspace\. 31 May 2019.



Legend

- Gravel Trails
- Paved Trails
- Marked Biking Trails
- Unmarked Biking Trails
- Sidewalk Connection



Legend



- Connection between Fresh Food Production & Closest Residential
- 1.5 Mile Radius
- Local Grocery Stores
- Chain Grocery Stores
- Community Gardens
- Local Farms
- Farmers Markets

Urban Agriculture Could Be A Featured Amenity For New Mixed-Use Development

Urban Agriculture could be in the form of garden plots, roof-top gardens, and specialty restaurants or grocery stores.

Akers_LAR645_2019_Strategy_Map

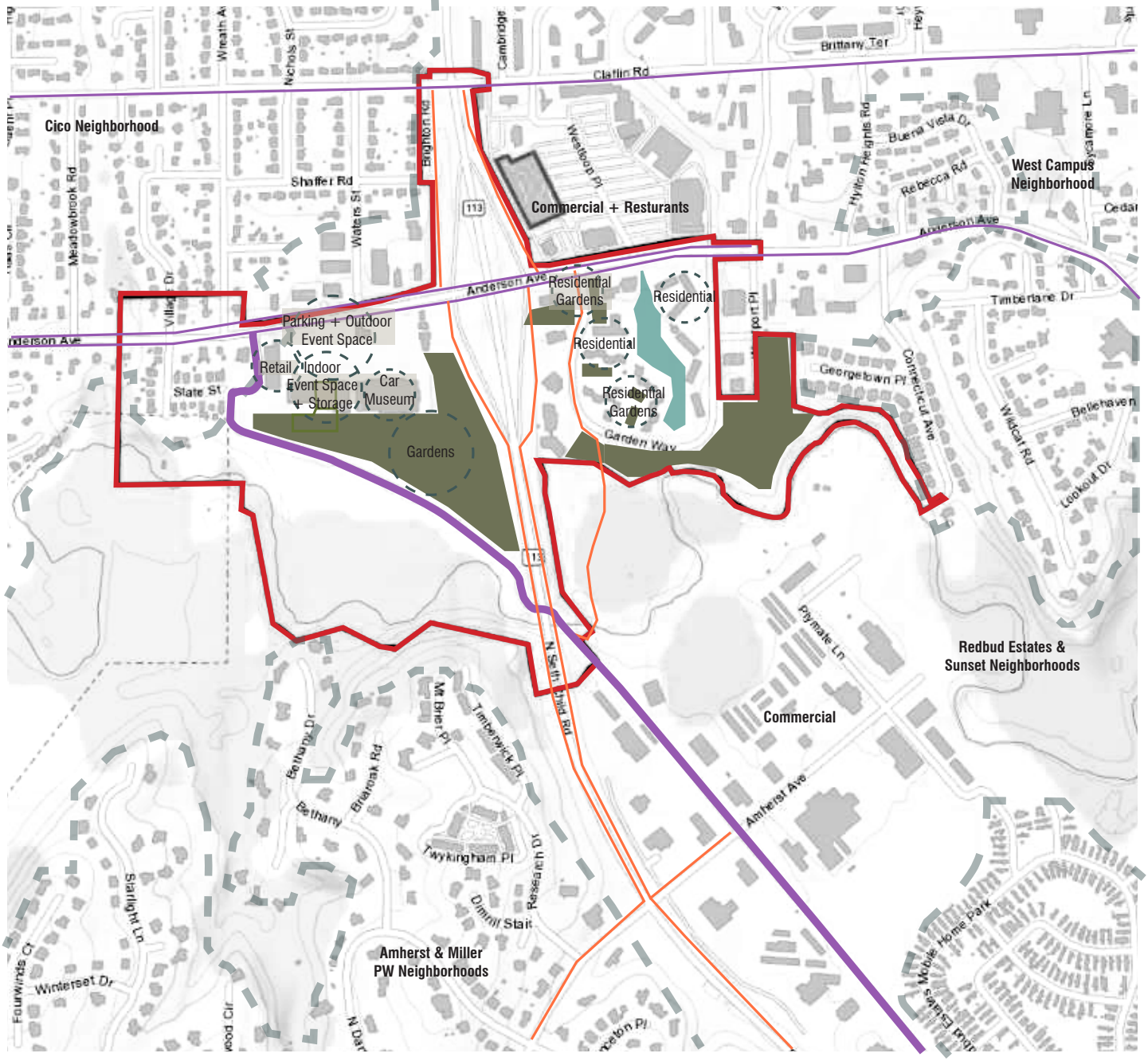


Figure 1.3 | Introduction of Urban Agriculture to West Manhattan
Source: Akers, Ashley. 2019. CriticalMapping. Source data: ArcGIS Earth. “Basemap.” “Food Source”. “Site Bound”. C:\Users\akersam\Documents\ArcGISEarth\workspace\. 31 May 2019.

Inquiry: Will introducing an urban agriculture based site along with moving the food bank to the proposed site help bridge the gap between the west side residents and fresh food?
Key Extractions: Potential key uses for the spaces, streets and pedestrian connections, and surrounding residential neighborhoods are analyzed for proposed links and uses for future project design.
Methodology: Connect existing trail systems leading to the site and surrounding residential areas. Show a conceptual proposal for converting the site to an urban agricultural core for the west side of Manhattan.
Conclusions: The site serves as a central location for the residents of the west side to access and produce their own fresh food. The trail connections will also allow residents to safely access existing food sources instead of walking on the highway or crossing dangerous intersections.

Precedents



Image 1.5



Image 1.7

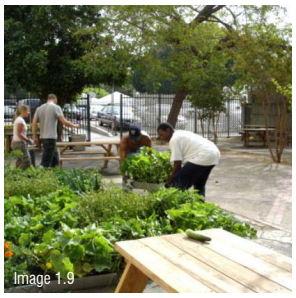


Image 1.9



Image 1.6



Image 1.8



Image 2.0

Miller Creek Edible Garden | Edible School Garden Kitchen at Miller Creek Middle School in San Rafael, CA

- Educational fellowships & opportunities in partnership with the school.
- In-house kitchen for educational cooking classes.

Urban Agriculture Collective of Charlottesville |Charlottesville, NC

- Serve the community, providing work and educational opportunities.
- The small non-profit company grew over 18,000 pounds of food and gave it to the community for free in 2017.

Skid Row Housing Trust's 'The Rainbow' Green Wall | Central City East in Lost Angeles, CA

- Four growing spaces located within low-income and homeless housing in Central City East (skid row) in Los Angeles, CA.
- Some spaces utilize vertical spaces for creeping plants to grow along with traditional horizontal gardens.

Supporting Strategies

- Surrounding Access to Local Produce
- Trail Systems
- Visual & Green Amenities
- Educational Opportunities
- Site & Activity Programming
- Recreational Components
- Catalyst for Events
- Job Opportunities
- Utilize Utility Corridor Spaces
- Seasonal Agricultural Events
- Regional Events



Legend

- Existing Trails
- Potential Connections
- Proposed Urban Agriculture Space
- Site Boundary
- New Event Space
- Covered Outdoor Gathering & Work Space
- Paved Trails
- Sidewalk Connection
- Proposed Paved Trail

Manhattan has Many Indoor Health Facilities

The number of mental health facilities outweigh other types of health facilities

JacksonKastasya_LAR646_sum19_W2_classification.pdf

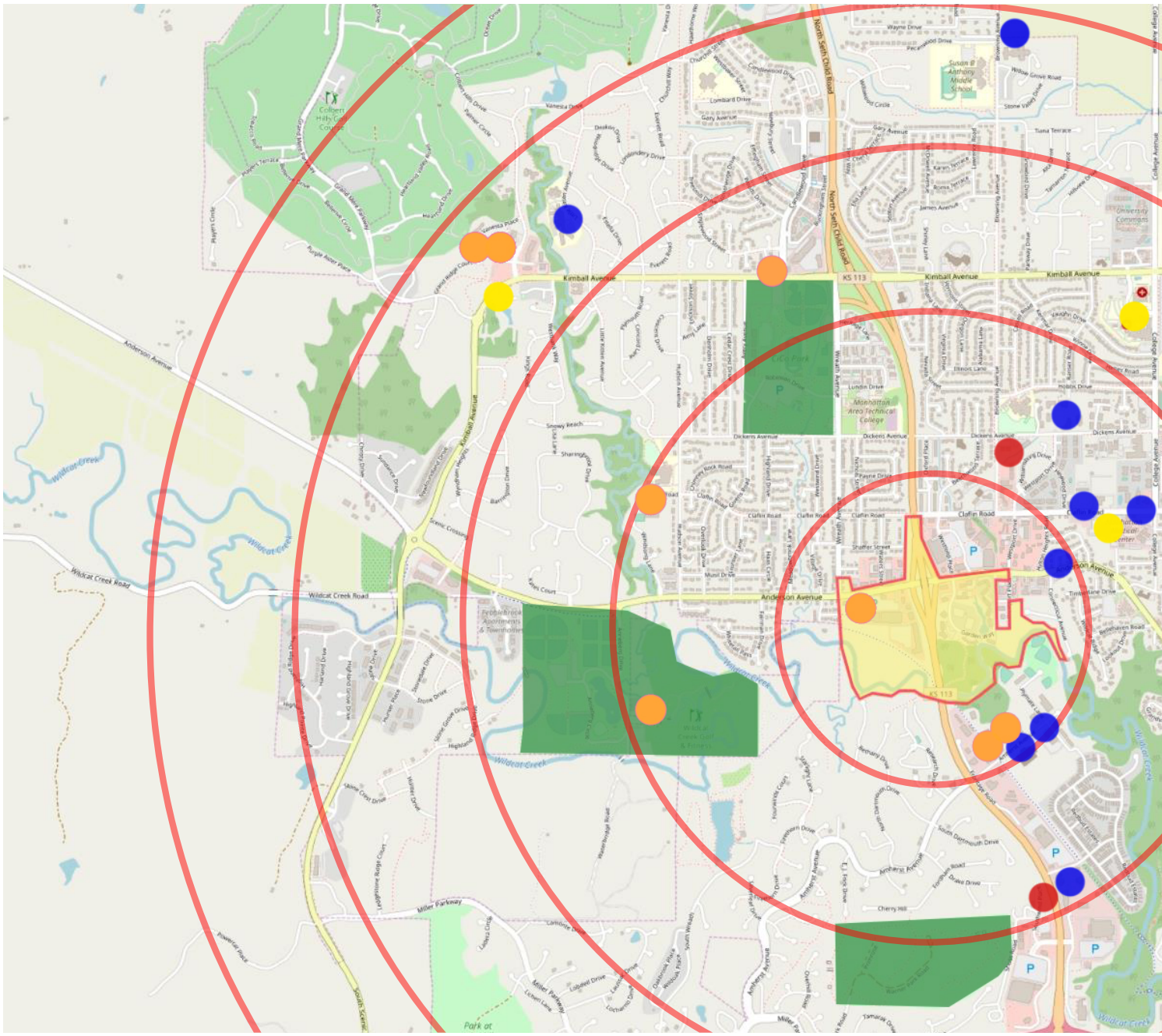
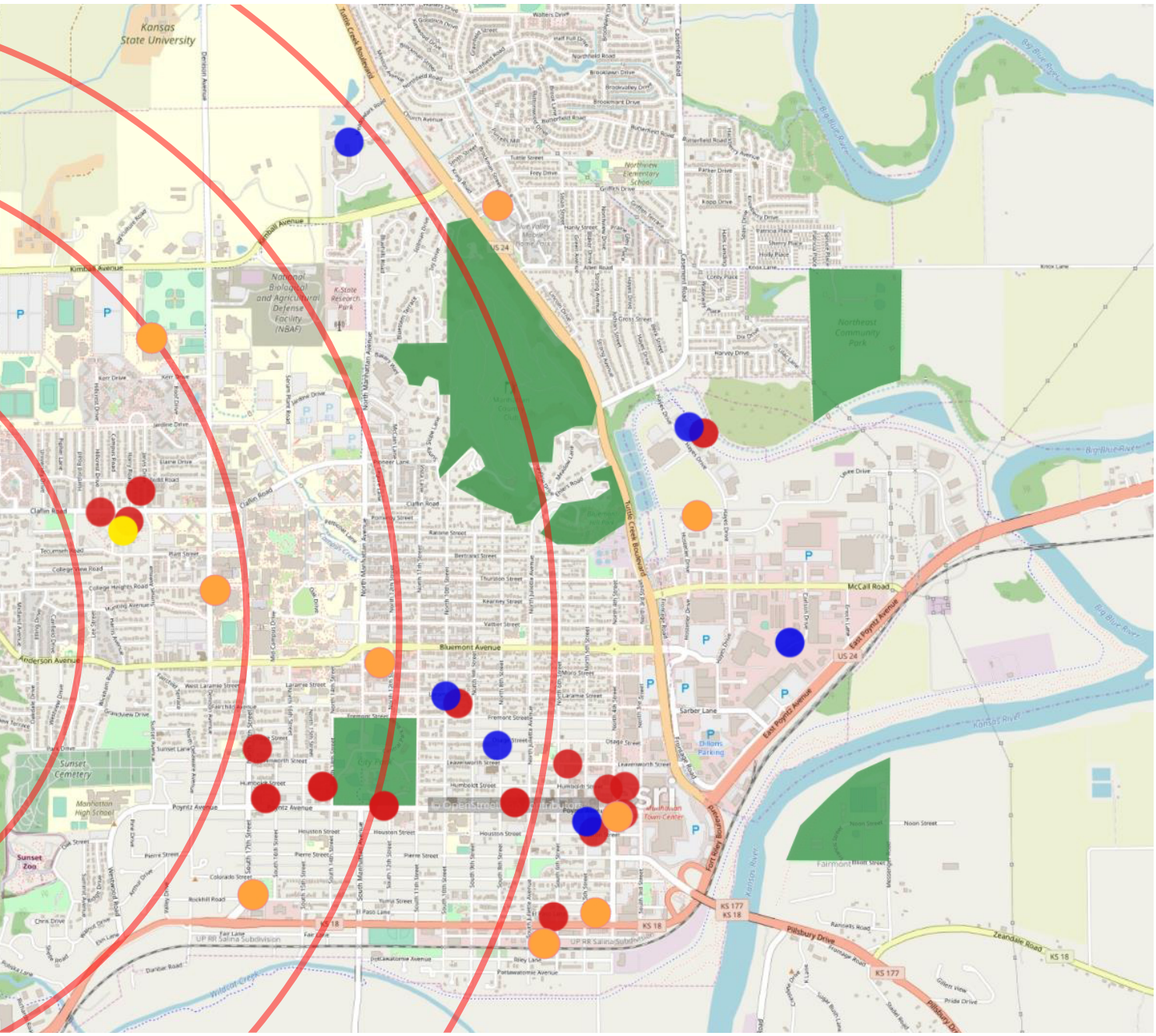


Figure 01. Types of health facilities in Manhattan, KS in relationship to the site
Source: Kastasya Jackson

Inquiry: What kinds of health facilities exist in Manhattan?
Key Extractions: Health facility specialty and facility location
Methodology: Health specialties and locations were gathered from Google Maps and 1/2 mile radii from the site using Google Earth.
Conclusions: Introdcuing a new facility would add to the collection that Manhattan has, however, this facility would be an outdoor driven therapeutic experience that isn't offered in Manhattan currently. Given the number of health facilities in Manhattan, the site would compliment the existing services in the outdoor spaces and experiences. The existing parks are primarily for recreation and not specified for therapeutic qualities; the site will serve to be a therapeutic green space for the city of Manhattan.



Legend

- Mental Health Facility
- Rehabilitation Facility
- Hospital
- Park Space
- Recreation and Fitness Facility

Multiple Indoor Health Facilities Create Opportunity for An Outdoor Health Facility

The clusters of health facilities in the downtown core leave the outskirts of the city open

JacksonKastasya_LAR646_sum19_W2_opportunity.pdf

Existing Health Facilities in the Area



Figure 02. Pawnee Mental Health Services
Source: Google Maps Street View



Figure 03. The Restoration Center
Source: Google Maps Street View



Figure 04. Stoneybrook Health and Rehab
Source: Google Maps Street View

Potential Indoor Services



Figure 05. Indoor Swimming at Olathe Community Center
Source: SFS Architecture



Figure 06. Cardio Class at Olathe Community Center
Source: SFS Architecture

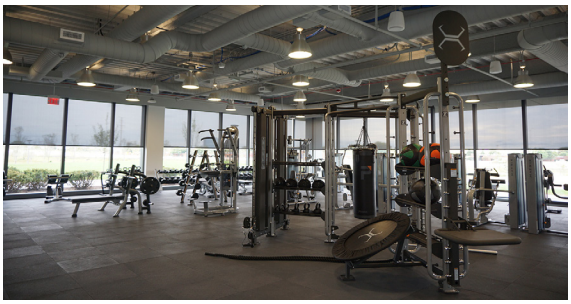


Figure 07. Kinema Fitness Indoor Gym Equipment
Source: Kinema Fitness

Inquiry: What can be provided in an outdoor therapeutic setting that the indoor facilities don't offer? What other indoor amenities can be offered to enrich the lives of the people in Manhattan?
Key Extractions: Health facility locations in Manhattan, potential indoor activities via community center, and designed outdoor therapeutic activities and facilities.
Methodology: Coordinating services of various health facilities with the site to function as a joint program for restorative and therapeutic benefits for the population of Manhattan and Fort Riley.
Conclusions: Introducing, and bringing back, a health facility to the site can bring a new light to the importance of health to the population of Manhattan. Previously, there was a restoration center on the site and calling back to that aspect will heighten the genius loci of the space. This space will function with respect to already existing health facilities, and will provide an extraordinary experience in the out of doors that cannot be achieved indoors. In addition, the main wellness campus will provide activities indoors in case of unfavorable weather.

Potential Outdoor Services

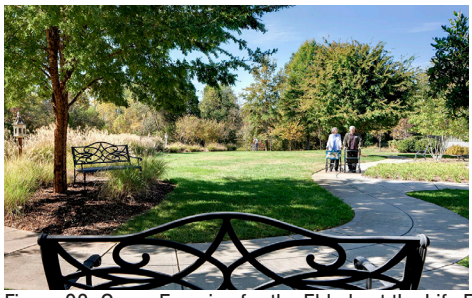


Figure 08. Green Exercise for the Elderly at the Life Enrichment Center
Source: Dirtworks Landscape Architecture



Figure 09. Therapeutic Garden Spaces at Lutz Center
Source: Studio Sprout



Figure 10. Group Yoga at The Gathering Place
Source: Virginia Burt Designs

User Groups

Veterans
PTSD Patients
Elderly
Middle aged Users
Young Adults/College Students

Benefits

-Reducing stress levels
-Enhancing the quality of city life in Manhattan
-Reconnecting people with nature
-Added enrichment of therapeutic services
-Advancing Manhattan's green infrastructure plans
-Creating an environment for rehabilitation outdoors
-Introducing new spaces for community gatherings thus encouraging sociability

Creating Therapeutic Outdoor Spaces Reflect the Importance of Mental and Physical Health

Users have the opportunity to heal themselves in new ways

JacksonKastasya_LAR646_sum19_W2_strategy.pdf



Figure 11. Strategy 1: Bands of spatial organziation keeping spatial use separate and distinct
Source: Kastasya Jackson



Figure 12. Strategy 2: Overlapping spatial use with three types of spaces relfected across Seth Child Road
Source: Kastasya Jackson

Inquiry: How can the outdoor therapeutic space be organized to best suit the needs of the public?
Key Extractions: Site geographical divisions, developmental divisions and natural buffers
Methodology: Using an aerial view of the site to determine suitable areas for the spaces to be provided
Conclusions: Providing new therapeutic spaces comes with a strategic value, and these spaces must capture the essence of the space to function at their best. Users will be drawn to each space per their own choice and each space must have its own character to stand as its own service. Each space will target a different group, and some spaces will serve a mix of user groups. Different spatial arrangements will serve various needs of users and prove beneficial for spirtual, mental and physical healing.



Figure 13. Strategy 3: Overlapping different spatial uses without reflecting uses across Seth Child Road
Source: Kastasya Jackson



Figure 14-19. Characteristics of the site's natural elements
Source: Kastasya Jackson

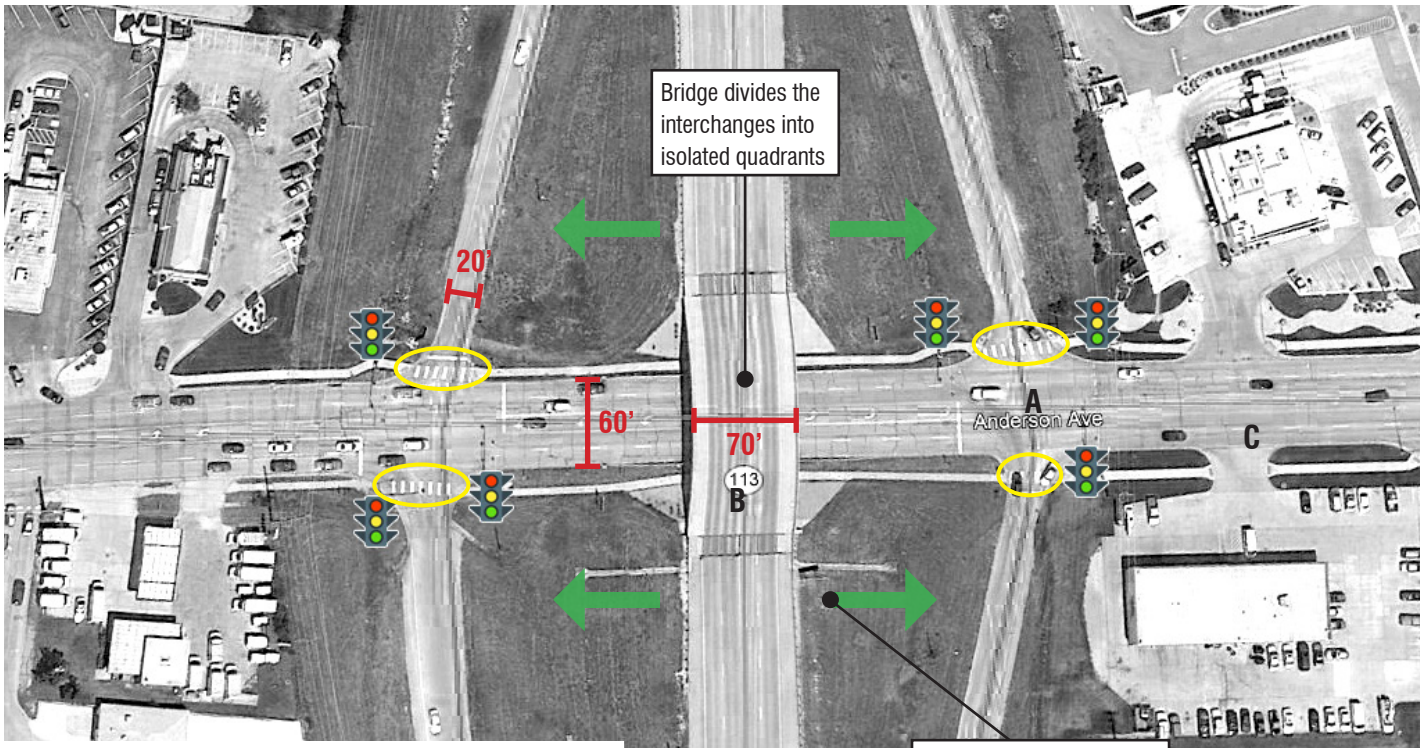
6.2

Critical Mapping
Streets

Anderson Ave/Seth Child Rd is Comparable to Tuttle Creek Blvd/Bluemont Ave

Street width is comparable to Tuttle Creek Blvd yet Anderson Ave has better walkability

W2_Chesney-Mateos_LAR646_Critical-Mapping



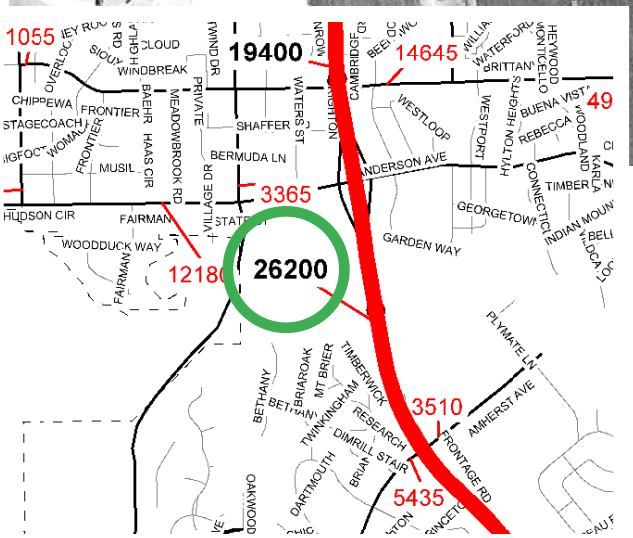




Figure 03. View of Sethchild Rd overpass
Source: Google Streetview



Figure 04. View to NW quadrant from Sethchild Rd
Source: Google Streetview

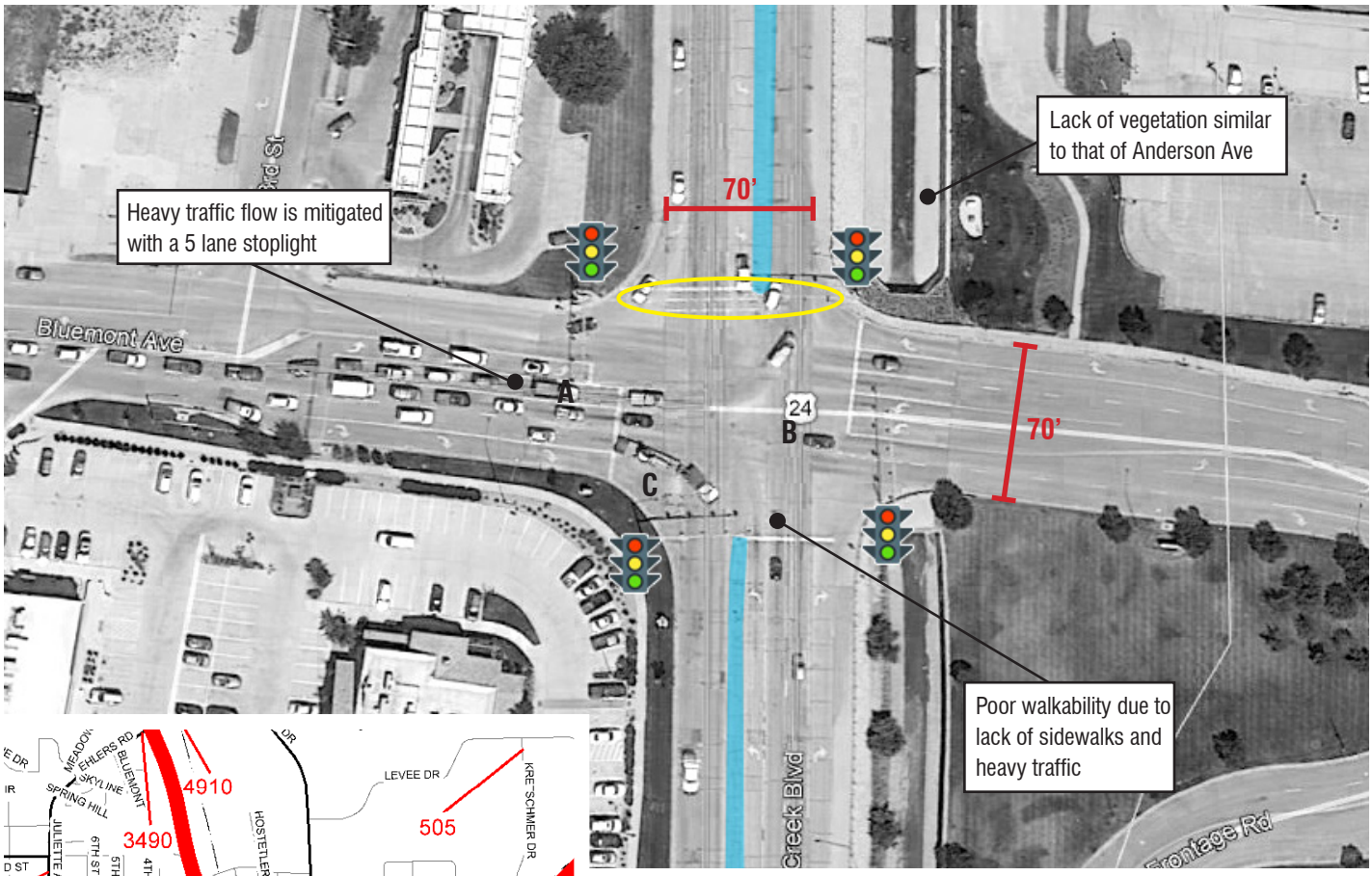


Figure 05. View of SE quadrant streetscape from Anderson Ave
Source: Google Streetview

Figure 01. (Top) Inventory and analysis of Anderson Ave and Seth Child Rd crossing
Source: Paden Chesney
Figure 02. (Bottom) Urban City Traffic Count Map of Seth Child Rd/Hwy 113 South of Anderson Ave
Source: Kansas Department of Transportation, Bureau of Transportation Planning



Inquiry: How does the Anderson Ave/Seth Child Rd intersection compare to Tuttle Creek Blvd?
Key Extractions: Comparing traffic count, street size, crosswalks, and stoplights.
Methodology: The Anderson Ave and Seth Child Rd intersection and Tuttle Creek Blvd have similar street sizes and traffic count. These streets accommodate a large number of mixed vehicles. Seth Child Rd. (Hwy 113) serves as a major arterial highway for the western portion of the city. The highway is almost wholly inside the Manhattan city limit and ends near the Riley County shops along US-24 north of Manhattan (City of Manhattan).
Conclusions: Both intersections are very similar. Tuttle Creek is a Blvd similar to what the City of Manhattan plans to implement on Sethchild Rd. It is apparent that Anderson Ave has better walkability having 4 crosswalks. These crosswalks provide access to commercial buildings either north or south of Anderson Ave. There is a disconnect between the north and south side of this street due to the lack of perpendicular crosswalks. Sethchild Rd also creates a disconnect between the East and the West. Although this street separates the two halves it does provide a nice view to the surrounding commercial spaces. It also provides safety allowing pedestrians to cross underneath.



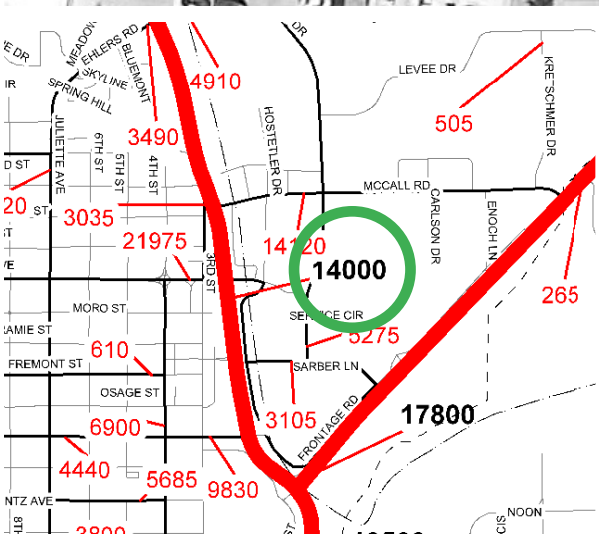




Figure 08. View of 4-way traffic stop on Tuttle Creek Blvd
Source: Google Streetview

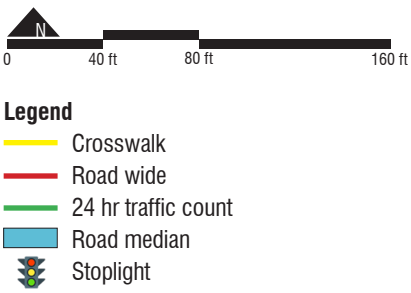


Figure 09. View of barren commercial corner
Source: Google Streetview



Figure 10: View of wide turning lane on Bluemont Ave
Source: Google Earth Pro

Figure 06. (Top) Inventory and analysis of Tuttle Creek Blvd and Bluemont Ave crossing
Source: Paden Chesney
Figure 07. (Bottom) Urban City Traffic Count Map of Tuttle Creek Blvd near Bluemont Ave
Source: Kansas Department of Transportation, Bureau of Transportation Planning



Anderson Ave/Seth Child Intersection Could Support New Westside Business District

High traffic volume (36,000+ VOT) makes location highly visible to support business

W2_Chesney-Mateos_LAR646_Critical-Mapping

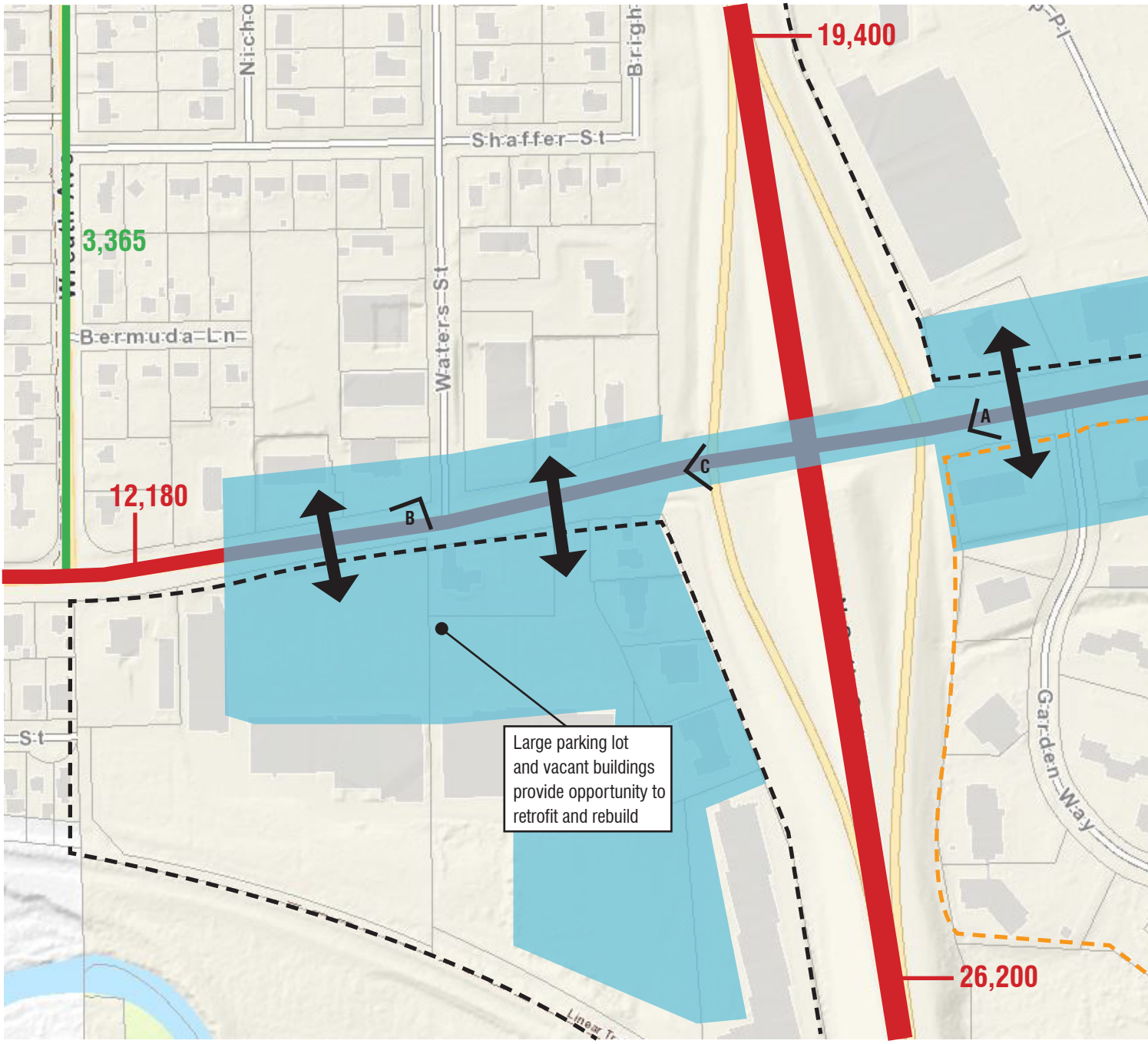
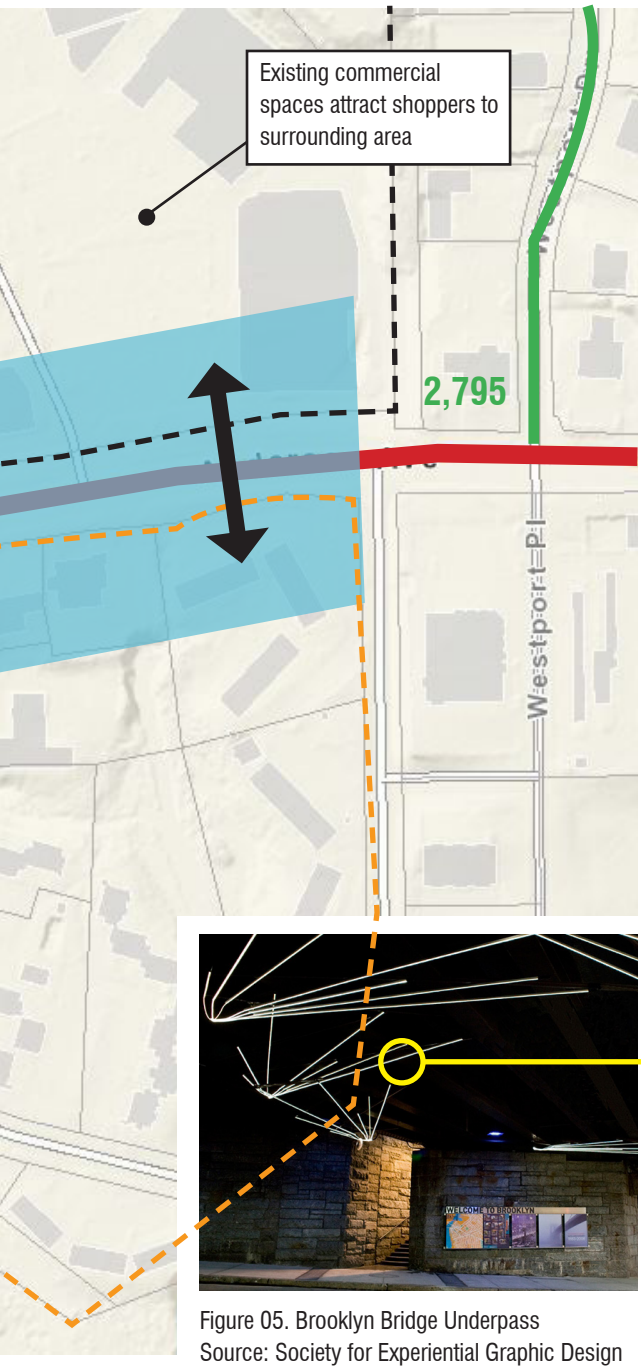


Figure 01. Traffic flow, visibility, and Identity for the Anderson Ave corridor
Source: Paden Chesney, 2019

Inquiry: What opportunities are there with high traffic volumes and street lined buildings
Key Extractions: Identity opportunities, building to street proximity, KDOT Traffic Counts over 3,000, building districts
Methodology: Traffic volumes were recorded from the KDOT Traffic Count Map of Manhattan. Over 30,000 vehicles were recorded from 24-hour traffic count obtained in October 2016. Opportunity areas were determined by available space and building to street proximity for visibility and retrofit.
Conclusions: Lack of street lined buildings creates a difficult environment for pedestrians with limited ability. Although the buildings were inset on the western quadrant available space creates a high opportunity for redevelopment. The Seth Child Rd overpass creates a visual barrier between the east and west halves of the intersection. The creation of featured elements would provide a physical connection as well as the restructuring of the roadway. North and south connections can also be improved through direct visibility and a direct link such as crosswalks.



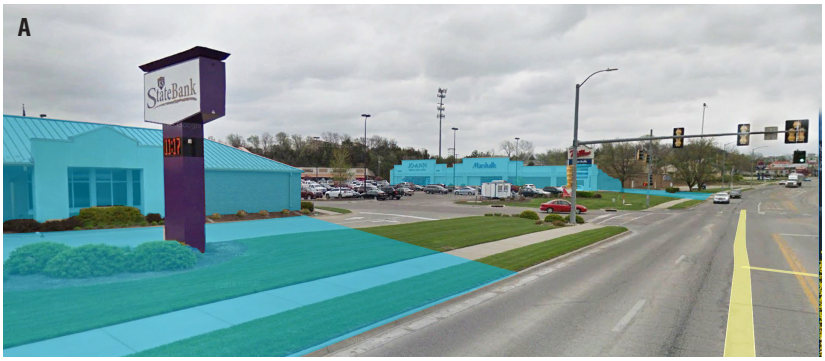


Figure 02. Close proximity to street provides direct access to commercial spaces
Source: Paden Chesney

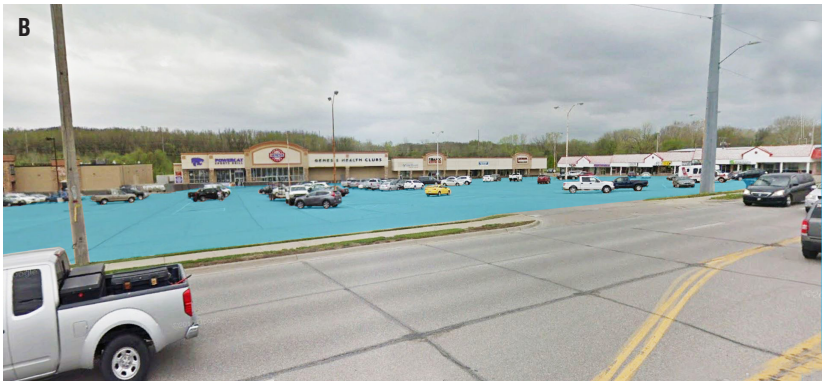


Figure 03. Empty or vacant lots provide opportunity for new retail and mixed-use development
Source: Paden Chesey

Figure 05. Brooklyn Bridge Underpass
Source: Society for Experiential Graphic Design



Figure 04. East and west quadrants can be connected through underpass identity features
Source: Paden Chesney

Connecting the urban and rural district feel

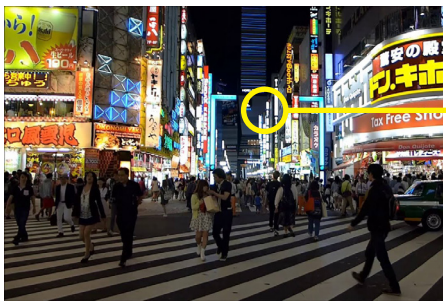


Figure 06. Downtown District, Shinjuku Tokyo
Source: Jonas White



Figure 07. Mixed-use district with good walkability in high traffic area, Kigali Riwanda
Source: Center for Sustainable Healthy and Learning Cities and Neighborhoods

Streetscape Improvements Along Anderson Ave Could Provide District Identity and Unity

Identity could be provided through special paving and artistic lighting through E-W sides

W2_Chesney-Mateos_LAR646_Critical-Mapping



Figure 02. (Left) Features, such as lighting, brought underneath an underpass can create a connection between a divided district
Source: Christopher Jobson

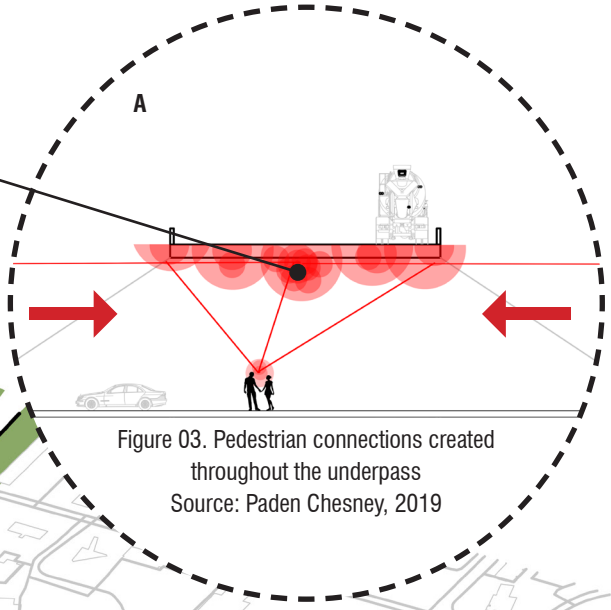


Figure 03. Pedestrian connections created throughout the underpass
Source: Paden Chesney, 2019

Figure 01. Strategy map for the existing Anderson Ave and Seth Child Rd intersection
Source: Paden Chesney, 2019

Inquiry: Which Anderson Ave configuration is best for visually and physically connecting the east and west sides of South Child Rd?
Key Extractions: Existing road configuration, proposed boulevard road intersection, visual connection links, visual vegetative improvements, pedestrian walkways, improved connection spots
Methodology: Existing roadway configuration (Figure 01.) was created through the use of the AutoCAD Manhattan Base Map provided by Professor John Hunt. The proposed boulevard intersection (Figure 06.) was also created using AutoCAD. All elements in each map were determined through existing utilities, road barriers, and previous inventory that could be used to improve the qualities of the streetscape and surrounding area.
Conclusions: The implementation of a new intersection would create a stronger direct visual connection across the east and west side of Seth Child Rd. This boulevard configuration would provide more opportunity for pedestrian walkways as well as a physical district linkage across all areas. Though this connection improves many qualities, the existing roadway configuration would provide an opportunity for a more artful connection across Seth Child Rd and would reduce costs substantially.

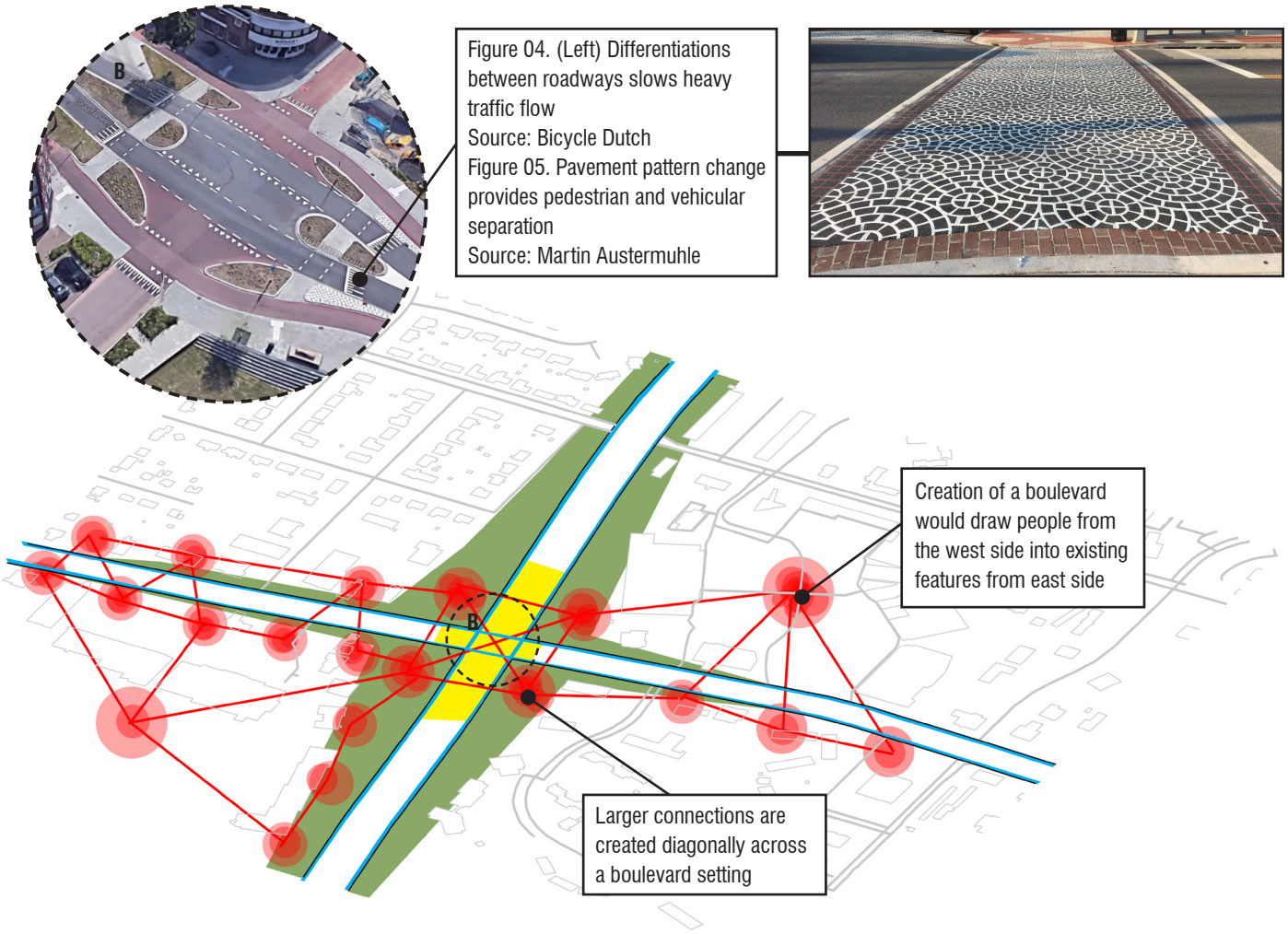


Figure 06. Strategy map for the proposed boulevard intersection of Anderson Ave and Seth Child Rd
Source: Paden Chesney, 2019

Anderson Ave and Seth Child Rd Interchange Creates Isolated, Auto-Centric Quadrants

Existing interchange is disjointed, where a lack of visibility and pedestrian access leads to fragmentation.

Kappelman_LAR646_2019_Critical_Map_01TruthMap



Figure 1.1 Seth Child Road and Anderson Avenue Site Classification
Source: KSU LAR 646 GIS Database

Inquiry: What are the main factors contributing to the disjointed district?
Key Extractions: Aerial photo base, building footprints, and site photos
Methodology: Annotations and graphics were drawn on top of GIS base. Street photos were taken during site visit.
Conclusions: The elevation of Seth Child Rd visually divides the site from east to west. Many buildings are set back from Anderson Avenue behind large parking lots, and few buildings have fronts facing the road. Both Anderson and Seth Child are wide arterial roads with a generous right-of-way, but have no adjacent trees and very little shade. Pedestrian access is limited, with no sidewalk leading north to south on the site, and the Power line poles are visually obstructive and unsightly along the roadside.



N

0 200 ft 400 ft 800 ft

Legend

- Residential
- Anderson Avenue
- South Seth Child Road
- Existing Planters
- Naturalistic Green Space
- Hardscape
- Power Line Poles

What are the main factors contributing to the disjointed district?



01. Highway visually divides the site. (Kappelman, 2019)



02. Buildings are set back from road behind large parking lots. (Kappelman, 2019)



03. Anderson and Seth Child are wide arterials with no trees but generous right-of-way. (Kappelman, 2019)



04. Power line poles are prominent and unsightly. (Kappelman, 2019)



05. Pedestrian access is limited and disconnected. (Kappelman, 2019)



06. Few buildings are front-facing Anderson Avenue. (Kappelman, 2019)

Precedent Studies Inspire Opportunities for District Site Design

Evaluating urban districts and streetscapes that use design strategies that are applicable to site.

JK_LAR646_2019_02OpportunityMap.indd

District Development

Prairiefire | Overland Park, KS

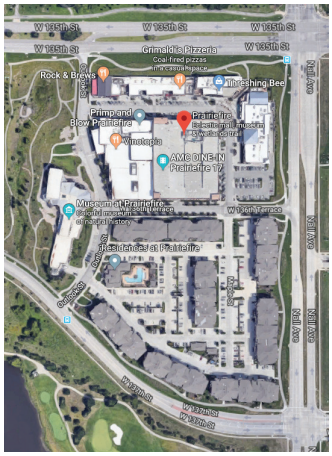


Figure 2.1 The Prairiefire district is located off of two busy arterial roads. (Google Maps, 2019)



Figure 2.2 The district has a variety of shopping, dining, and entertainment businesses adjacent to a large, upscale apartment housing development. (Prairiefire, 2016)

Prairiefire is an outdoor retail district that contains a variety of stores, restaurants, a movie theater, history museum, and a guided wetlands trail surrounding the development.

Design Opportunities:

- Retail and apartment quadrants are unified through their stone facades and similar color palette.
- Pedestrian trail wanders through a tallgrass and wetland landscape, while acting as a buffer zone between the arterial roads and the retailers.

Outlets at Castle Rock | Castle Rock, CO



Figure 2.3 Pedestrian corridors lead through the shopping mall and are aligned to screen views of parking lot and truck unloading areas. (Fox21, 2017)

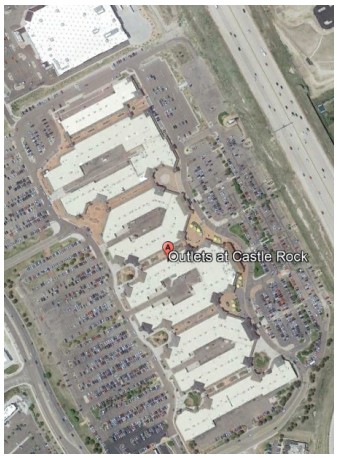


Figure 2.4 The outlet mall is visible from the adjacent highway. (Google Earth, 2019)

The Outlets at Castle Rock is a popular outdoor shopping facility and event space.

Design Opportunities:

- Vegetated parking medians in surrounded parking lot are aligned with the pedestrian corridors and loading docks to screen views from visitors.
- Internal corridors are defined by paving, lighting, and overhead gateways that give the space a distinctive character and greater sense of place.

Inquiry: What opportunities can we draw from design precedents to create a strong district development and intersection identity?
Key Extractions: There are multiple design strategies from the precedents that can be applied to our site design and district identity.
Methodology: Assessment and Evaluation of Design Precedents
Conclusions: District development should be unified and focused on the pedestrian experience. A unifying palette of colors and materials create visual cohesion between adjacent quadrants. Trails and vegetation can be used to create a buffer zone between the major arterial intersections and the retail development. Pedestrian corridors can be screened from parking by vegetation and careful alignment of views. A palette of design features such as paving, lighting, arching gateways, signage, and vegetation can be used to create a strong sense of place within the district.

Intersection Identity

West Park Neighborhood | Irvine, CA



Figure 2.5 Tall vegetation screens the busy intersection from the surrounding neighborhoods. (Irvine Homes, 2017)

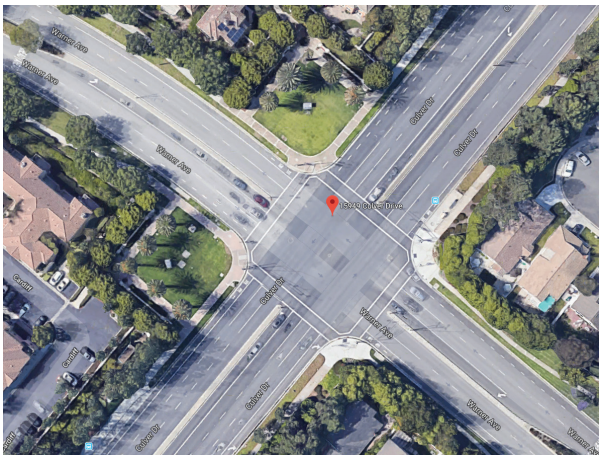


Figure 2.6 The intersection of Culver and Warner is defined by vegetation and signage that gives the neighborhood a distinct identity from the roadside. (Google Maps, 2019)

Westpark is an urban neighborhood in the heart of Irvine, California. The majority of residents rent their homes and it is a popular neighborhood for young professionals.

Design Opportunities:

- Dense neighborhood development is screened from the intersection by tall, dense vegetation with a generous set back from the intersection.
- Signage on all four corners of the intersection unifies the site and provides a sense of neighborhood identity.

Country Club Plaza | Kansas City, KS



Figure 2.7 Pedestrians shop in the shade along the intersection of 47th and Broadway (Wikimedia Commons, 1992)

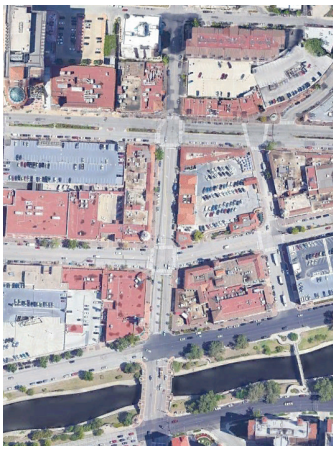


Figure 2.8 Country Club Plaza's wide, screened sidewalks make the district pedestrian friendly despite the wide arterials.(Google Earth, 2019)

The Country Club Plaza is a popular Kansas City shopping district with a variety of upscale restaurants and retailers. A distinctive style of romantic Spanish architecture characterizes the site and gives a unique atmospheric quality to the area.

Design Opportunities:

- Wide pedestrian sidewalks are shaded by storefronts and trees to create a comfortable shopping environment.
- Multi-lane streets are divided by a vegetated median that has bright flowers, distinctive lighting, and flagpoles that match the architectural style of the district.

Design Strategies to Unify the Quadrants and Create a Cohesive District Identity

Implementing strategic design ideas to resolve the fragmentation and lack of visibility on site.

Kappelman_LAR646_2019_02OpportunityMap.indd

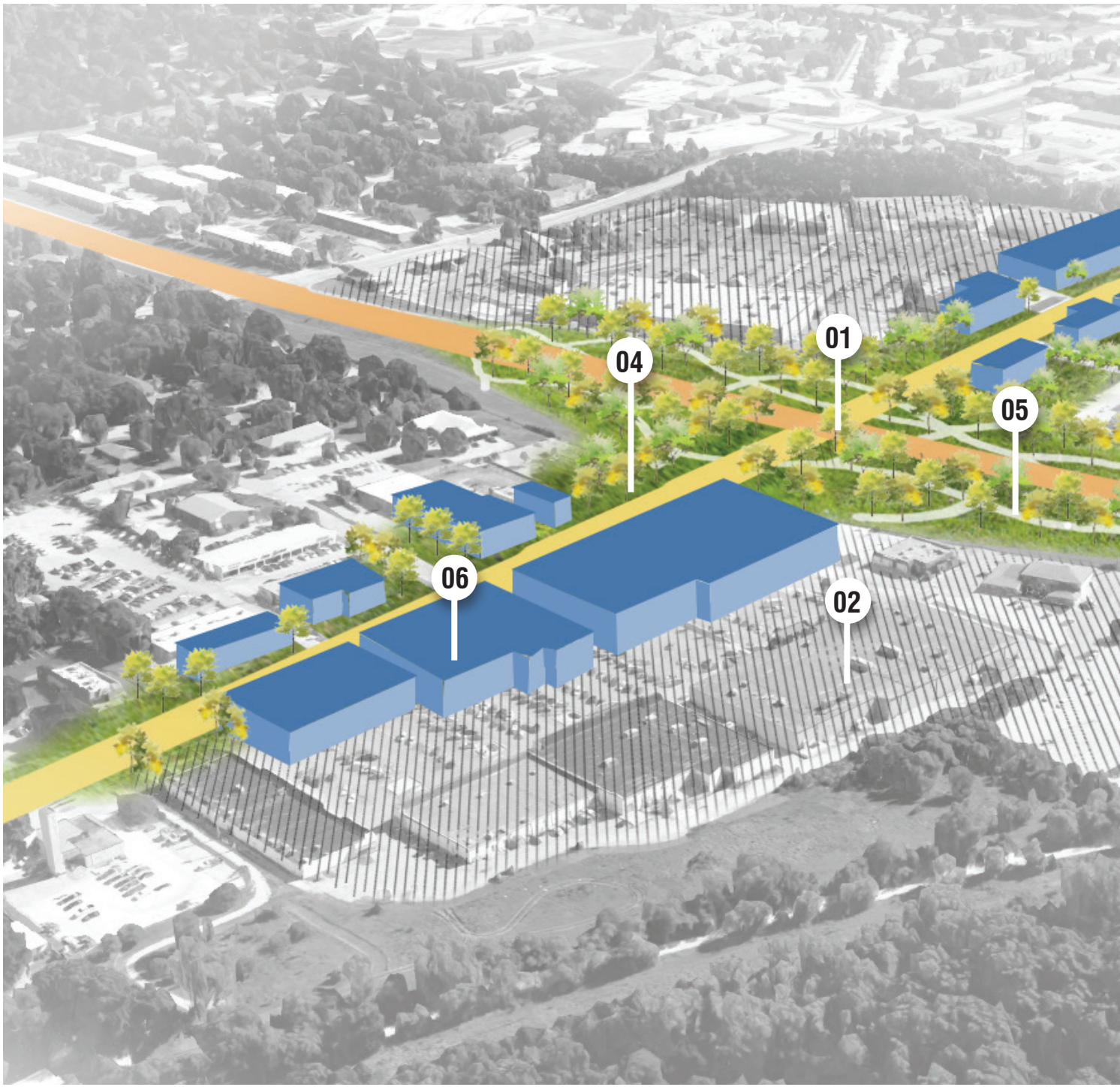
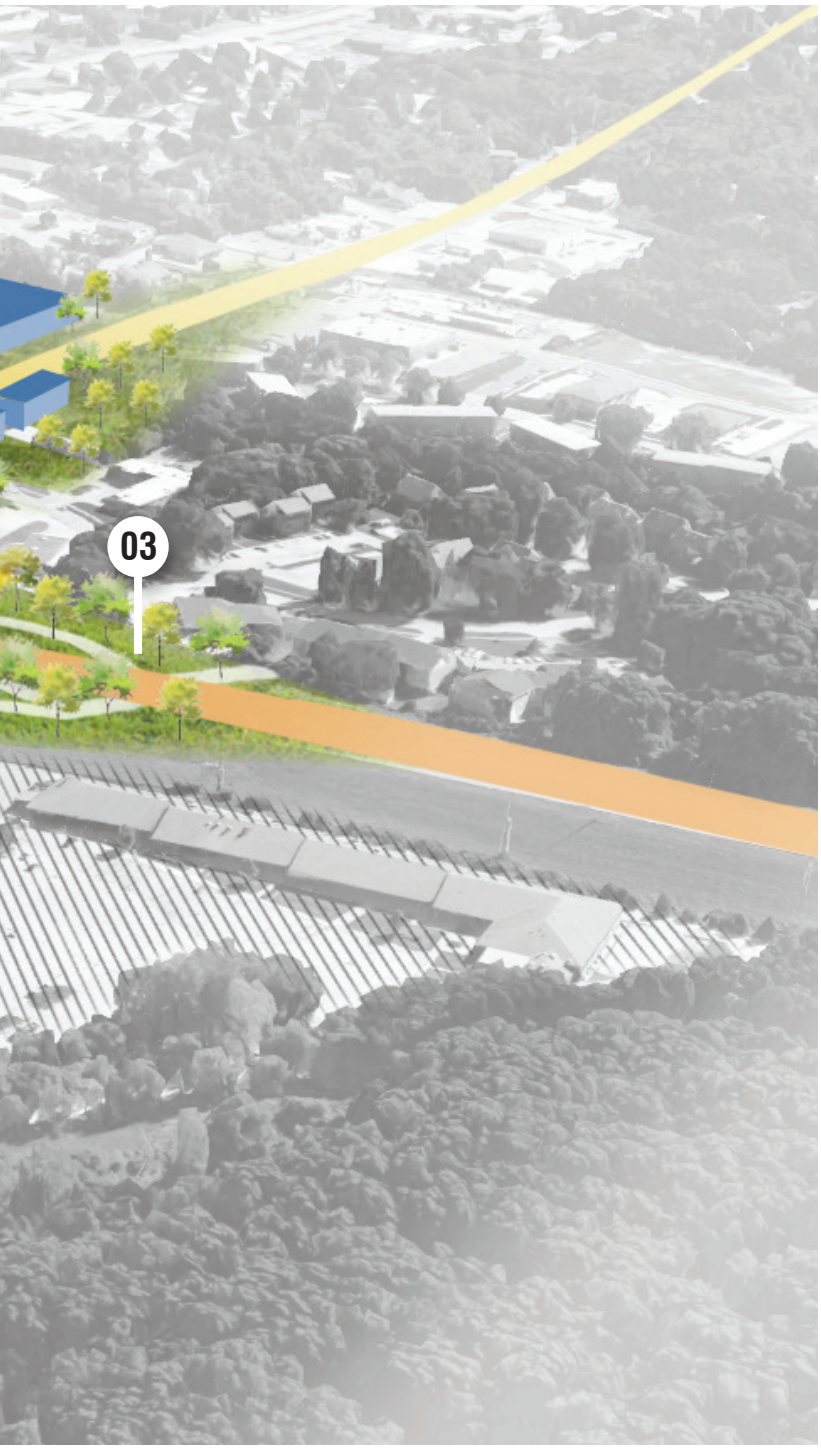


Figure 3.1 Design Strategies to Unify the Quadrants and Create a Cohesive District Identity
Source: Google Earth

Inquiry: What site design strategies can be used to solve existing issues and create a unified district development?
Key Extractions: Implementing design strategies on the site can resolve fragmentation and create a cohesive district identity.
Methodology: Applying design opportunities from precedents to dilemmas identified on the site classification
Conclusions: Combining what was learned from the site assessment with the strategies observed from precedent studies, there are a variety of design solutions to solve dilemmas on site. Lowering Seth Child Road overpass to meet Anderson Avenue on grade will reduce the visible barrier of the highway. Relocating parking behind the buildings, moving buildings closer to Anderson Avenue, orienting buildings to face the street and raising building heights will create a stronger retail corridor. Screening power poles with vegetation or moving utility lines underground will increase the aesthetic quality of the streets, and the addition of trees along the streets will add shade and visual interest to the intersection.



What site design strategies can be used to solve existing issues and create a unified district development?

01. Remove the visible barrier of the highway by lowering South Seth Child Road overpass to meet Anderson Avenue on grade.

02. Relocate parking behind the buildings and increase building height to create a stronger commercial corridor.

03. Create a tree line along the streets, respective of overhead utilities, to add shade and visual interest.

04. Screen power poles or move utility lines underground.

05. Add walking trails along intersection that lead pedestrians into surrounding business development.

06. Move building footprints closer to Anderson Avenue, and orient businesses to face the street.

Legend

- Anderson Avenue
- South Seth Child Road
- Proposed Buildings
- Proposed Trees
- Proposed Parking
- Proposed Trails

6.3

Critical Mapping
Flooding

Study Area Contains Large Expanses of Impermeable Paving

Development within the study area relies heavily on grey infrastructure

W2_GP01_LandUseClassification.PDF

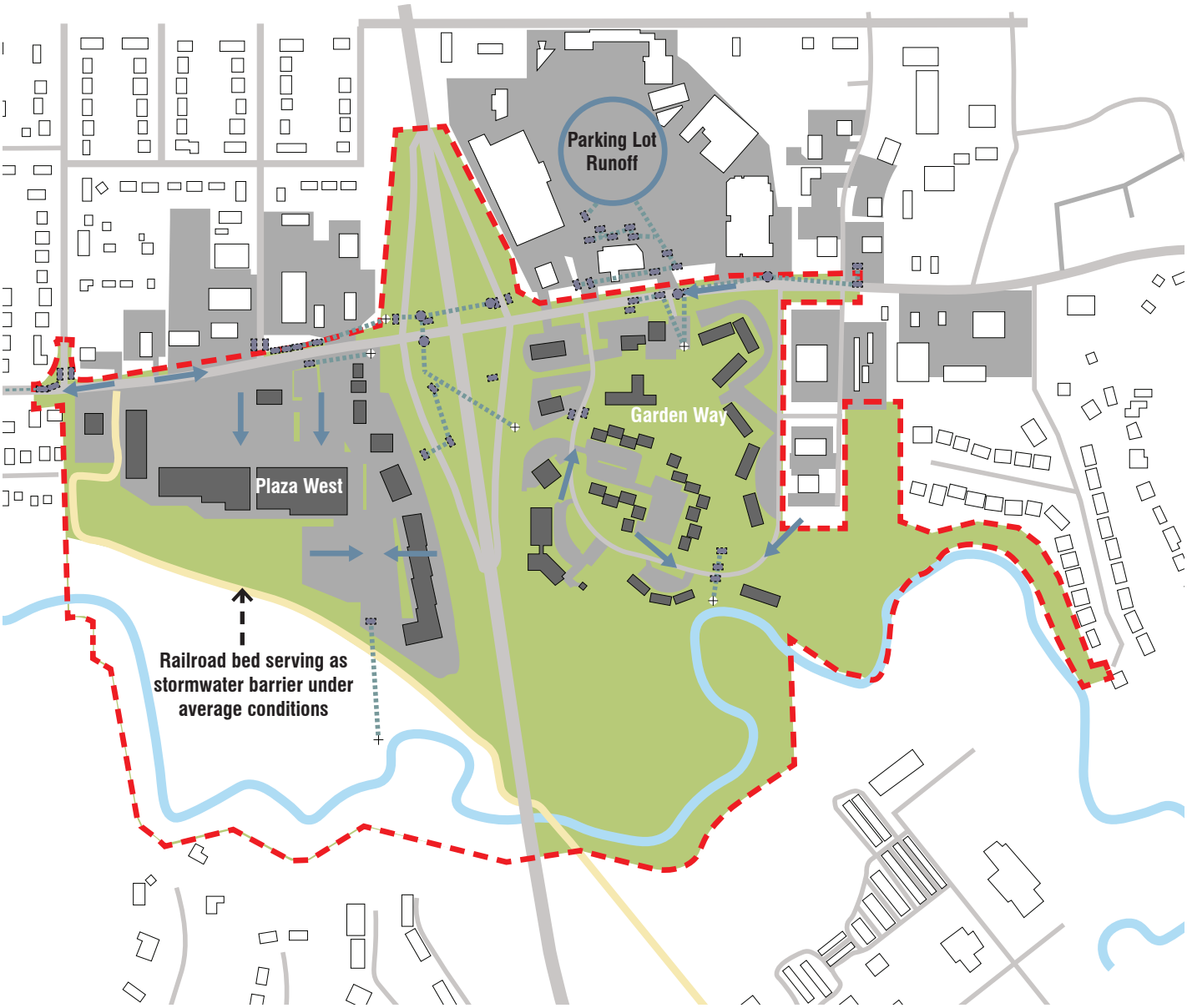
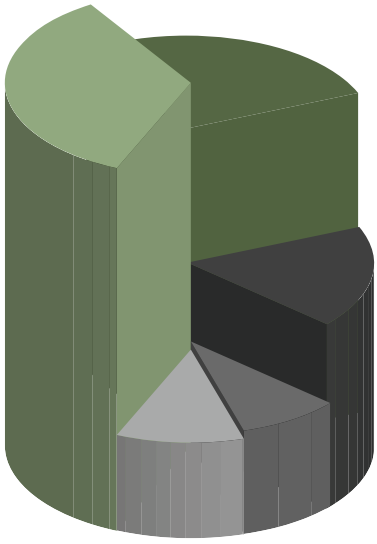


Figure 01. Grey Stormwater Management on Site
Source: https://gis.rileycountyks.gov/

Inquiry: How is storm water managed within the study area?
Key Extractions: Storm water is captured off of the expansive impermeable surfaces and is directed into Wildcat Creek through grey infrastructure (pipes)
Methodology: Stormwater conveyance mapping was derived from a site visit and reviewing Riley County GIS data
Conclusions: The maps and charts above depict that overall the site has a higher ratio of permeable surface to impermeable, though it should be a goal to further increase impermeable surfaces. Where the disparity is easily recognized is within developed areas of the study area. Here, impermeable surfaces clearly dominate the land surface. The storm water from these impermeable surfaces is directed through gutters and pipes into Wildcat Creek without many opportunities to be slowed or captured.

Entire Site



Surface Composition

Woodland Vegetation...	33%
Maintained Low Cut Vegetation...	26%
Parking Lot...	22%
Roof Lines...	11%
Streets...	8%

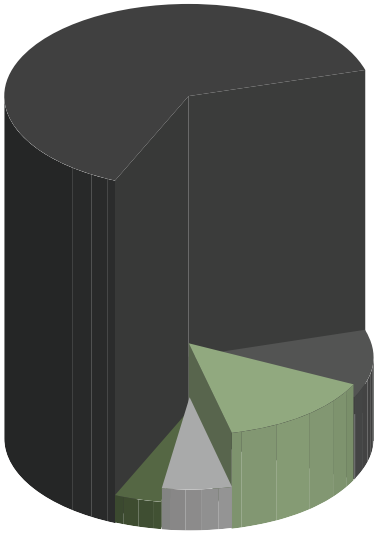


Permeable vs. Impermeable Comparison

Figure 02. Surface Study of Site
Source: Hahn, GIS Data “Buildings”

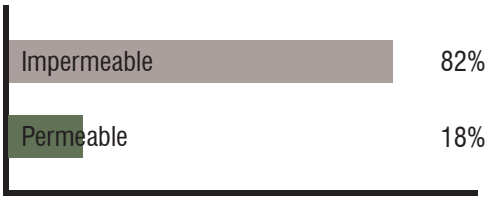
Plaza West

Classification



Surface Composition

Parking Lot...	64%
Maintained Low Cut Vegetation...	14%
Roof Lines...	12%
Streets...	6%
Woodland Vegetation...	4%



Permeable vs. Impermeable Comparison

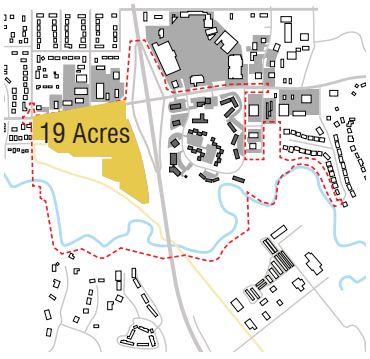
Figure 03. Surface Study of Plaza West
Source: Hahn, GIS Data “Buildings”

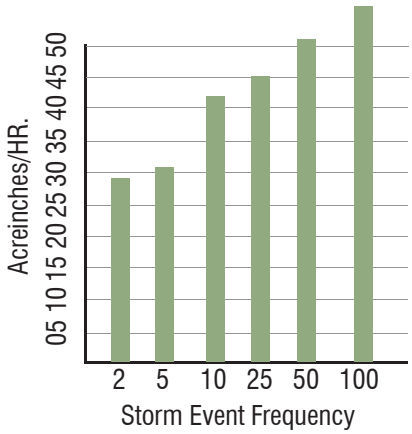
Runoff Calculations based on the Rational Method for Plaza West

Formula: **Q=AxCxI**

Q=Discharge in cubic feet per second
(or acre feet or cubic feet per hour)
A= Area of basin in acres
C= Coefficient of runoff
I= intensity of rainfall in inches

Figure 04. Storm water Calculations
Source: Keane, LAR 410





Oppurtunities Abound for More Green Infrastructure

Rain gardens, bioswales, green roofs, and wetlands could be used

W2_GP02_DrainageOpportunity.PDF

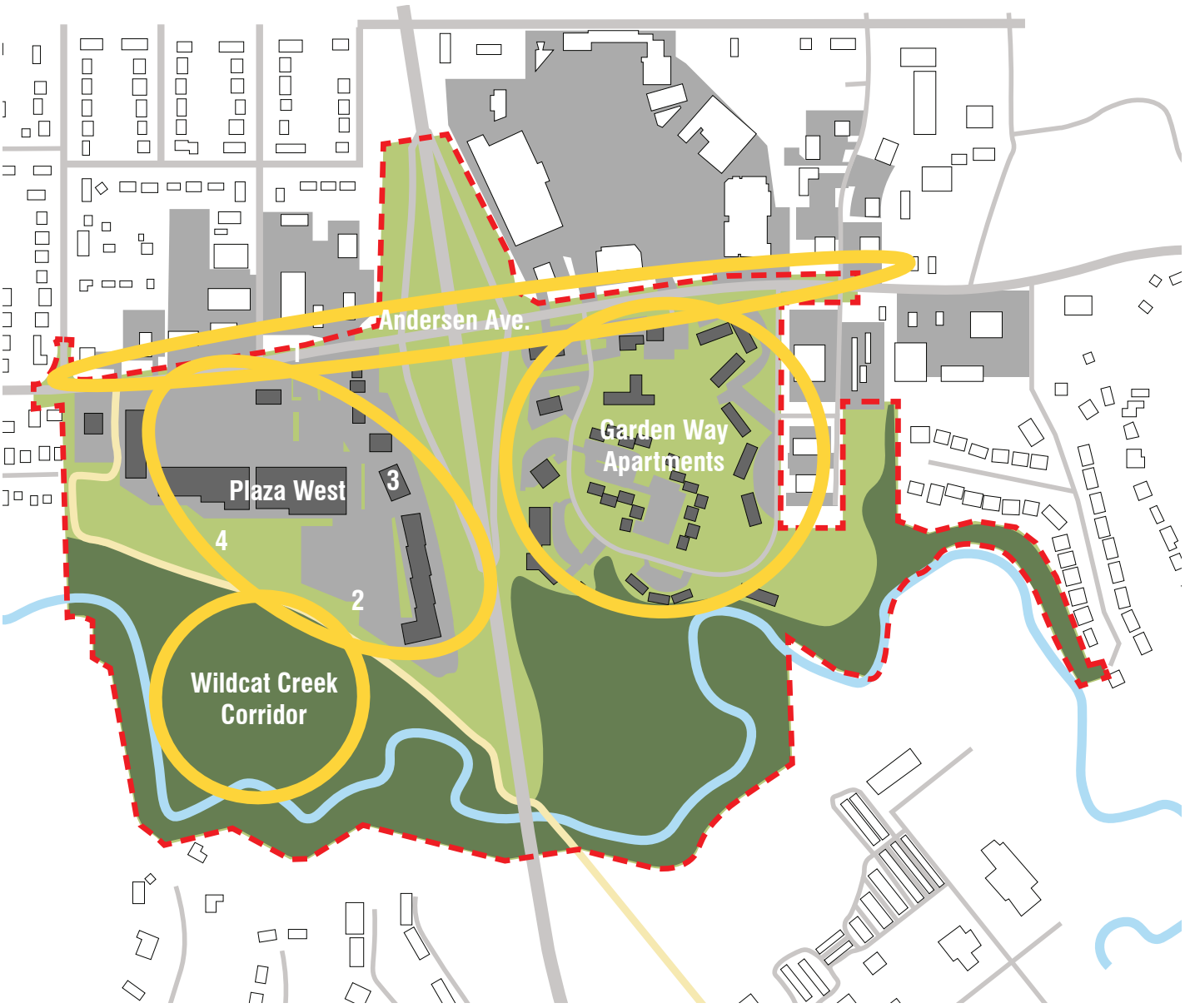


Figure 05. Opportunities for Green Infrastructure on Site
Source: ArcGIS

Inquiry: Where would it be feasible to implement green infrastructure?
Key Extractions: There are a number of locations on site to replace grey infrastructure with green infrastructure methods
Methodology: Storm water infrastructure via data gathered from Riley County GIS, the areas of largest concentration of the inlets and impermeable surfaces were located as opportunities for future green infrastructure.
Conclusions: After analyzing the maps and researching green infrastructure elements, it is possible to reduce the amount of water that runs off of the site and into Wildcat Creek. This is achieved by the replacement of the dominant grey infrastructure present on site with green elements, including bioswale and rain garden inlets along roadways. The area on site where green infrastructure is needed most is on the Plaza West side of the site which is dominated by impermeable surface, as well as along Anderson Avenue.

Possible Addition of Green Infrastructural Elements

Opportunity

Existing Grey Infrastructure/ Conditions

Possible Green Infrastructure



Traditional Curb Inlet
Figure 06.



Roadway Storm Water Inlet
Figure 07.



Traditional Area Inlet
Figure 08.



Bioswale
Figure 09.



Example of Roof Structure on Site
Figure 10.



Green Roof
Figure 11.



Lost Lawn Space
Figure 12.

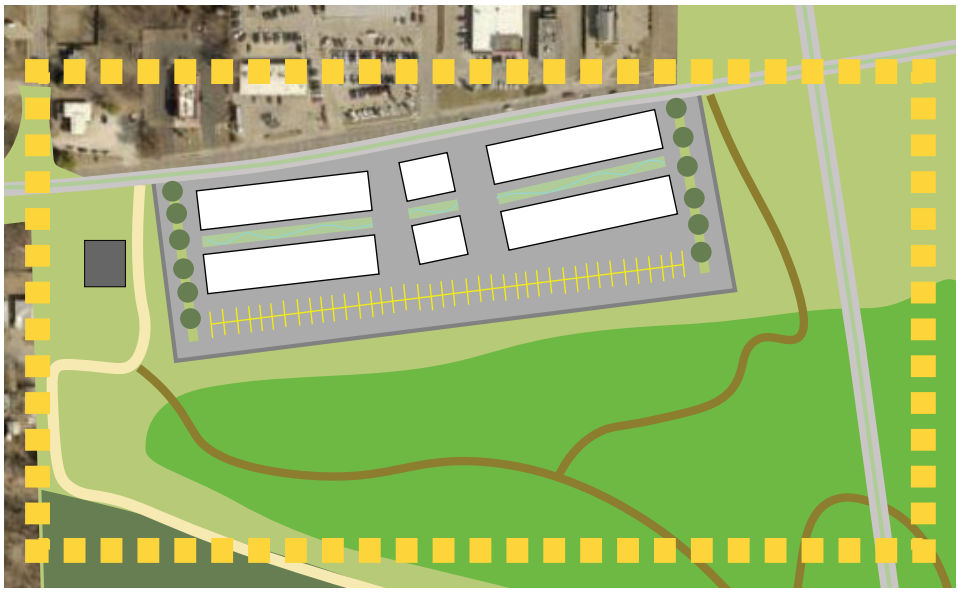


Wetland
Figure 13.

Green Infrastructure Combines Aesthetic with Function

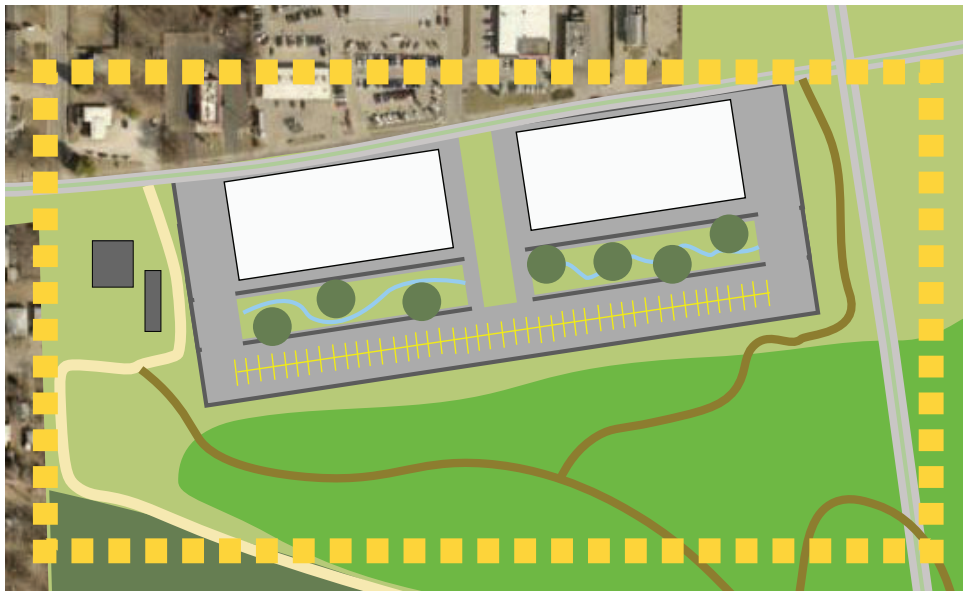
Green Infrastructure Strategies Include Bioswale, Constructed Wetlands, and Green Streets

W2_GP03_StratefyMap.PDF





Scenario 1: The first scenario uses a raised 'pad' to lift the future development above flood levels. There would be access to a wetland constructed in an excavated basin areas. Along with the wetlands there would be the addition of a bioswale channel between buildings in order to treat stormwater while also giving the public an amenity. Anderson Avenue will also be converted into a greenway.



Scenario 2: The second scenario is similar, though it uses a series of terraces. One of these level would be used in treating on-site stormwater. Similar to scenerio 1, there would be a constructed wetland and tAnderson Avenue could be converted into a "green" street.

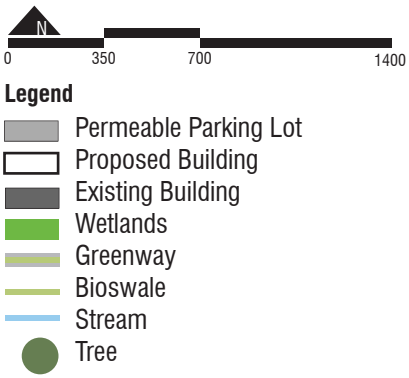


Figure 14. Potential Strategy Plans For Plaza West
Source: ArcGIS

Inquiry: How and how much green infrastructure can be implemented in order to reduce runoff while enhancing the aesthetic quality of Plaza West?
Key Extractions: There are several solutions to drainage issues, all of which can include green infrastructure.
Methodology: Research different types of stormwater management practices, and select a number that could be feasible for the site.
Conclusions: What can be drawn from maps and diagrams above is that there is no one right way to find a solution for the drainage issues on site. Much of the water is being collected from the water shed off site which runs into Wildcat Creek, but there can be a reduction of storm water runoff from the site. This reduction is caused by implementing a number of different green infrastructural practices. These are just a few ideas gathered from preliminary research. Experimentation and futher studies are required determine the best solution for this site.

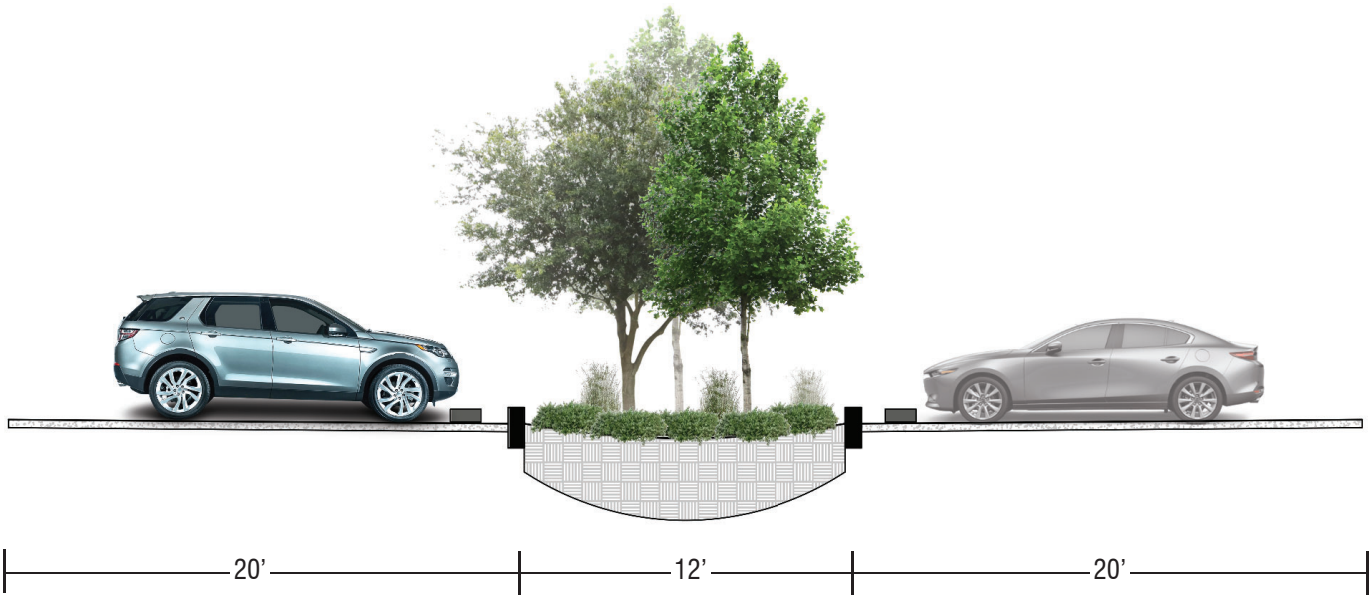
Anderson Avenue Greenway



Anderson Avenue cpuld be converted into a greenway. This type of street has water management elements on either side and the median, this would help filter storm water through green infrastructure rather than through grey infrastructure, like ithe existing pipes. In addition, these changes would make Anderson more pedestrian friendly.

Figure 15. Potential Greenway conversion of Anderson Ave
Source: NACTO

Parking Lot Bioswales



Converting parking lots into permeable paving parking lots would aid in the reduction of stormwater run-off. In addition, bioswales could be added to collect and infiltrate water back into the water table before it leaves the site.

Figure 16. Potential Parking Lot Bioswale Section
Source: NACTO

Several Stormwater Basins Exist Upcreek From Plaza West

With the exception of Anneberg Park, storm basins along Wildcat Creek are not dual-use

Carmichael_LAR646_2019_Critical_Map.PDF

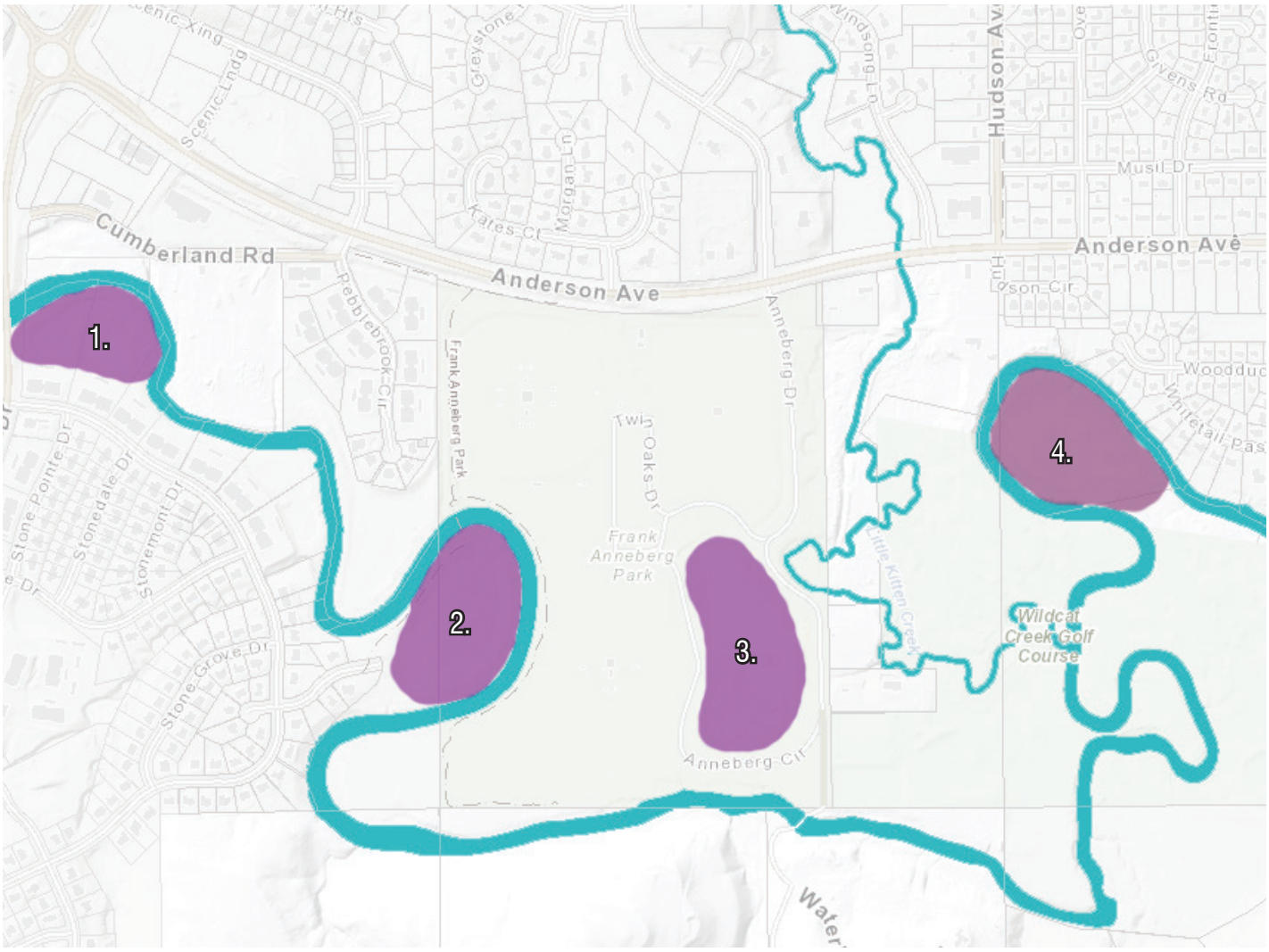


Figure 02. Storm water Basins Near Site

Inquiry: What is the character and function of storm water basins along Wildcat Creek?

Key Extractions: Basin size, vegetation, function, and use by pedestrians.

Methodology: Basins were located and measured on Google Earth, and visited in person to observe their character. Their success was discovered through an interview with a City of Manhattan official.

Conclusions: Most of the other storm water basins on Wildcat Creek are not accessible due to agriculture, housing, or vegetation. Some are covered in crops, others must be accessed through back yards, and yet others are heavily wooded. All of the basins which were observable and accessible were 5-10 acres large, and were able to hold and infiltrate storm water back from existing development during major flooding events. The retention pond at Anneberg Park was the only multi-purpose basin. The rest were just bowls of vegetation that could not be accessed or utilized in any way.



Fig. 03



Fig. 04

1 & 2. Grassland Detention Basin

Vegetation: Grasses and wildflowers

Function: Water Detention keeps nearby apartments and houses from flooding

Access: No access
Dual-use: None

Size:
1. 4 acres
2. 6.5 acres



Fig. 05

3. Pond Retention Basin

Vegetation: Mosses and water-side vegetation

Function: Retain storm water as a pond which can be used for fishing;lower portions of the park also serve as detention basins

Access: Pedestrians cannot enter basin for recreation such as swimming, but can fish on the pond, skip rocks, and sit at the water's edge.
Dual-use: Recreation

Size: 4.5 acres



Fig. 06

4. Woodland Detention Basin

Vegetation: Trees and Shrubs such as:
- Bald Cypress
- Sycamore
- Mulberry

Function: Hold, absorb, and infiltrate storm water.

Access: No trails lead into the more woodland-like detention basins. Pedestrians cannot access them.

Dual-use: None

Size: 9 acres

Underutilized Acres Along Wildcat Creek Could Serve Detention Functions

Additional stormwater detention areas could reduce flood potential

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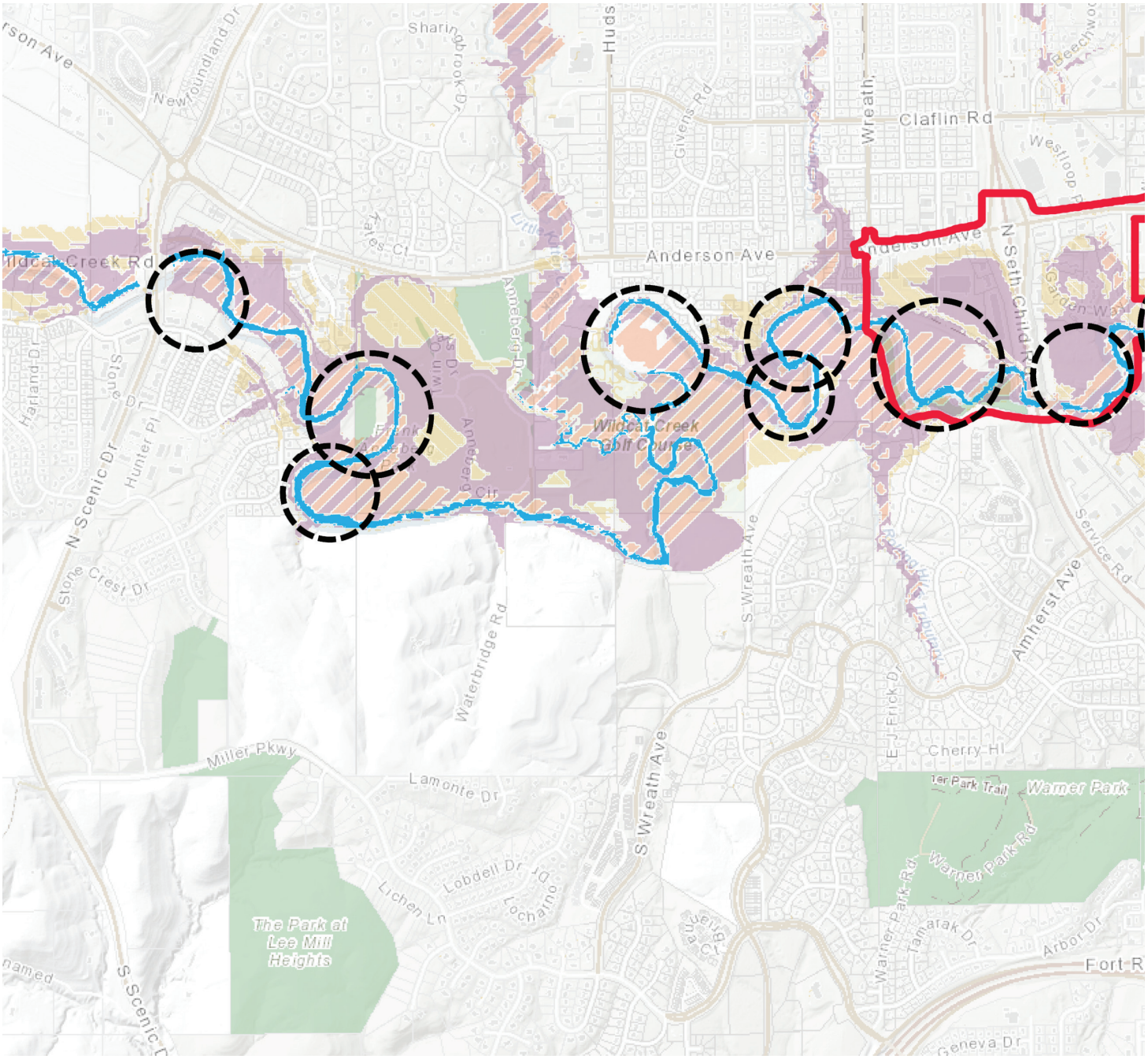


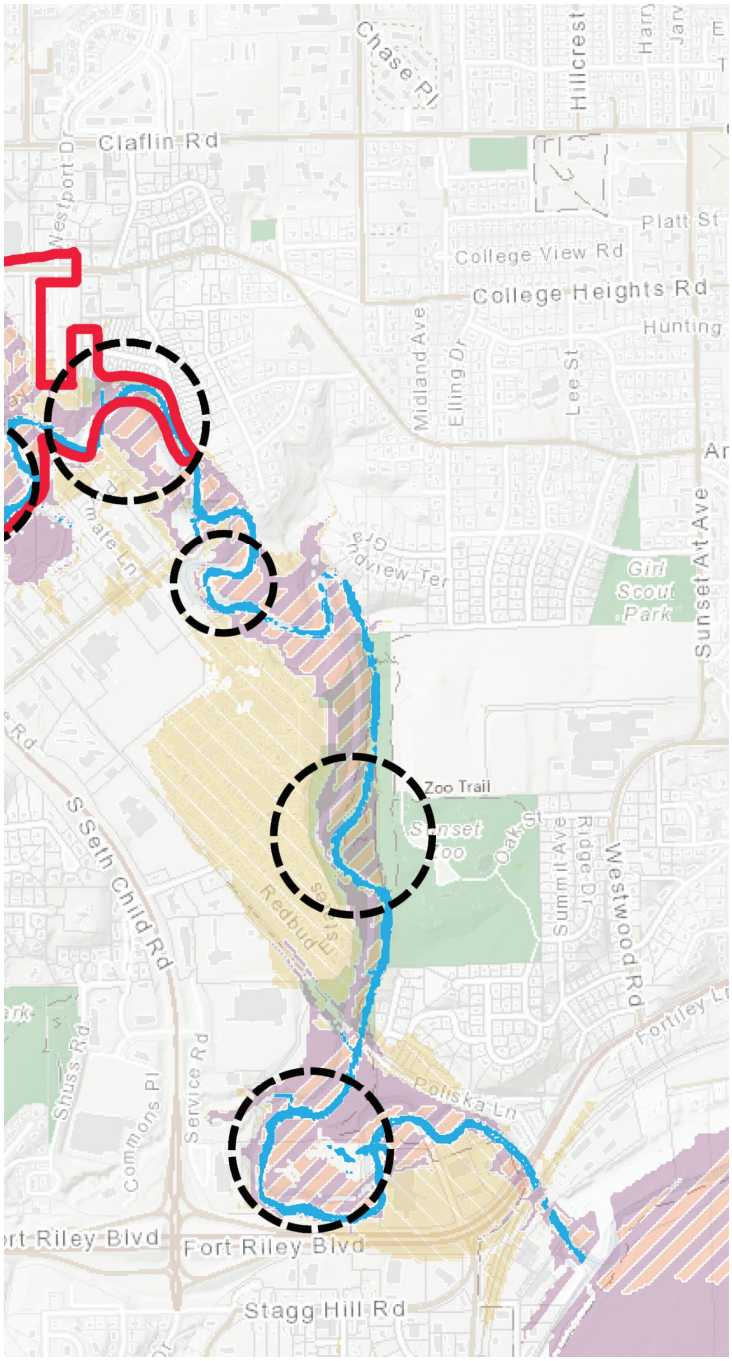
Figure 07. Locations for Future Multi-Purpose Storm water Basin Implementation

Inquiry: Are there other sites along wildcat creek that are good candidates for multi-purpose storm water management basins?

Key Extractions: Areas where flooding is common, and there is relatively little development.

Detention: Used Google Earth and the National Weather Service Flood Prediction Model to identify areas where other projects could be implemented.

Conclusions: There are several sites along wildcat creek that are currently under-utilized, often flooded, and perhaps not reaching their full potential for flood mitigation in their current natural state. These areas may be good candidates for further implementation of multi-purpose storm water management projects such as the multi-purpose storm water management detention and retention basins considered in this project.





Legend

- 1% Annual Chance of Flooding
- Regulatory Floodway
- 500 Year floodway
- Parks
- Wildcat Creek
- Site Boundary
- Opportunity Areas

Map 3.2b

Stormwater Detention Basins Can Serve Dual Functions for Added Value

Dual functions can include ecological and recreational uses

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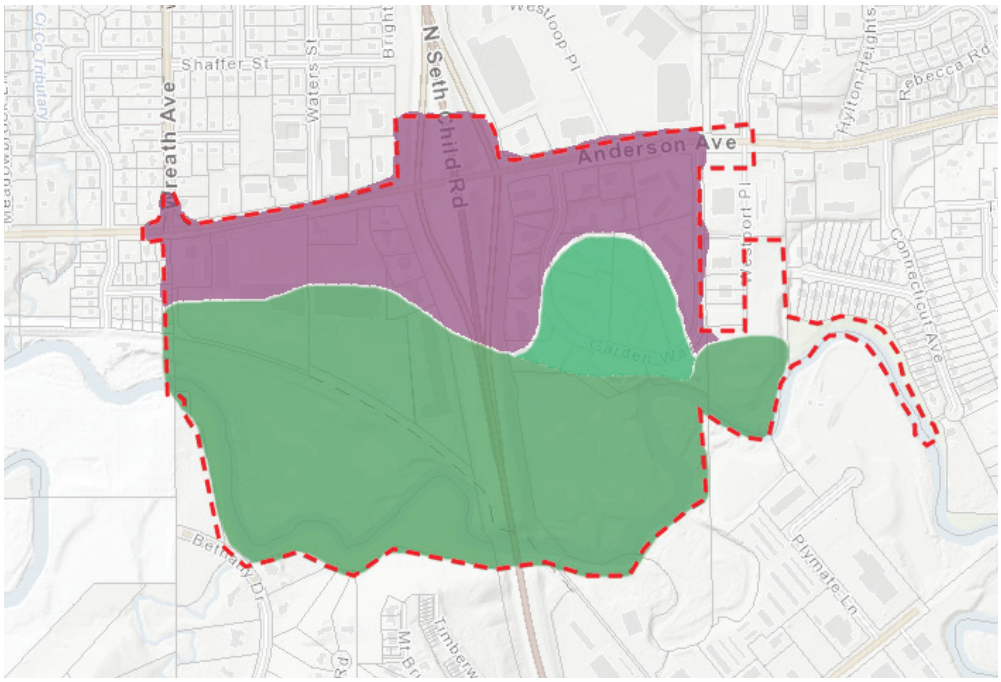
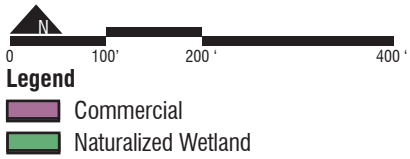
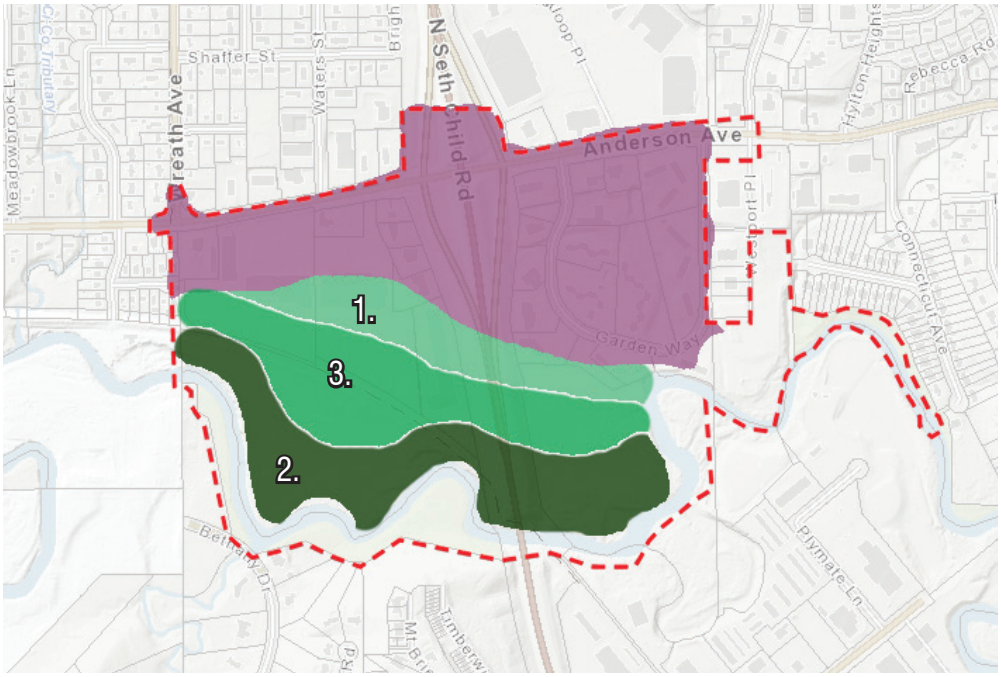






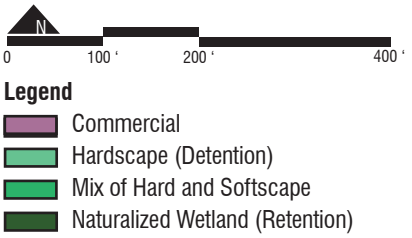


Figure 08 & 09. Strategies for Multi-Purpose Storm water Management Implementation

Inquiry: What Strategies can be used to provide the most effective management of storm water, as well as recreational uses

Key Extractions: Ingenious Architecture: A Skate park that Prevents Flooding, Enghavenparken in Copenhagen, MIT Guidelines for Urban Wetlands.

Methodology: Precedents for storm water management strategies were researched, to stimulate dual-function ides. A number of strategies from a mixture of the precedents will be considered in the final design of the site.

Conclusions: There are many strategies for storm water management in cities and along streams/rivers. Some of these strategies are more people oriented, and others are focused on providing habitat and restoring natural systems. Some incorporate hardscape stormwater management strategies, while others use softscape and vegetation to mitigate flooding. A mixture of these techniques will be used in the design of the site.



Fig. 10

1. Skateboard Park Channel

A hardscape detention basin or channel could also take the form of a recreation facility such as a skate park. This could not only direct storm water, but also provide recreation opportunities such as skateboarding or roller-blading.

- Direct Storm water
- Detain Storm water
- Recreation
- Aesthetic

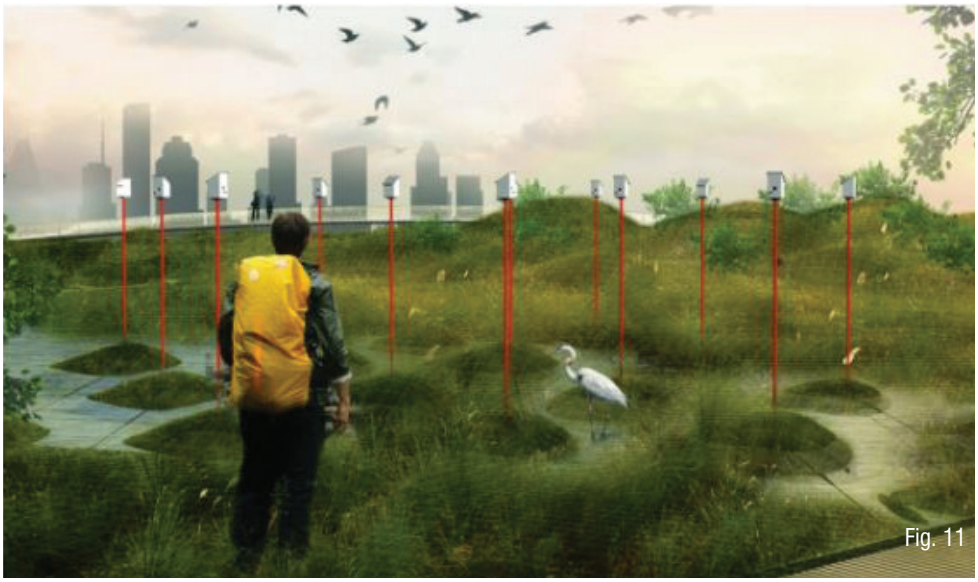


Fig. 11

2. Urban Wetland

A softscape retention basin could serve the function of wildlife habitat, water infiltration, and nature observation. This design would hold and absorb flood waters. It could offer recreation opportunities such as observation of wildlife and natural systems at work. Boardwalks could be utilized to avoid disturbing the systems.

- Nature Observation
- Recreation
- Natural System Restoration
- Stormwater Retention
- Wildlife Habitat

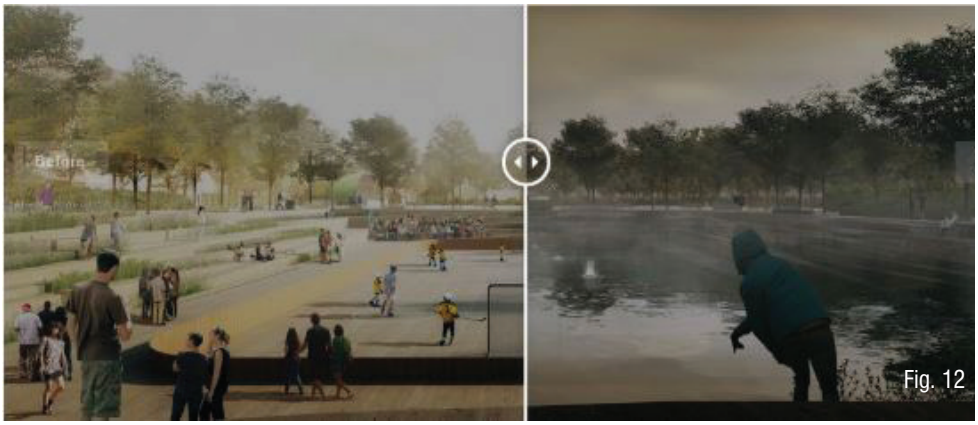


Fig. 12

3. Sports Field/Pond

Mixed hard and softscape detention basin and retention basins could work together to hold filter, and manage storm water. A hardscape detention basin can be utilized as a sports facility/seating area during dry seasons, and as a reflecting pool, wildlife habitat. Softscape retention basins such as planters can add vegetation, shade, and habitat to the design.

- Recreation
- Stormwater Detention
- Wildlife Habitat
- Stormwater Retention
- Observation

Levees Have Proven Effective as a Flood Defense Strategy for Eastern Manhattan, KS

The Wildcat Creek floodplain mimics pre-1951 downtown Manhattan.

W2_HW01_Comparison_PDF -

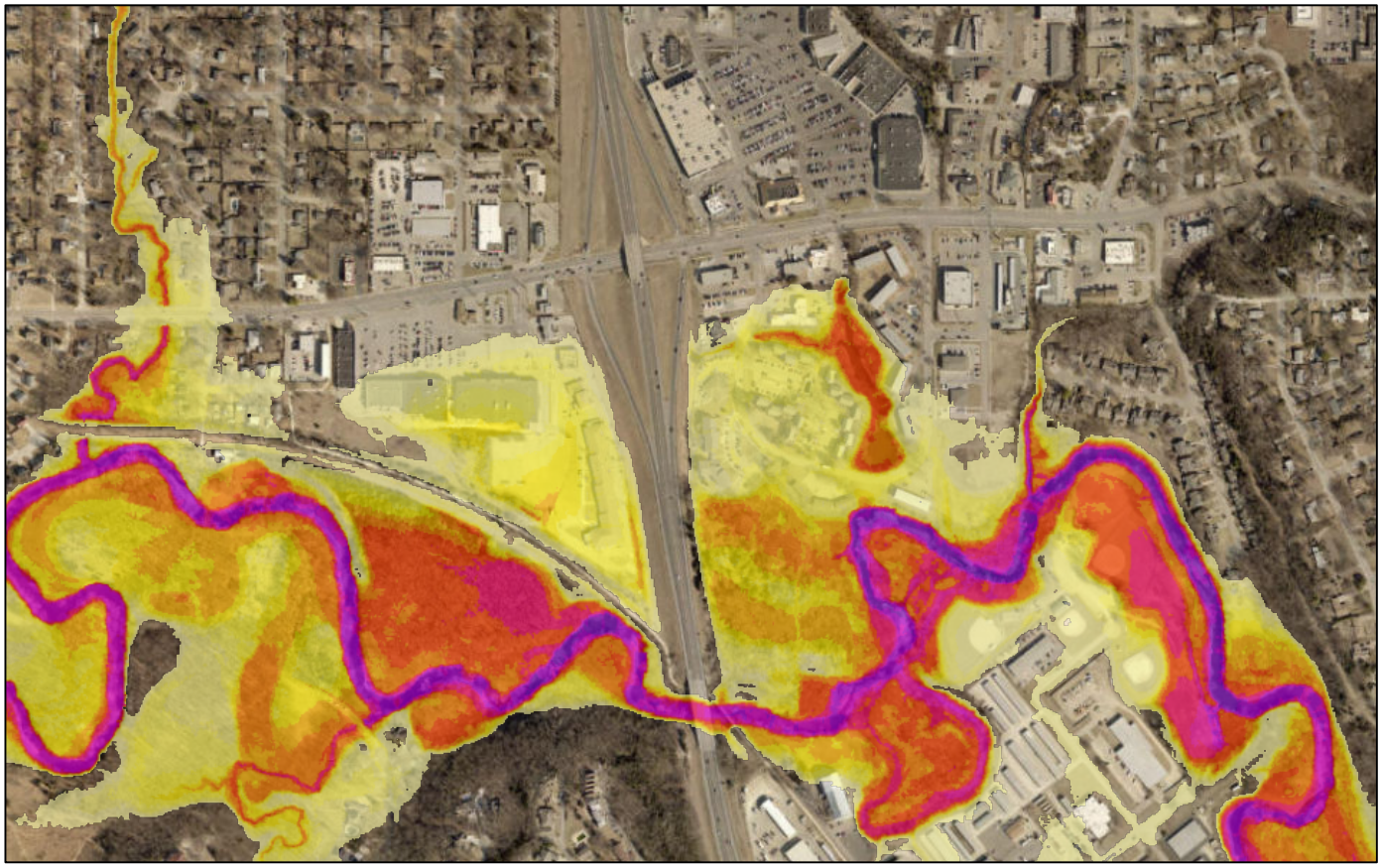


Figure 01. Depth Grid of Potential Flood Levels along Wildcat Creek
Source: (Weinberg 2019. Depth Grids for Wildcat Creek)

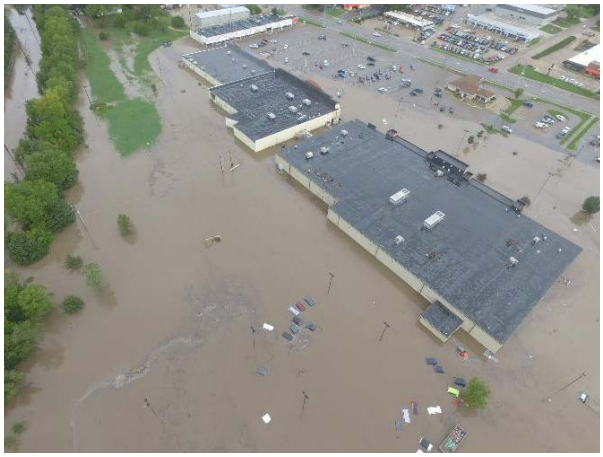


Figure 02. Southwest Corner of Seth Child and Anderson During Labor Day Flood of 2018
Source: ("Untitled Photograph of Major Flooding by Wildcat Creek" 2018)



Figure 03. Southeast Corner of Seth Child and Anderson
Source: ("Wildcat Creek flooding in 2011 near Anderson and Seth Child" 2011)

Inquiry: Could a Levee be an effective management strategy for the flood-prone portions at Wildcat Creek?
Key Extractions: Flood prone areas along the Kansas River and Wildcat Creek, area protected along levee.
Methodology: Maps were extracted from http://cityofmhk.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=abb56c28c2184027a1863f5fed22ff11.
Conclusions: Since the construction of a levee, in response to the inundation of downtown in 1951, downtown Manhattan has remained safe from flooding in all seasons. Flooding along Wildcat Creek shows similar patterns that could be managed with a system of levees along the floodplain.

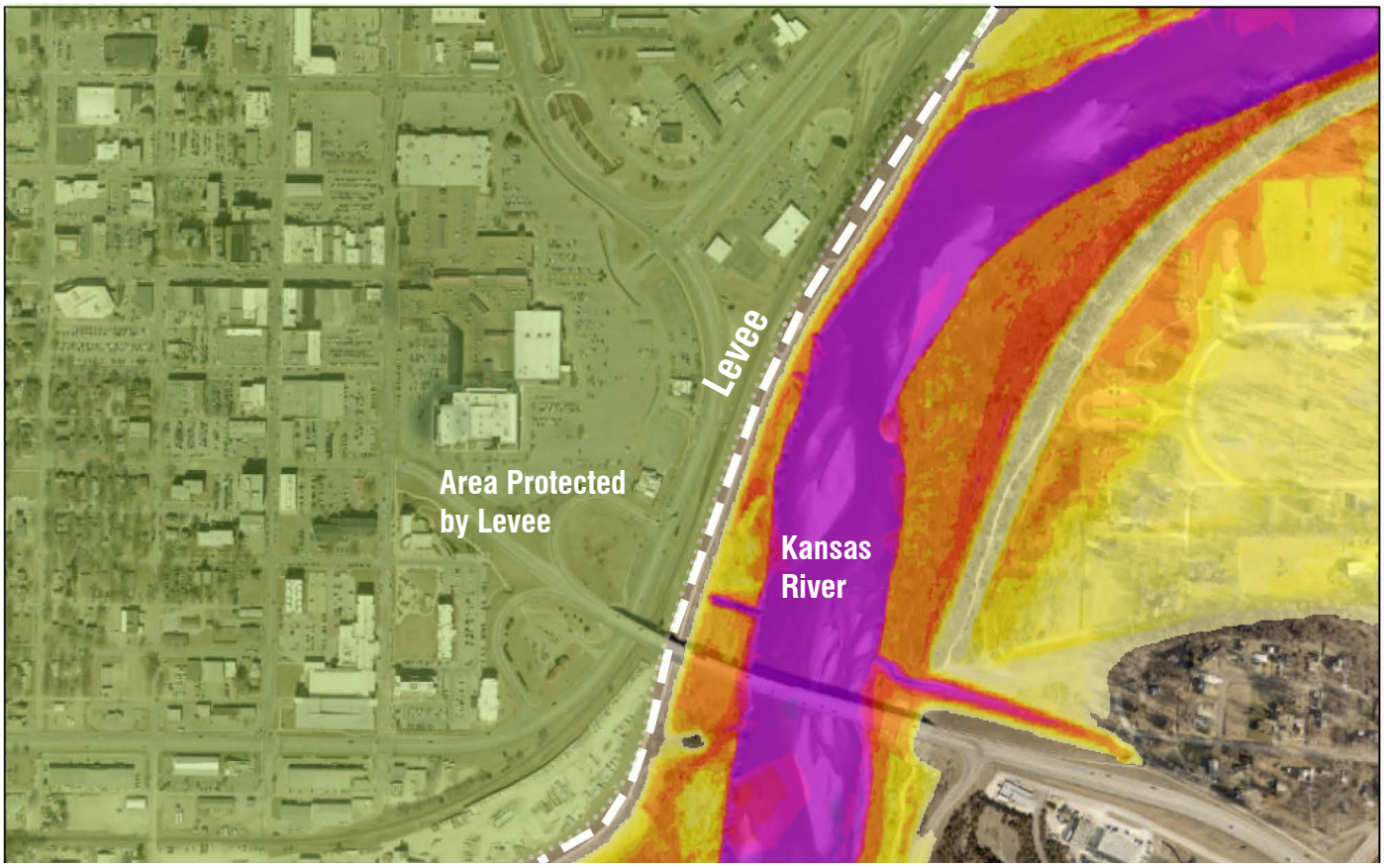


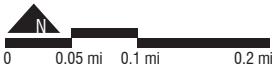
Figure 04. Depth Grid of Potential Flood Levels along the Kansas River
Source: (Weinberg 2019. Depth Grids for Kansas River)



Figure 05. Downtown Manhattan During Historic Flood of 1951
Source: (King 1951)



Figure 06. A Resilient Downtown Manhattan Today
Source: ("Untitled Photograph of Steve's Floral" N.d.)



Projected Depth (in feet) During 100-year Storm Event

- 0-4.0
- 4.1-8.7
- 8.8-10.5
- 10.6-15
- 15.1-22
- 22.1+

Combining Functioning Levee Could Combine Function with Sculpted Landform

While standard levees are often unappealing, integrating sculptural landform and wetland habitat into the levee system creates a function and aesthetic asset.

W2_HW01_Opportunity.PDF



Figure 07. Standard Levee
Source: (Weinberg 2019. Standard Levee)

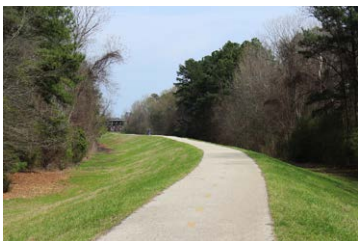


Figure 08. Levee Trail, Northport, AL
Source: (Kirkland N.d.)



Figure 09. Sleeper Dike "Schlafdeich"
Source: (Weinberg 2019. Sleeper Levee "Schlafdeich")



Figure 10. Sleeper Levee, or "Schlafdeich" in Germany
Source: ("Haupt- und Schlafdeich" 2015)

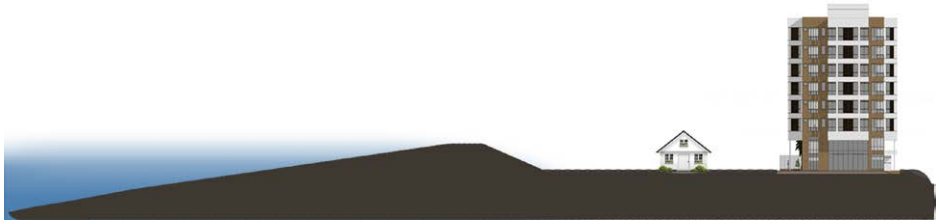


Figure 11. Horizontal Levee / Living Shoreline
Source: (Weinberg 2019. Horizontal Levee)



Figure 12. Living Shoreline Restoration in Edenton, North Carolina
Source: ("Completed Living Shoreline Restoration Project" N.d.)

Inquiry: How could a levee become social infrastructure?
Key Extractions: Relationship of built structures to water in various levee scenarios.
Methodology: Section diagrams formed from precedent levee types.
Conclusions: Standard levees designed by engineers are often not aesthetically pleasing and do little to activate the waterfront they occupy. Additionally, the standard trapezoid levee has a limited flood capacity (failsafe), whereas the sleeper levee and horizontal levee strategies are more adaptive to flooding (safe to fail). Combined with the playfulness of sculpted landform, a levee along Wildcat Creek could provide a creek-front destination and recreation space.



Figure 13. The grounds of the Scottish National Gallery designed by Charles Jencks.
Source: ("Landform Ueda." N.d.)



Figure 14. Jupiter Artland in Edinburgh, Scotland, designed by Charles Jencks to show the life stages of a cell.
Source: (Lord 2011)



Figure 15. The Garden of Cosmic Speculation by Charles Jencks, invites visitors to explore the character of the universe through interpretive landform.
Source: ("Untitled Photograph of the Garden of Cosmic Speculation." 2012)

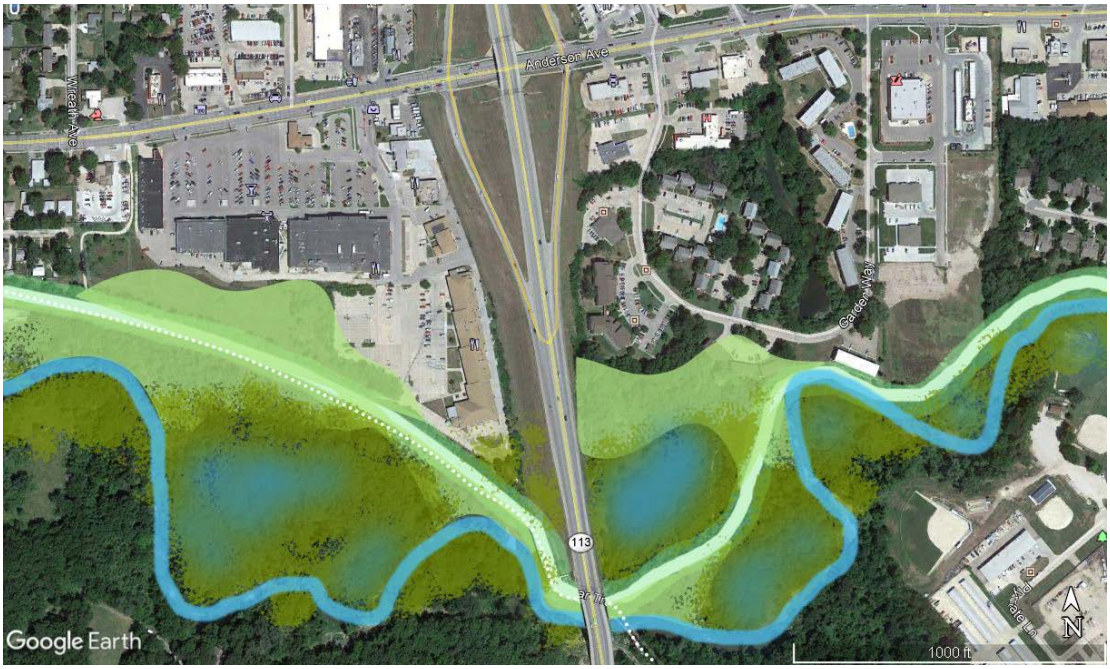


Figure 16. The Tom Hanafan River's Edge Park in Council Bluffs Iowa incorporates recreation into the flood management strategies along the Missouri River
Source: ("Untitled Photograph of the Tom Hanafan River's Edge Park." 2015)

Various Levee Configurations and Proximities Offer Potential Recreation Opportunities

Sculptural levees shield intersection from flooding

W2_HW01_Strategy.PDF



Strategy 1

Figure 17 Reinforce Linear Trail as a functional levee and expand floodplain to allow for retention areas
Source: (Weinberg, Haley. 2014. Site Strategy 1)

This strategy maximizes naturalized wetland by separating recreation areas with the levee.



Strategy 2

Figure 18. Nestle levee around existing development, using Linear Trail as a delineation between sculpted recreation and naturalized wetland retention areas.
Source: (Weinberg, Haley. 2014. Site Strategy 2)

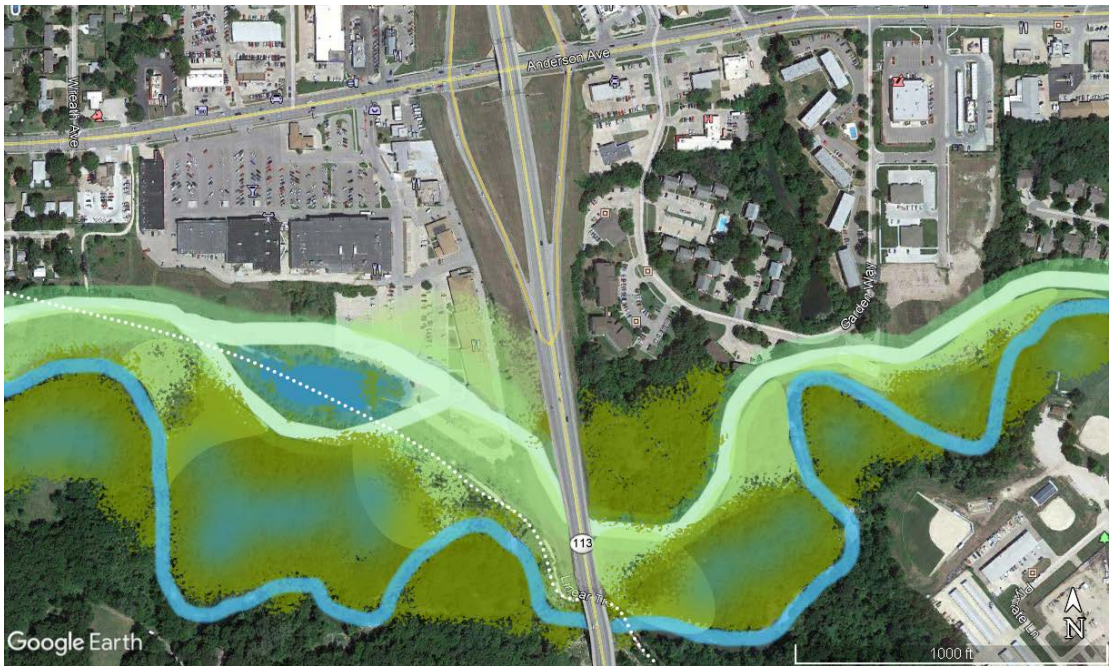
This strategy balances recreation and naturalized areas by segregating them with linear trail.

Inquiry: How does a levee's arrangement affect its programmatic opportunities?
Key Extractions: Proposed levee configurations, recreation vs naturalized space, retention areas
Methodology: Projected levee conditions based on existing Linear Trail connections and intersections with Seth Child Road.
Conclusions: The path of the proposed levee alters the adjacencies and relationships of programming. Strategies 1 & 2 align linear trail along or aside the levee, while Strategies 3 & 4 undulate across and intersect linear trail at various points along the path, changing the program relationships. For this reason, 1 & 2 offer more compartmentalized programming while 3 & 4 interweave recreation and natural areas across linear trail. Strategies 1 & 3 intersect Seth Child along the existing linear trail corridor, whereas 2 & 4 take the levee north to expand the floodplain.

Strategy 3

Figure 19. Undulate levee along linear trail, creating a series of retention basins inland of the levee system.
Source: (Weinberg, Haley. 2014. Site Strategy 2)

This strategy maximizes recreation along the levee.

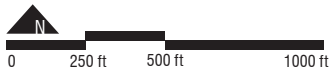


Strategy 4

Figure 20. Undulate Levee across Seth Child north of the linear trail crossing, creating recreation areas on both sides of Seth Child.
Source: (Weinberg, Haley. 2014. Site Strategy 2)

This strategy balances recreation and naturalized areas by interweaving them throughout both sides of the levee.





Proposed Conditions

- Levee
- Sculpted Recreation Area
- Naturalized Floodplain
- Stream Channel and Retention

Map 3.3c
Higher Ground - West Side District Proposal

Structures have varying Levels of Vulnerability are Dependent on Storm Event

Some structures are more vulnerable and prone to flooding depending on the storm event

MAP-Levels-of-Vulnerability.psd

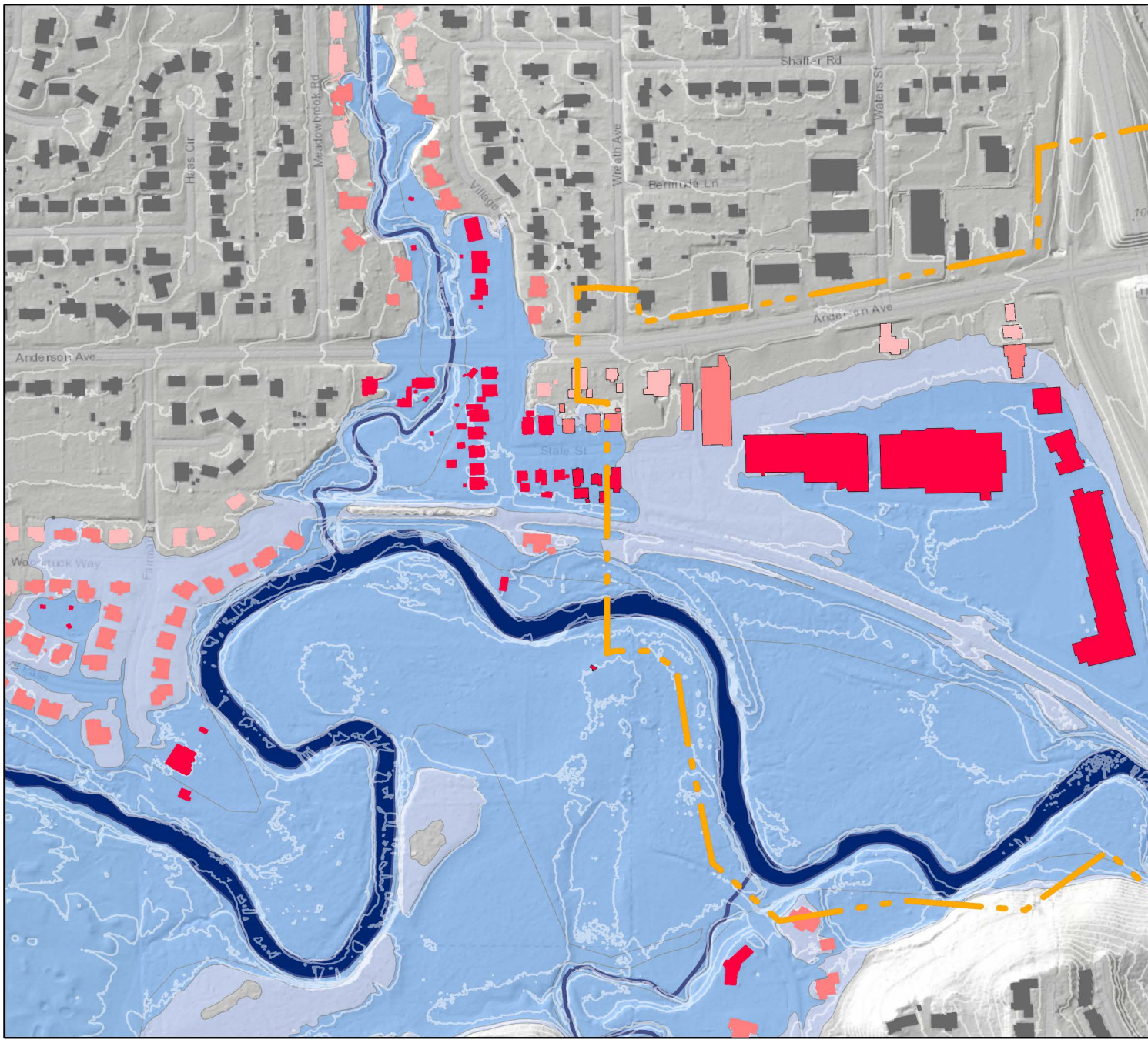


Figure 01. **Levels of Vulnerability Map**
Source: Nick Ferrara, ArcGIS, City of Manhattan Kansas.

Inquiry: What buildings within the site and context of the site would be most likely to be damaged or inundated during a flood?
Key Extractions: Floodplain Levels and Buildings at Risk
Methodology: Wildcat Creek has flooded numerous times in the last ten years. Several studies were conducted by the city of Manhattan in 2013 to examine communities along Wildcat Creek to examine flood level potentials, both when they were written and for future conditions. A site visit was conducted to examine existing buildings on site and determine their condition and thier usability and whether or not they sustained flood damage in 2018. This was done by visiting the businesses and making a quick inquiry as to what happened to each building in the 2018 flood. Other buildings were still under renovation and it was obvious they had taken flood damage. After examining various studies from 2013, building vulnerability was determined by examining their proximity to streams and where they sit within the flood hazard zones.
Conclusions: The map above shows that many of the buildings and businesses on the Plaza West side of the site and homes in the neighborhood adjacent to the site are at high risk for flood damage. Other buildings throughout and around the context of the site are at medium risk for flood damage, especially if heavy regional rains inundate the city with water. The remaining buildings are at low risk, but could be affected by flood levels in the future.

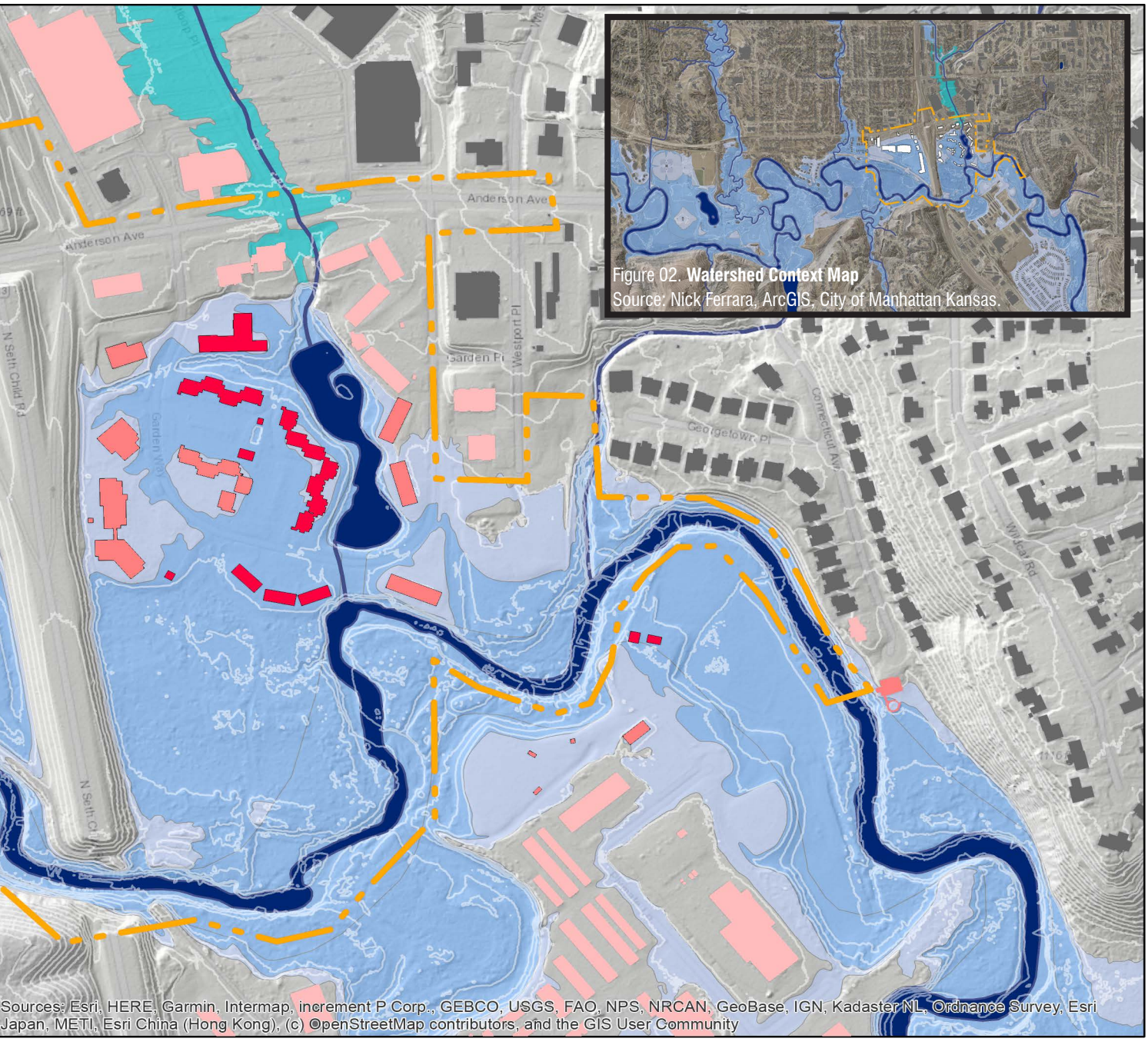


Figure 02. **Watershed Context Map**
Source: Nick Ferrara, ArcGIS, City of Manhattan Kansas.

N

0’ 200’ 400’ 800’

Legend: Flood Levels and Levels of Vulnerability

- Site Boundary
- Existing Streams and Drainageways
- 1% Annual Chance Flood Hazard **(100-year event)**
- Future Condition 1% Annual Chance Flood Hazard **(500-year event)**
- 0.2 % Annual Chance Flood Hazard
- Highest Vulnerability
- Median Vulnerability
- Low Vulnerability

Various Flood Control Strategies create Options and Opportunities

Designers and clients can choose from a wide array of strategies based on varying needs, goals, and costs

MAP-Savable-and-Nonsavable-Buildings

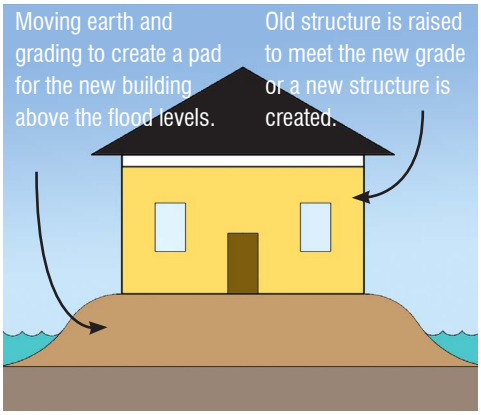


Figure 03. **Strategy A - Building Elevation via Earthwork and Fill**
Source: Nick Ferrara

- Building up earth to create a higher pad for a building to sit on is an efficient way to safeguard against rising flood levels
- This method requires large heavy equipment in order to move dirt. Bulldozers, graders, and scrapers are common equipment required for this operation
- In addition to the earthwork, the structure's foundation must be raised thus the structure meets the new elevation or a new structure is built

Relative Cost of Retrofit Strategy
Source: FEMA

$$$$$

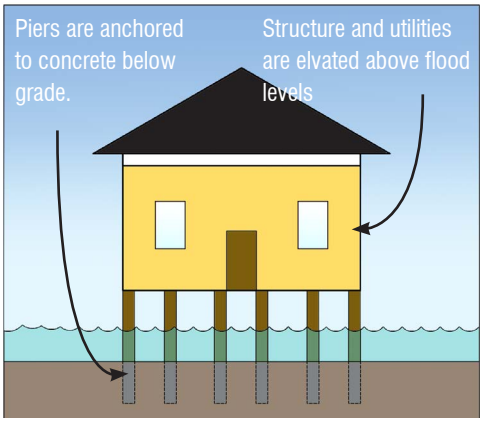


Figure 04. **Strategy B - Building Elevation via Piering**
Source: Nick Ferrara

- Elevating the existing or new building above the flood level by building on stilts or piers (FEMA)
- These buildings can be designed to be architecturally pleasing
- The building's underfloor can become a semi private space or patio so that this space does not go unused

$$$$

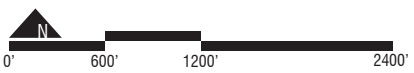


Figure 05. **Retrofitable/Reconstructable Buildings vs. Non-retrofitable Buildings**
Source: Nick Ferrara ArcGIS, City of Manhattan Kansas

Note: Buildings deemed non-retrofitable could and will be demolished because they are unlikely to be insured due to how prone they are to flooding.

Legend

- Buildings to NOT be Retrofitted; also likely to be demolished
- Buildings to be Reconstructed or Retrofitted to become Flood Resilient



Inquiry: What are the methods of building and retrofit strategies that could be useful on site? What buildings are worth trying to adjust and modify and what buildings are likely/will be demolished?
Key Extractions: Overview of new construction and retrofit strategies, their relative cost, and which buildings are deemed "retrofittable".
Methodology: Using the previous map, buildings were examined for their flood risk. This map examines not only the location of the buildings, but also how much damage they received during the flood and whether or not the buildings had been reopened. The diagrams above are based on and are from information found online from the Federal Emergency Management Agency (FEMA). The diagrams display how each new construction method or retrofit method would work in most given settings.
Conclusions: These methods outlined by FEMA can help make structures located within the site become more resilient to flooding and can potentially save property owners from having to repair structures damaged by flood.

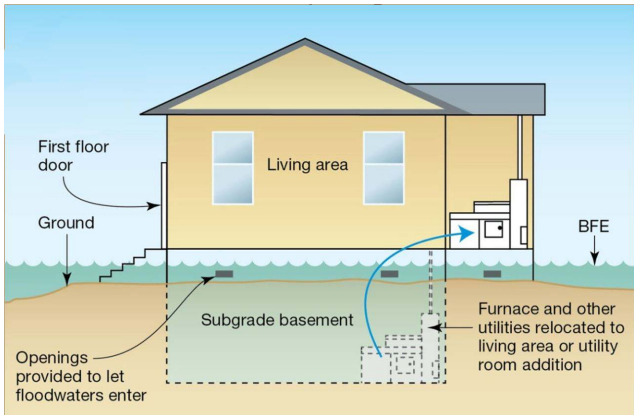


Figure 06. **Strategy C - Wet Floodproofing**
Source: FEMA

- This method allows water to enter the structure through control points and focuses on protecting important equipment
- Often considered a low cost method, but still requires post flood cleanup

Relative Cost of Retrofit Strategy

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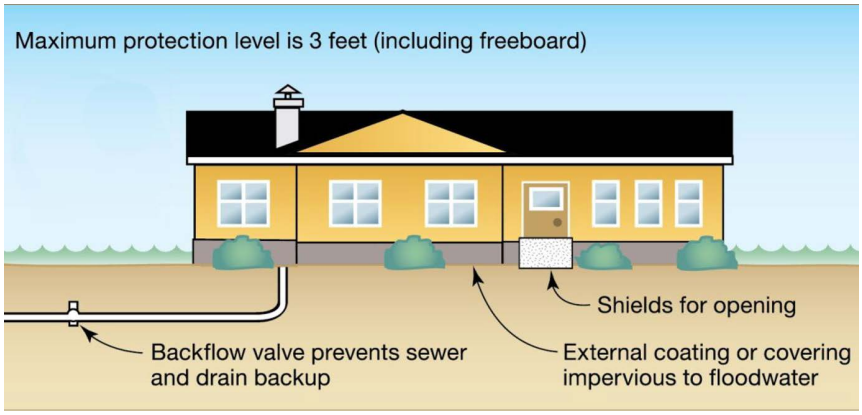


Figure 07. **Strategy D - Dry Floodproofing**
Source: FEMA

- In this method, dry floodproofing seeks to make the building essentially watertight.
- Usually attained by adding sealants to walls, shields to openings, and secondary drainage pumps to remove water that is seeping in the building (FEMA)

$$

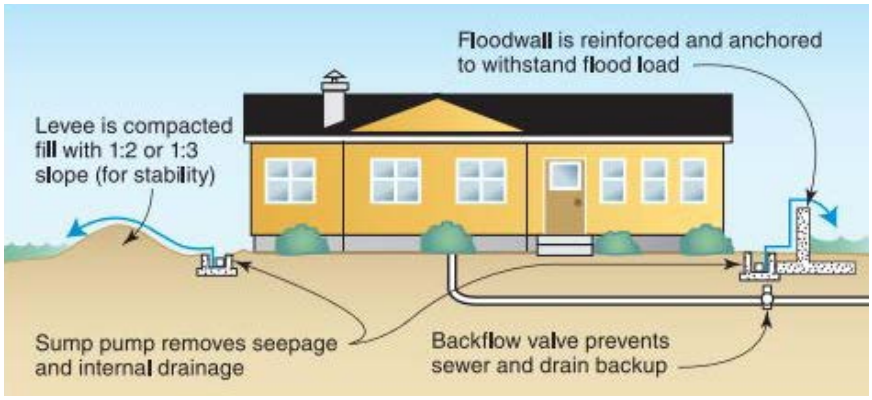


Figure 08. **Strategy E - Permanent Barriers**
Source: FEMA

- Building floodwalls anchored in the ground must be able to withstand the water load
- Forming compacted levees is another example of a permanent barrier
- Levee standards generally come from the US Army Crops of Engineers (FEMA)

$$$

Flood Resilience can be Achieved Through Retrofitting and Building Methods

Certain structures within the site can be retrofitted or reconstructed in order to preserve and protect their contents

MAP-Retrofit-AND-Building-Strategies

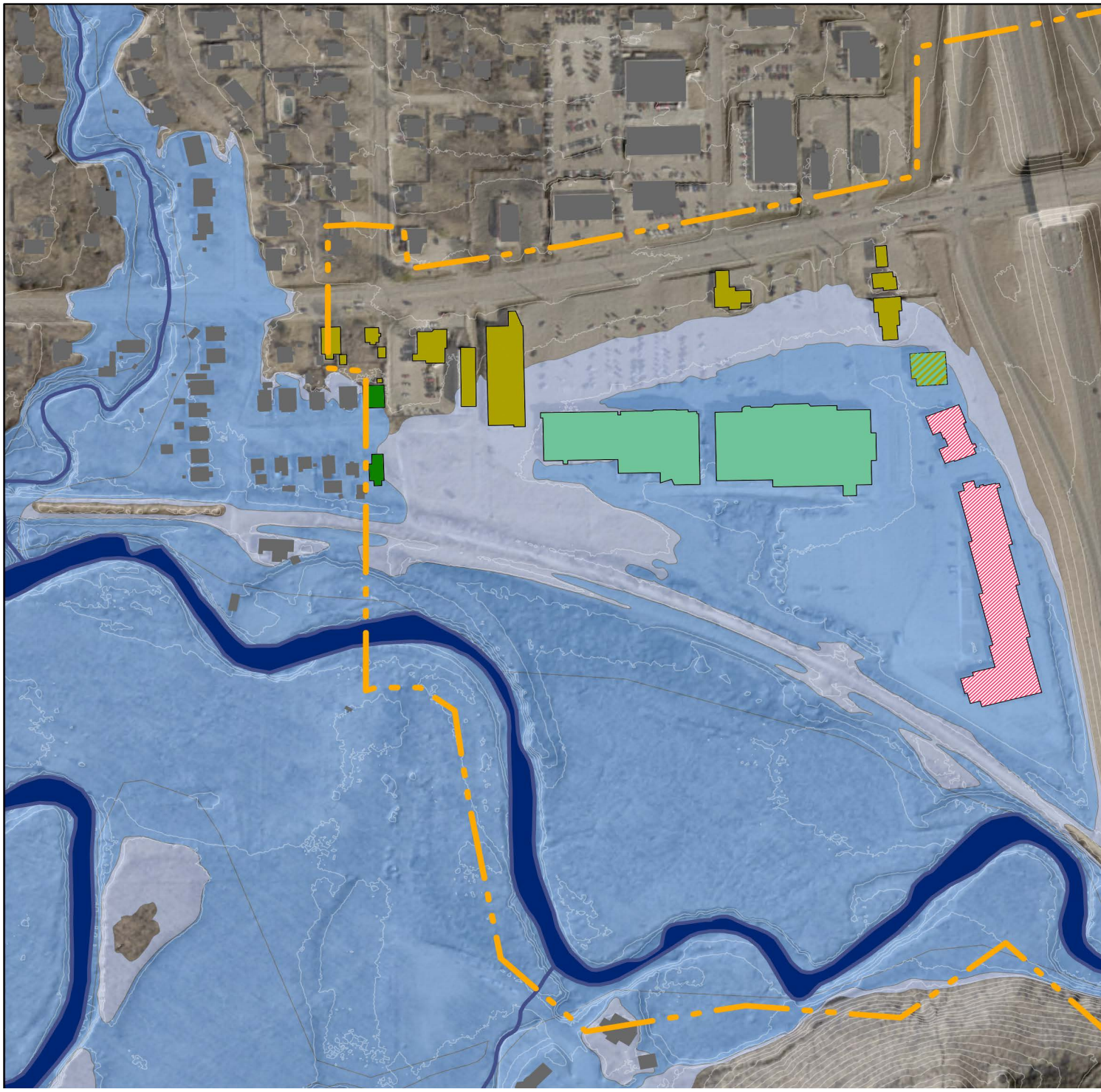
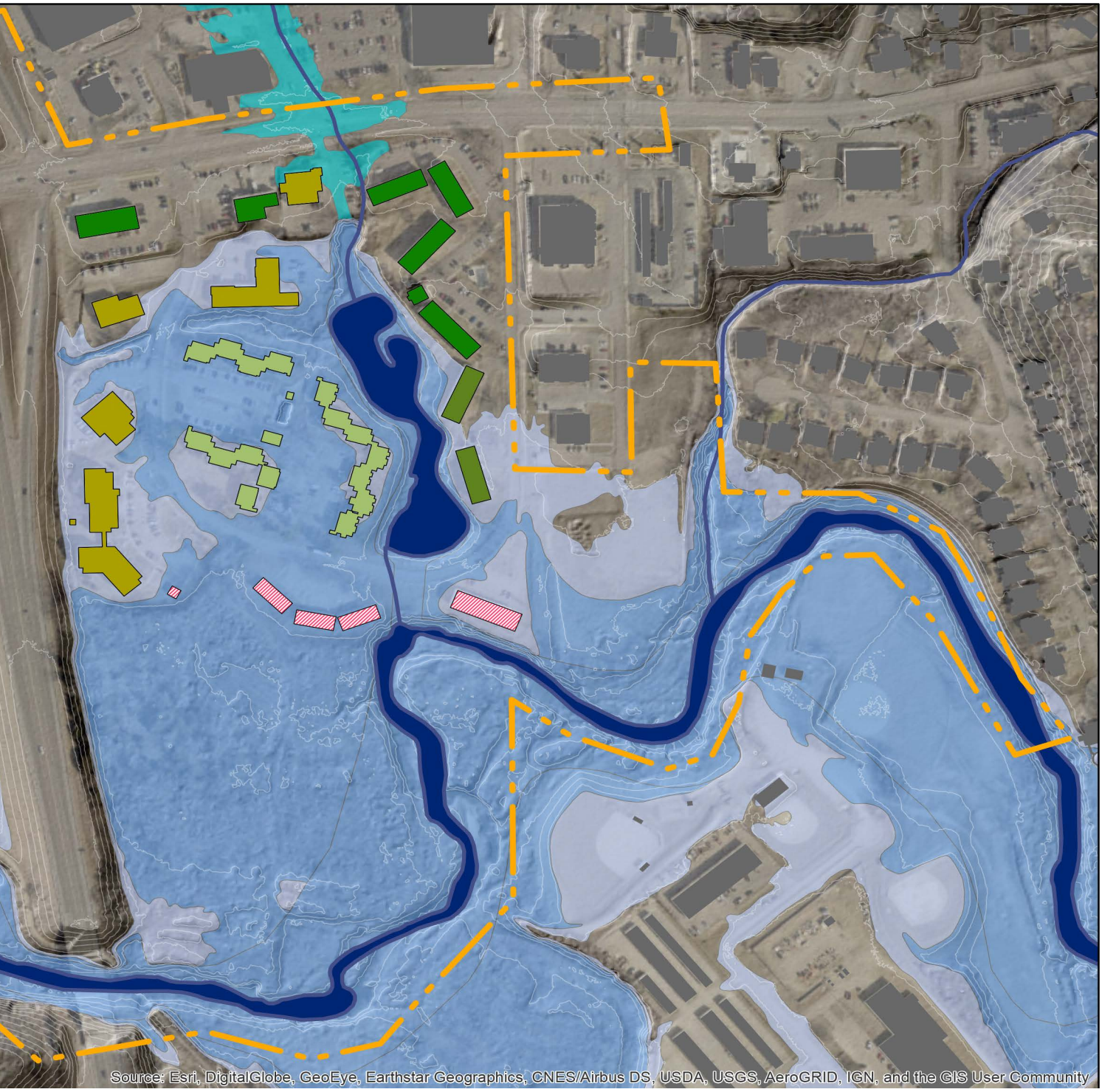


Figure 09. **Retrofit and Building Strategies for Existing Structures located on Site**
Source: Nick Ferrara, ArcGIS, FEMA, City of Manhattan, KS.

Inquiry: What building/retrofit method is best for each building located within the site so as to maximize flood protection and flood resilience?
Key Extractions: Best-fit new construction or retrofit strategy for each building within the site. Some buildings would not need as much retrofit or adjustment as others. Others may consider multiple strategies in order to ensure longevity.
Methodology: Strategies were selected for specific buildings based on studies of Wildcat Creek from the city of Manhattan and the Army Corps of Engineers. They were also selected by thouroughly analyzing these methods outlined in FEMA documents and their effectiveness as retrofit methods.
Conclusions: No single strategy is an absolute guarantee of success in stopping flood damage, however the selected strategies for buildings within the site were selected to help reduce flood damage and move toward more flood resilient architectural and building practices along Wildcat Creek.



Legend: Flood Resilient Strategies Used

- Site Boundary
- Elevate by Pad
- Elevate by Pier
- Permanent Barriers
- Dry Floodproofing
- Wet Floodproofing
- Buildings to be completely demolished

N

0' 150' 300' 600'

Map 3.4c

6.4

Critical Mapping

Creek

Land Use, Steep Banks, and Thick Vegetation Create Barrier For Accessing Wildcat Creek

Existing creek is very difficult to see or access.

AT01_Classification.PDF

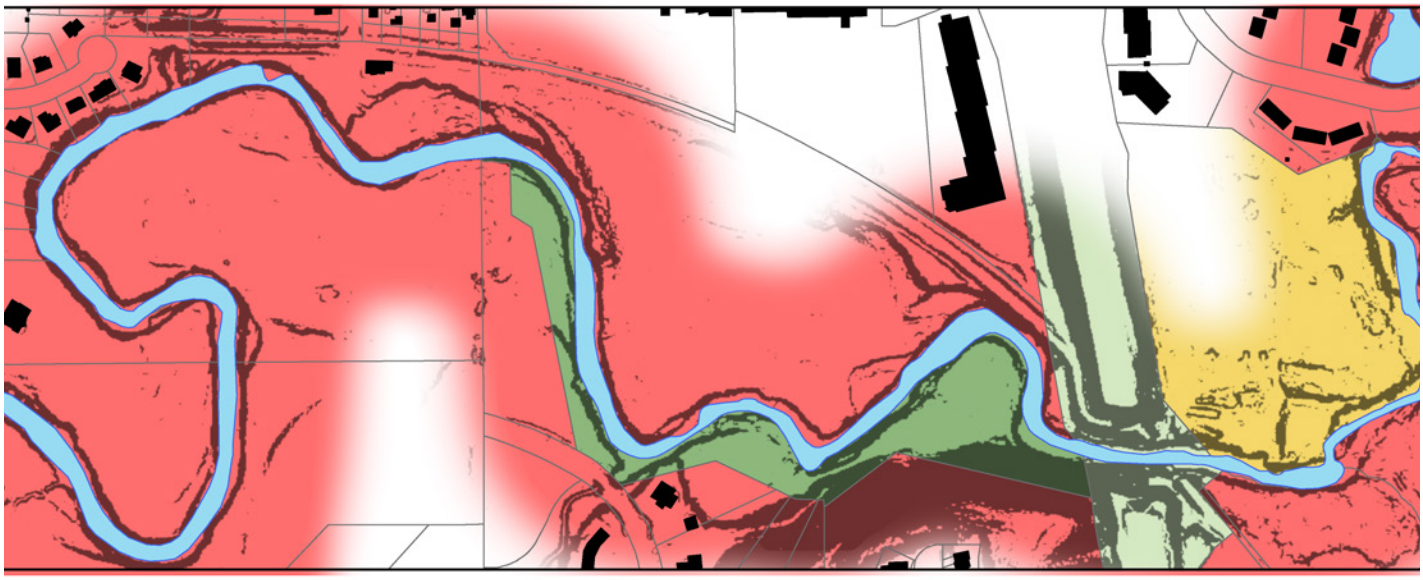


Figure 01. Land Uses Bordering Wildcat Creek.
Source: Riley County GIS, 2019

Steep Banks Constitute 96% Of Creek Frontage And There Are Few Opportunities To See Creek.

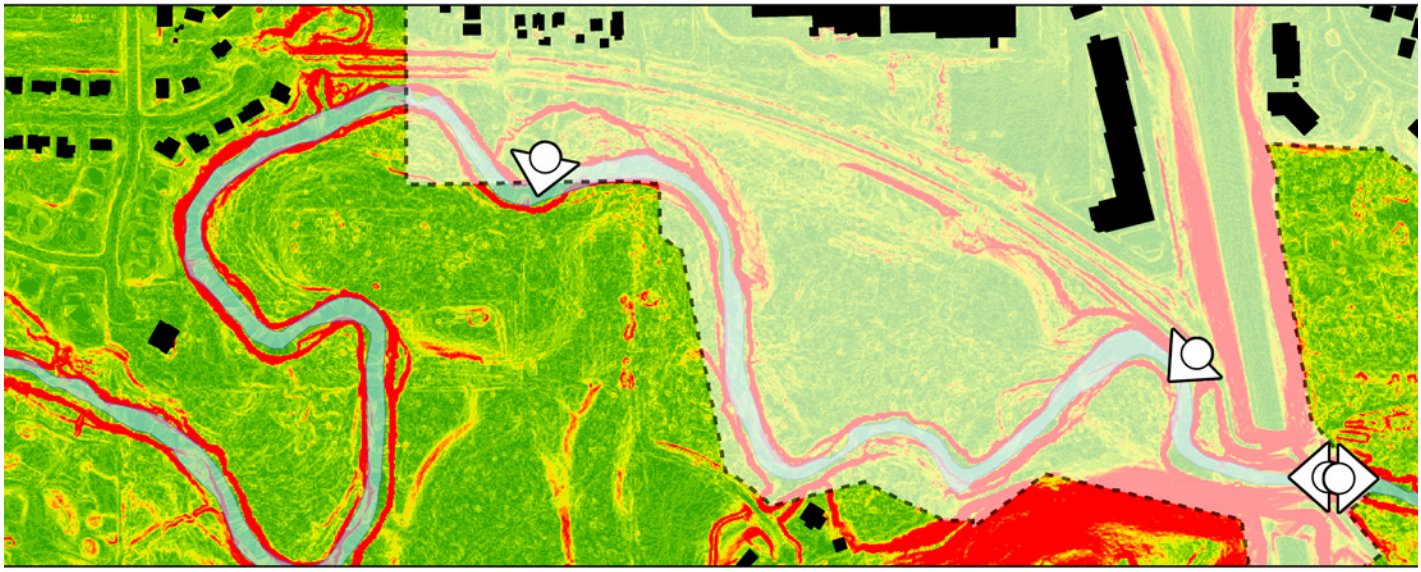


Figure 02. Slope Map of Wildcat Creek and Surrounding Area
Source: August Titus, ArcGIS, City of Manhattan; 2019

Inquiry: What kind of barriers exist for accessing Wildcat Creek?
Key Extractions: Parcel ownership, slope percentage, and current view opportunties to creek through the dense vegetation.
Methodology: Land use was determined by site visit and digitally by Riley County GIS. Slope map was created using ArcGIS Slope Percent Rise analysis, view windows were determined by site visit and digitally through Google Earth.
Conclusions: Extreme topographic change, dense vegetation, and private property create barriers to accessing Wildcat Creek. The two public parks are unaccessible because of steep banks and lack of trails. The informal trails on private property are not mapped and are located within dense vegetation. The dense vegetation not only blocks physical access, but also the view to the creek. While the banks are steep, soft dirt and highly erodable., the surrounding land is generally flat, so terracing could be possible in areas of less development.



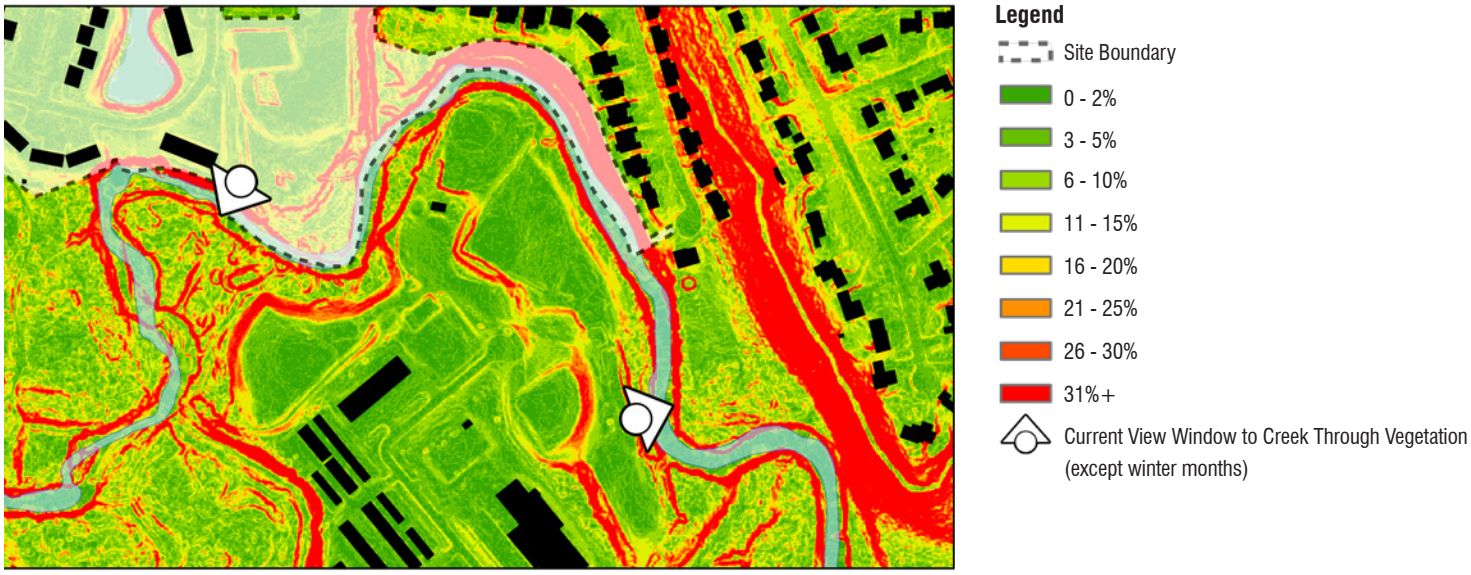




Figure 03. House Atop Steep Cut Bank Along Wildcat Creek.
Source: Titus, 2019



Figure 04. Dense Vegetated Creek Banks.
Source: Titus, 2019

Wildcat Creek Banks Are Steep, Soft, and Unstable.

Stream channel is subject to meander movements.

AT01_Dilemma.PDF

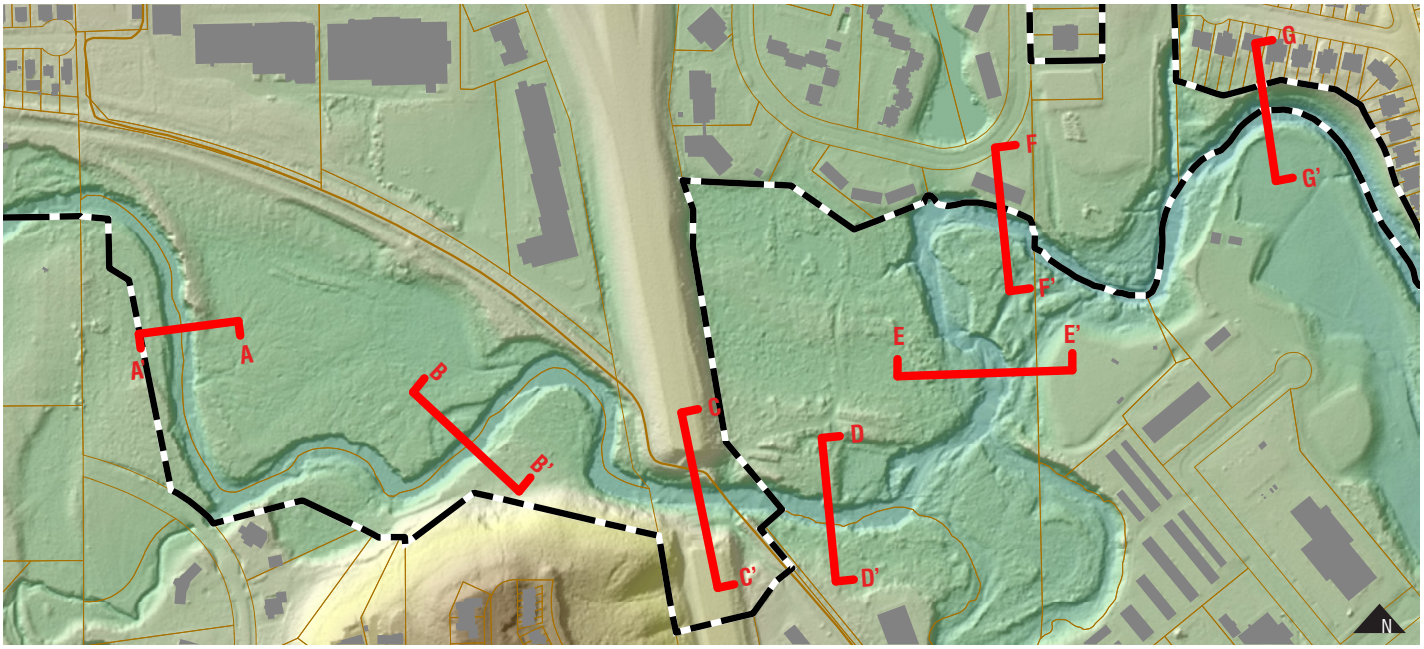


Figure 01. Cross Section Locations Along Wildcat Creek.
Source: Hahn, 2019.

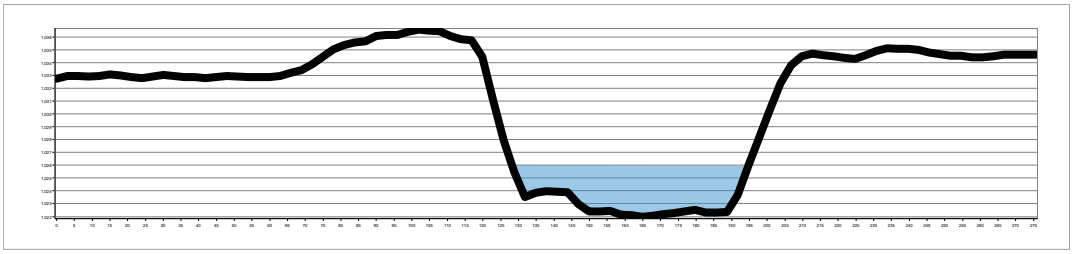


Figure 02. Section A-A'

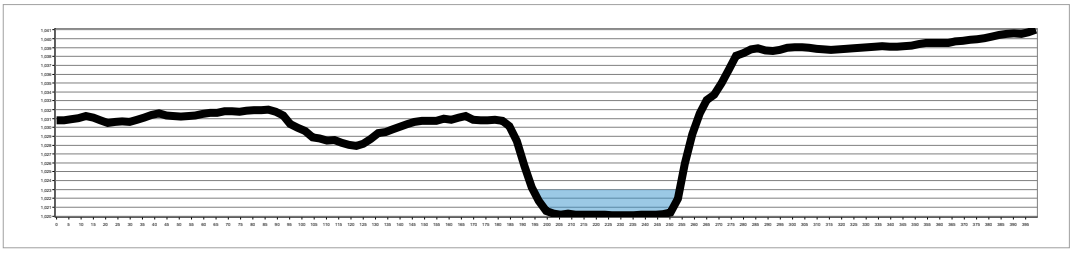


Figure 03. Section B-B'

Inquiry: Are the bank conditions of Wildcat Creek conducive to pedestrian access?
Key Extractions: Section cuts of creek banks.
Methodology: Sections were made using ArcGIS 3D Analyst, section locations were chosen to represent typical conditions along creek within site boundaries.
Conclusions: These sections illustrate the vertical change that prevents site users from accessing the creek. The public parks have some of the steepest banks and are backed with residential development. Any water activities will require shallower banks than are currently on site. The steep banks are preventing the creek from creating more flood plain area and cause more erosion. Measures will have to be taken to terrace or lessen the grade in order to provide access and give more room for flood storage.

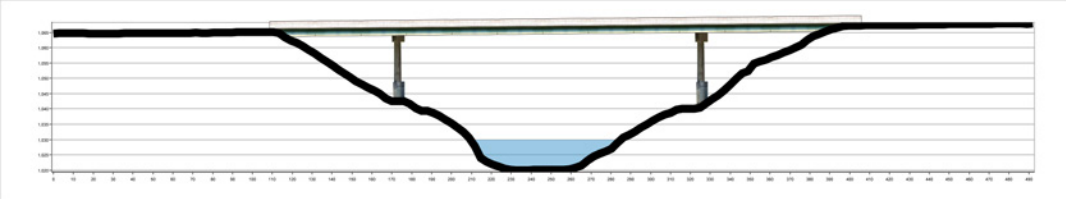


Figure 04. Section C-C'

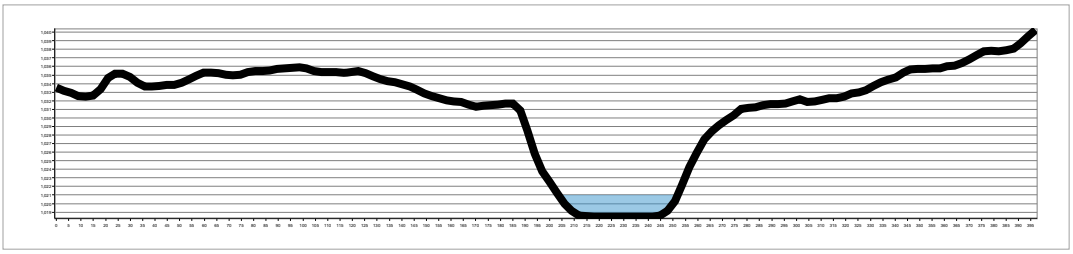


Figure 05. Section D-D'

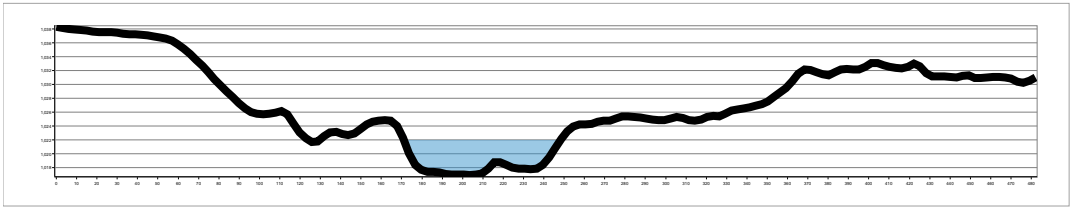


Figure 06. Section E-E'

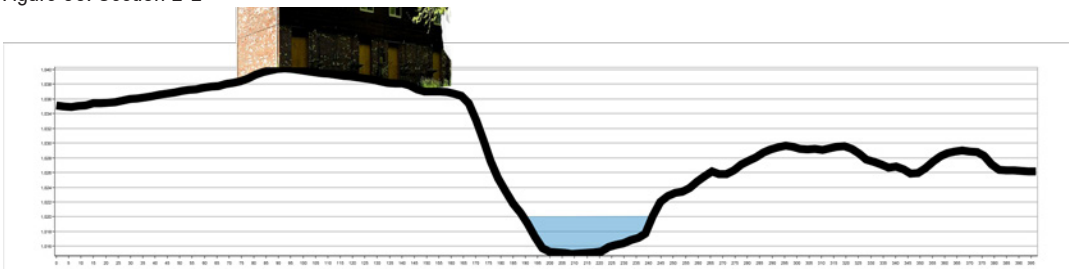


Figure 07. Section F-F'

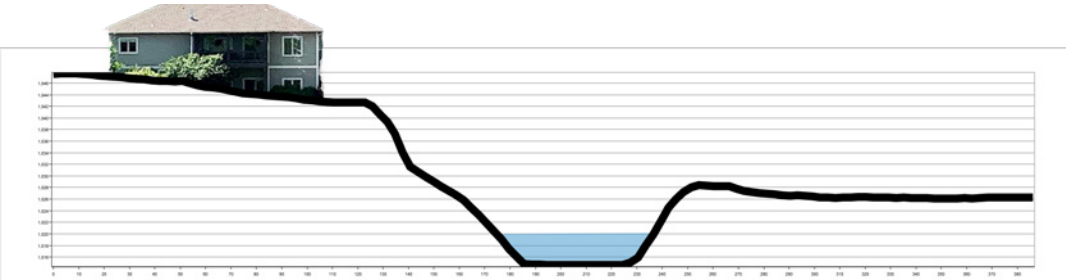


Figure 08. Section G-G'

Summary of Dilemmas

- Steep, highly erodible banks
- Heavily vegetated
- Few accessible paths
- Erosion threatening roads, trails, and structures (in places)
- Few view opportunities during spring and summer
- Very few crossing points

Visual Corridors Along New Trails Could Provide Visibility to Wildcat Creek

Windows through existing dense vegetation to creek access points could increase creek usage.

AT01_Strategy.PDF

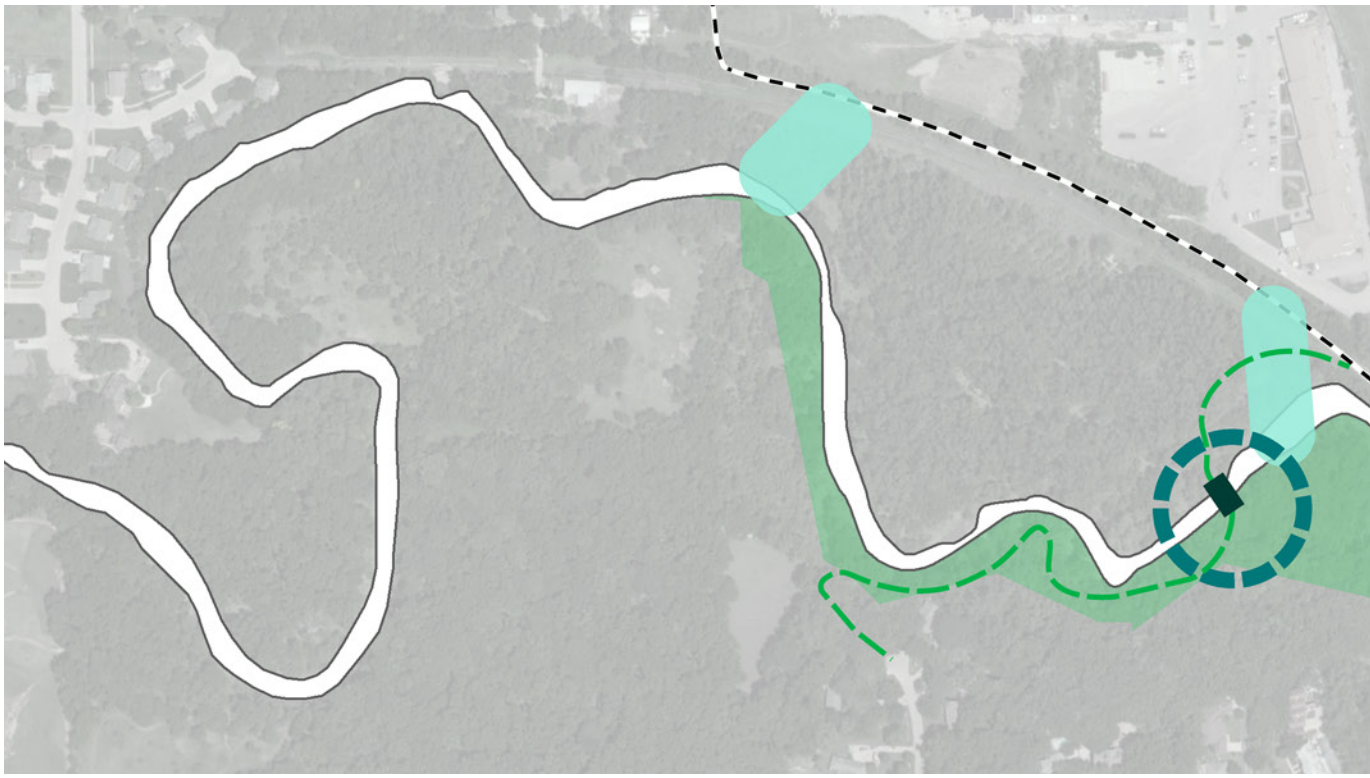


Figure 01. Proposed Locations Of Access Points, Trails, Visual Corridors, And Bridge.



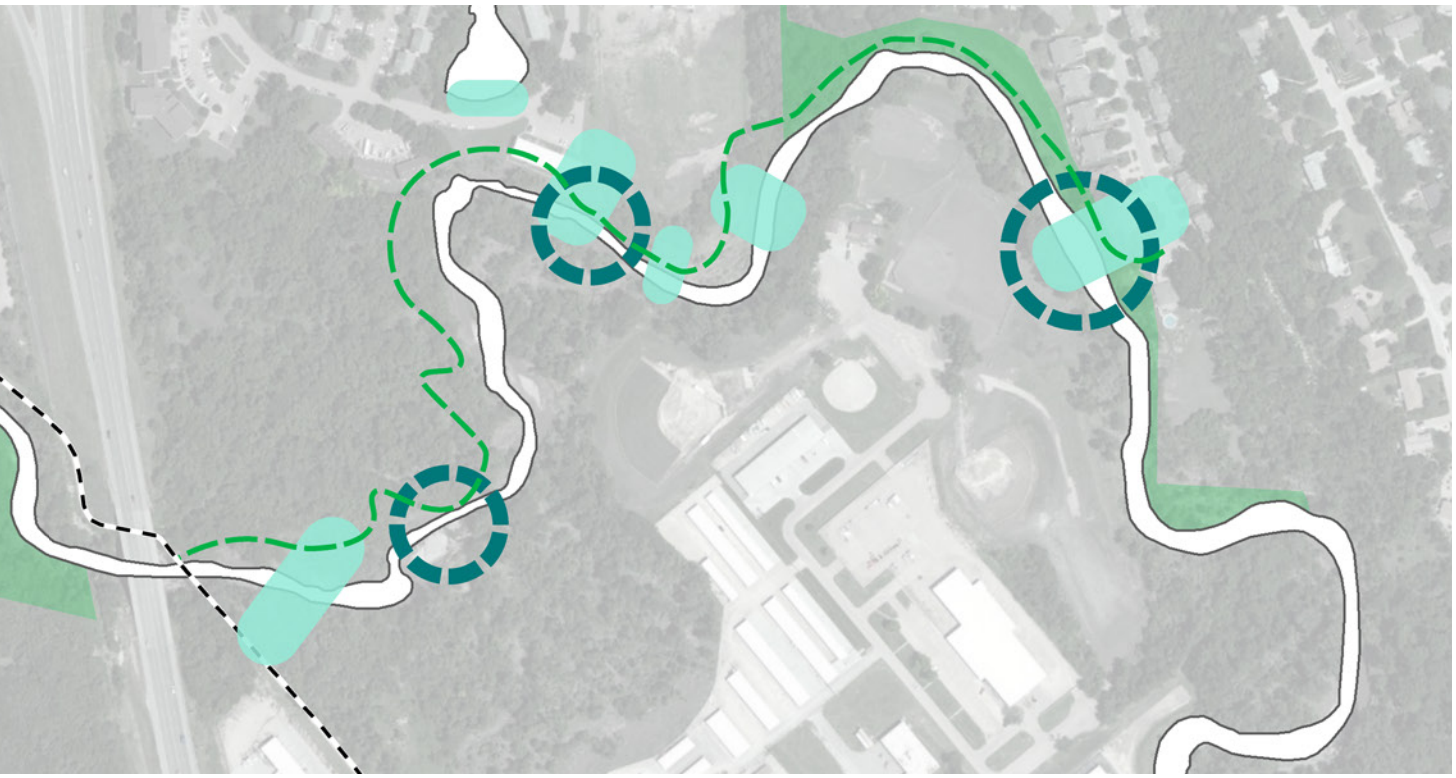
Goals

- Improve physical accessibility to Wildcat Creek
- Remove threatened structures
- Reduce erosion potential in strategic locations
- Provide public access to creek in some locations
- Increase creek visibility

Legend

- Proposed Visual Corridor Through Vegetati
- Proposed Pedestrian Bridge Location
- Existing City Parkland
- Proposed Trail
- Existing Linear Trail
- Proposed Access Points

Inquiry: What locations are best to locate access and visual corridors that would maximize visibility and usability of Wildcat Creek?
Key Extractions: Proposed visual corridors, pedestrian bridge, new creek-side trail, and access points.
Methodology: Using both the classification and dilemma maps, areas for accessing the creek and view windows developed. Access points were placed away from cut and deposition locations along the creek. The two inaccessible city parks were connected using trails and a bridge, giving the public an access to the creek.
Conclusions: There are several proposed access points, but all will need extensive bank grading or stabilization. The bridge on the western side of the site can be the start trail loop that connects to Warner Park. The strategy for this map was to utilize the existing land that the city owns and the land that is currently undeveloped. Terraced edges will have to be used on certain parts of the proposed trail, due to the vertical topographic change. View windows will allow trail users to see the creek and know exactly where the creek is, as the creek is currently hidden. The access points could potentially become gathering spaces like the Velenje Promenada in Slovenia while reducing erosion in those areas.



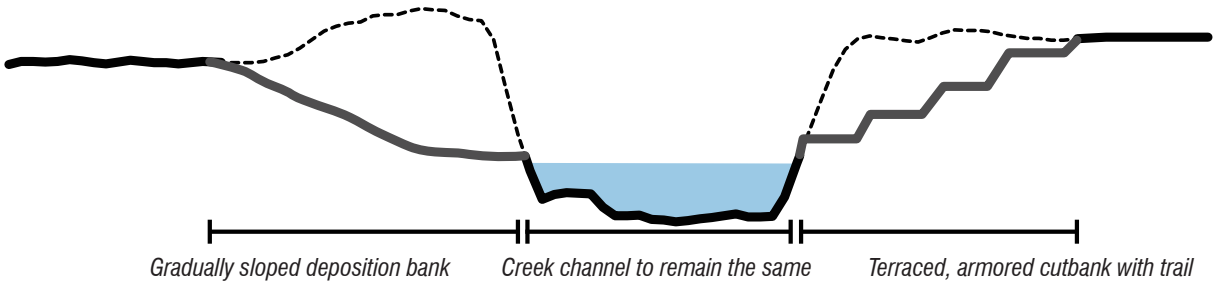


Figure 02. Bank cuts generate fill for other areas of the site while providing access to creek, reducing erosion, and adding floodplain storage.



Figure 03. Bridge in Anneberg Park over Wildcat Creek that is upstream from the site.
Source: Hahn, 2019

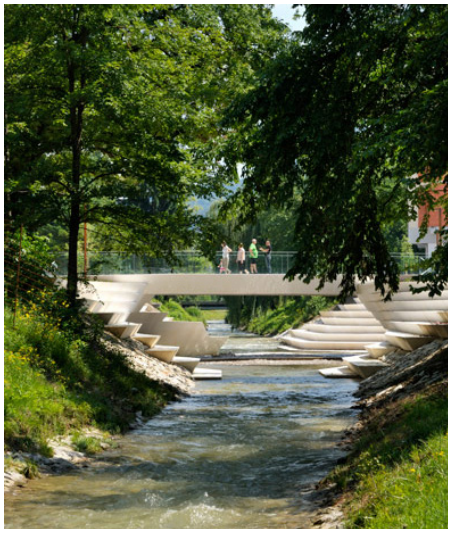


Figure 04. The Velenje "Promenada"
Source: Kambič, 2014



Figure 05. Tesselated pavement in Barangaroo Reserve
Source: Manzar

Water System Precedents Suggest Wildcat Creek could be More Publically Accessible

Similarities include the urban setting, park & urban amenity adjacencies, and channel size

EH01_MidwestUrbanOrientedWaterSystemComparisons.PDF

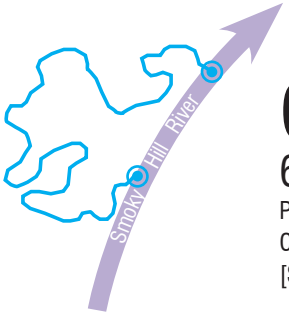


Wildcat Creek

8.0+ Miles

Primary Channel to the Kansas River
98 sq mile Watershed
[Manhattan, KS]

Current Use:
- Water Runoff Collection



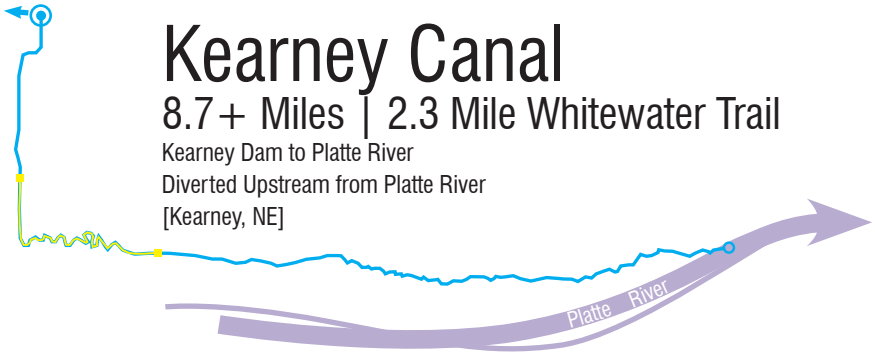
Old Smoky Hill River

6.8 Miles

Proposed Reconnected Old Smoky Hill River Channel
Controlled Diversion from the Smoky Hill River
[Salina, KS]

Current Use:
- Water Runoff Collection (No Base Flow)

Proposed Use:
- Urban Kayak/Float Trail
- Waterside Amenities
- Urban Park Connections
- Water Runoff Collection



Kearney Canal

8.7+ Miles | 2.3 Mile Whitewater Trail

Kearney Dam to Platte River
Diverted Upstream from Platte River
[Kearney, NE]

Current Use:
- Urban Kayak/Float Trail | Whitewater Park
- Park & Urban Connections
- Water Runoff Collection

Figure 01. Urban Oriented Water System Comparisons in the Midwest
Source: Riley Co. GIS, 2019

Inquiry: How does Wildcat Creek compare to other urban water systems with integrated water activity programming?
Key Extractions: River, Stream, and Creek Alignments
Methodology: Online research was conducted to determine channel/creek/river lengths, on-channel structures, water system sources, proposed and current on-channel activities and amenities.
Conclusions: Wildcat Creek water is sourced from a 98 sq-mi watershed that carries a mean discharge of ~35cfs during commonly wetter months (March-August) since 2012. A discharge of at least 35cfs is more feasible for kayaking depending on channel depth but a discharge around 100cfs or greater provides more optimal kayaking conditions to avoid hitting basin sediment. The primary difference of the Old Smoky Hill River Channel proposal and the Kearney Canal is the diversion of water with engineered structures from major rivers. The water diversion dams allow for optimal control of water discharge through the water system. Similariaties include the urban setting connecting opportunities, navigability limitations from private property, and mud basin sediment type in certain regions.




Figure 02. Wildcat Creek low base flow at Wildcat Park in June near Keats.
Figure 03. Wildcat Creek near scenic drive at 25.3 cfs
Source: “Wildcat Park” - Matthew Elstun. Google Maps.
Source: USGS National Water Information System: Web Interface




Figure 04. Old Smoky Hill River channel with mud basin in urban Salina.
Figure 05. Volunteer cleanup of the Old Smoky Hill River channel.
Source: (HDR inc., 2016)




Figure 06. Proposed water level, edge treatment, and activities.
Figure 07. Proposed adjacent Smoky Hill River trail.
Source: (HDR inc., 2016)




Figure 08. Volunteer cleanup of the Kearney Canal in dry season.
Figure 09. Debris and trash to be cleaned up along Kearney Canal.
Source: (Facebook - Kearney Whitewater Park, 2016)




Figure 10. Kayakers paddle down the Kearney Canal from Yanney Park.
Figure 11. Ideal engineered whitewater feature precedent in Montrose, CO to be integrated into Kearney Canal.
Source: (Facebook - Kearney Whitewater Park, 2016)

Legend

- Stream/River System
- Implemented Whitewater Park
- Site boundary
- Extends up Watershed
- Confluence with River | River Source
- Water Control Structure

Wildcat Creek Could Support Recreation but Requires Land Use Agreements

Opportunity

Recreational and communal activation is limited by non-navigable, privately owned, creek waters

EH12_WildcatCreekRegionalConnections.PDF

Promote regional water and terrestrial trail connections

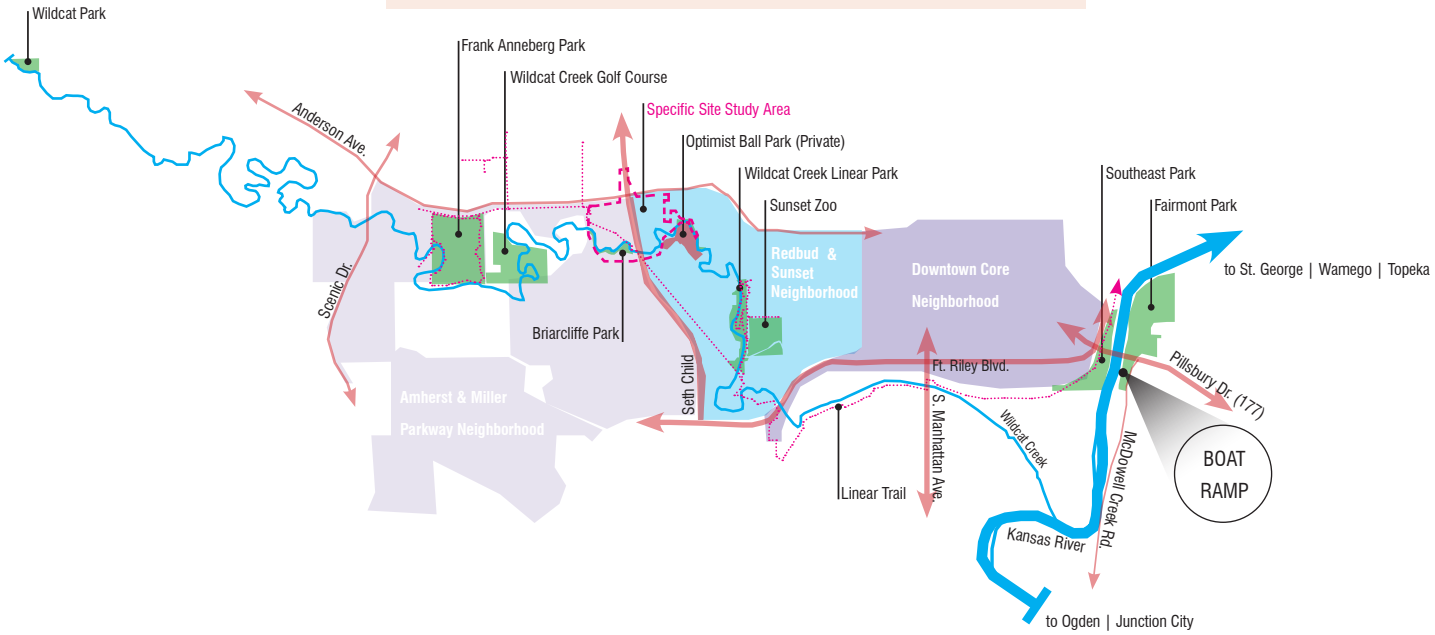


Figure 12. Manhattan regional map of park and neighborhood connections along Wildcat Creek to the Kansas River.
Source: (Riley County GIS, 2019)

Community engagement and education in restoration and use

- **Volunteer Opportunities**
- **Local Sponsorship of Events**
- **Improve Water Quality**
- **Enhance Aesthetic Experience**



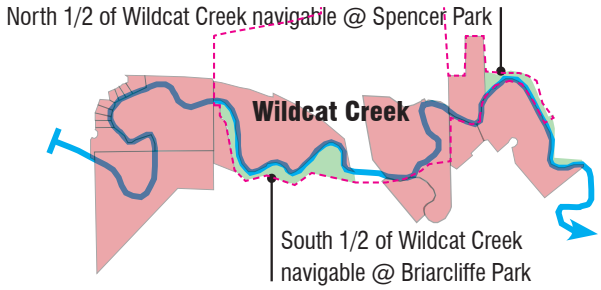


Figure 13. Volunteer cleanup of the Kearney Canal in dry season.
Figure 14. Cleanups are necessary to remove urban runoff debris and trash.
Source: (Facebook - Kearney Whitewater Park, 2016)

Inquiry: What opportunities does Wildcat Creek provide for urban Manhattan, Kansas and what dilemmas are likely to prevent use?
Key Extractions: Regional Trails, Adjecent Open Spaces and Parks, Rivers, Creeks, Canals
Methodology: Studied the opportunities of urban water recreation and listed dilemmas with Wildcat Creek in urban Manhattan.
Conclusions: The proximity of Wildcat Creek to a number of parks, neighborhoods, and urban areas, such as the primary site study area, provides opportunities for a more regionally connected community. The process of enhancing existing water systems in urban areas as social amenities and more environmentally resilient systems can provide opportunities that engage and educate communities and create regional connections with more activity options. To create a more resilent and navigable water system, dilemmas such as common overbank flooding during large rain events, dangerous water quality levels from runoff, and non-navigablity on private property must be resolved.

Private Property Boundaries make the Majority of Wildcat Creek Non-Navigable

*All portions of Wildcat Creek in **RED** are **non-navigable** (privately owned)



*All portions of Kansas River are **navigable** (publically accessible)

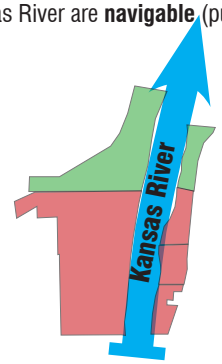


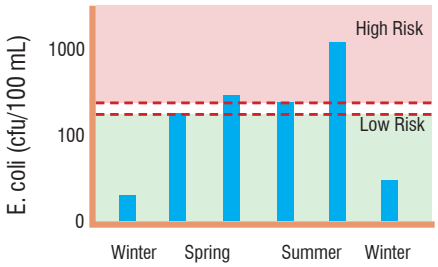
Figure 15. A portion of public and private properties adjacent to and overlapping Wildcat Creek near the site.
Figure 16. Comparison of property boundaries along the navigable Kansas River.
Source: (Riley Co. GIS, 2019)

Loss of Floodplain to Development and Excessive Runoff Creates Unsafe Overbank Flow for Water Navigability



Figure 17. Flood waters make Wildcat Creek Unsafe.
Source: (Riley County Police Department)

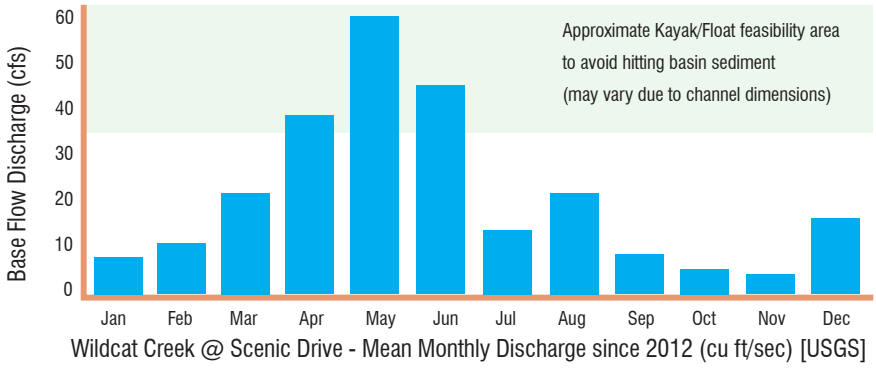
Contaminated Upstream Agriculture & Impervious Urban Runoff Degrades Water Quality



Wildcat Creek - E. coli by Season (cfu/100 mL)

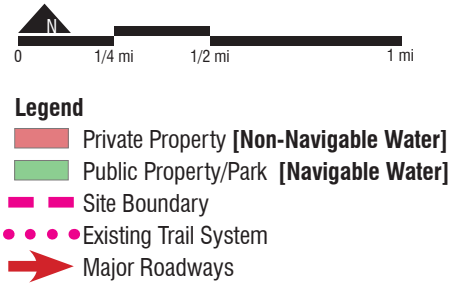
Figure 18. E. Coli levels reach higher levels during higher water activity months.
Source: (KS Dept. of Health & Environment, 2008)

Base Water Level Likely to Limit Water Activity to Season



Wildcat Creek @ Scenic Drive - Mean Monthly Discharge since 2012 (cu ft/sec) [USGS]

Figure 19. Base discharge outside of summer months is too low for kayking/floating but provides opportunities for creek clean ups and other shallow water activities.
Source: (USGS National Water Information System, 2019)



Five Strategies to Allow Seasonal Activities on Wildcat Creek

Strategies aimed at establishing stronger access, improving water quality, and increasing educational opportunities

EH26_ProposedWildcatCreekRegionalConnections.PDF

1 Establish Conservation Reserves on Private Land

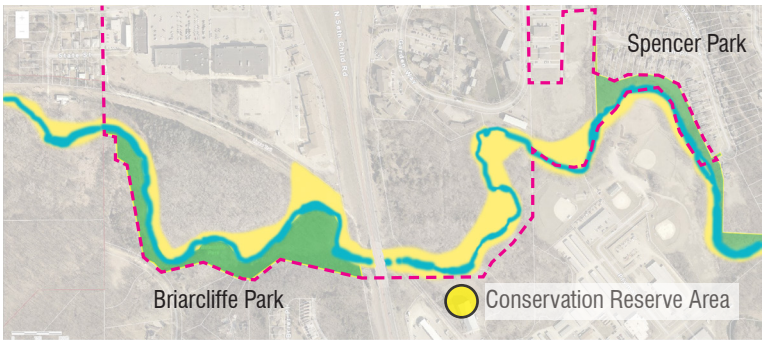


Figure 20. Map of proposed conservation reserve areas along Wildcat Creek.
Source: (Riley County GIS, 2019)

2 Integrate On & Off Channel Wetlands to Improve Water Quality and Reduce Excessive Runoff

Smoky Hill River Renewal Project - Salina, KS

Project Goals:

- Improve water quality
- Mitigate current algae and odor problems
- Create a community amenity that drives the revitalization of the river, downtown, and adjacent neighborhoods
- Feature a cohesive aesthetic theme

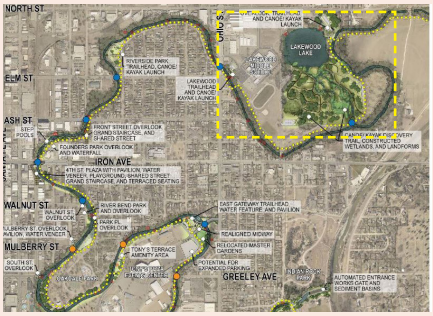






Figure 21. Smoky Hill River renewal project water quality improvement goals.
Source: (HDR inc., 2016)

3 Educate the Community



Figure 22. Community outreach flyer for volunteer opportunities and creek/ site awareness.
Source: (Herbel, 2019)

4 Provide Access & Connect On & Off Channel Amenities

(see map on following page)>

5 Integrate Wayfinding Signage



Figure 23. Kansas River Water Trail sign.
Source: (Herbel, 2019)

Inquiry: How can Wildcat Creek be better utilzied as a public amenity while mitigating flooding?
Key Extractions: Conservation Reserves, Wetland Renewal, Community Outreach, Kayak Ramps, Bridge, Wayfinding
Methodology: Studied precedents of urban water system activity programming and key on & off channel regional connections of Manhattan.
Conclusions: Conservation reserves along the Wildcat Creek water trail will allow for navigability. During dry months with low base flow, on-channel wetlands and creek edge vegetation will serve as an aesthtic backdrop to the proposed adjacent terrestrial trails. Wet months will allow for activation of the Wildcat Creek water trail to provide the urban dwellers of Manhattan a more local connection to the Kansas River and/or to the nearby parks, neighborhoods, or urban locations. Planned events could provide the community with educational and invovlement opportunities. Wayfinding would provide the users with a greater sense of regional connections.

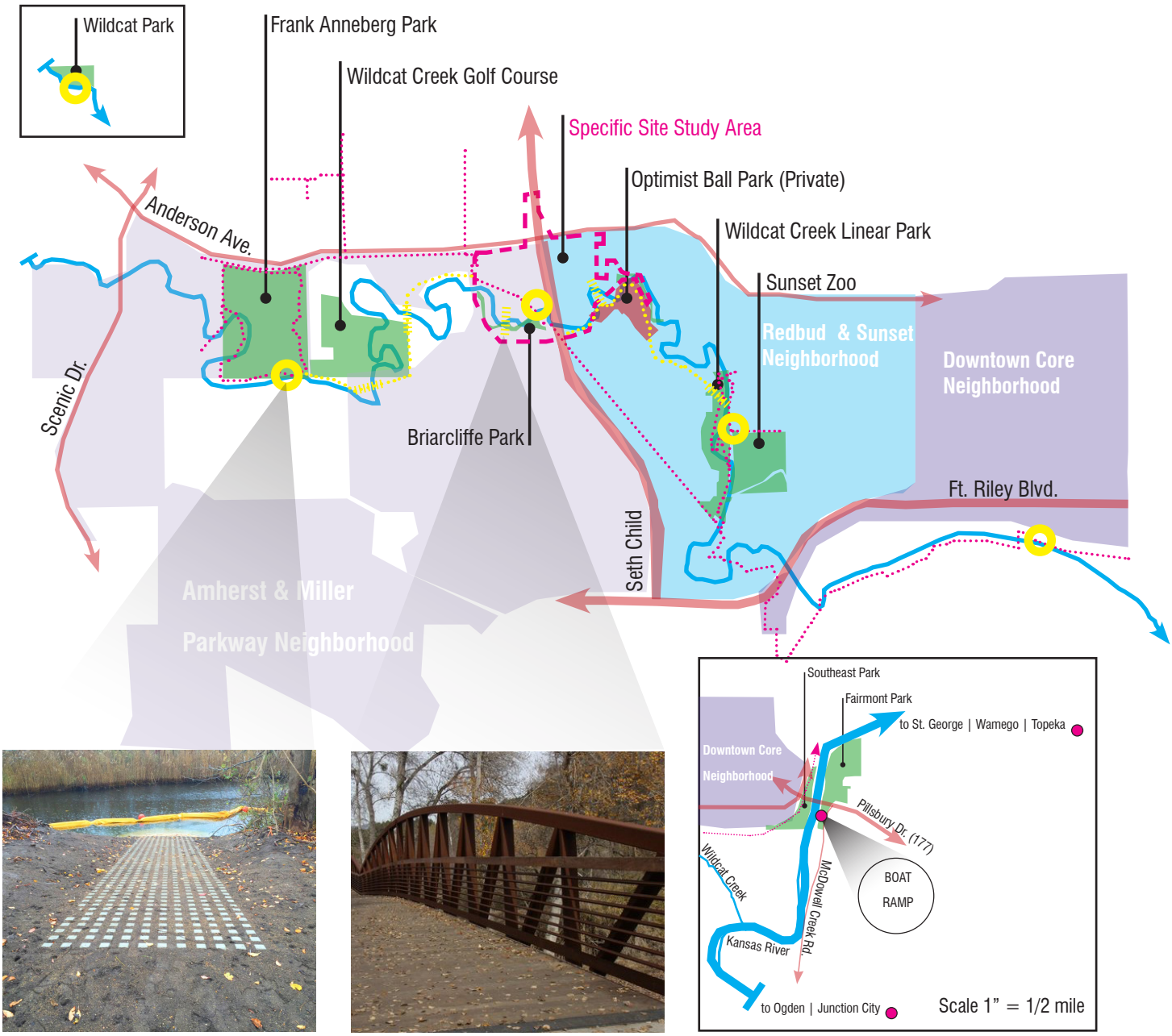


Figure 24. Reinforced ground as kayak dock
Source: (Trihamletnews, 2015)

Figure 25. Proposed bridge character
Source: (TripAdvisor, 2019)

Figure 26. Map of proposed creek access points, bridge crossings, and new Linear Trail.
Source: (Riley County GIS, 2019)



Legend

- Private Property **[Non-Navigable Water]**
- Public Property/Park **[Navigable Water]**
- Proposed Conservation Reserve Area
- Major Roadways
- Site Boundary
- Proposed Creek Crossing
- Existing Trail System
- Proposed Trail System
- Proposed Creek Access Point
- Existing Water Access Point

Map 4.2c

6.5

Critical Mapping

Citations

Map 1.1a

Proximity of Amenities in Manhattan Shows Lack on West Side

Figures 01-06
Fitzgerald, Mikala 2019

Map Service [Esri, Inc.]. 2019. "World Imagery," Viewed in: "ArcGIS for Desktop," Location: "Manhattan, Kansas, United States." Accessed May 20, 2019, https://www.arcgis.com/apps/webappviewer/index.html?id=0b121e41d8914b78bda420f0bb0239c0

Fitzgerald, Mikala. 2019. Mapping of Education in MHK. Source map: Google Maps. Manhattan, Kansas. Accessed 31 May 2019.

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Fitzgerald, Mikala. 2019. Mapping of Resturants in MHK. Source map: Google Maps. Manhattan, Kansas. Accessed 31 May 2019.

Map 1.1b

Lack of Amenities Prompts New and Various Site Themes/Uses

Figures 01-03

Green, Jared. "Interview with Clare Cooper Marcus on the Healing Power of Nature." THE DIRT. November 09, 2017. Accessed June 04, 2019. https://dirt.asla.org/2017/11/08/interview-with-clare-cooper-marcus-on-the-healing-power-of-nature/.

Figures 04-06
Texas Tech University. "Landscape Architecture." TTU DoLA Students Shine in 2018 Texas ASLA Design Competition. April 23, 2018. Accessed June 03, 2019. https://www.depts.ttu.edu/larc/department_news/ASLA-Awards-2018/index.php#prettyPhoto.

Figures 07-10
Sasaki. "The Avenue." The Avenue. Accessed June 03, 2019. http://www.sasaki.com/project/8/the-avenue/.

Figures 11-12
"St. Patrick's Island." East Village Experience. Accessed June 04, 2019. https://www.evexperience.com/patrick-island.

Map 1.1c

Design Strategy to Create Unified Designs

Figures 01-04
Fitzgerald, Mikala 2019

Map Service [Esri, Inc.]. 2019. "World Imagery," Viewed in: "ArcGIS for Desktop," Location: "Manhattan, Kansas, United States." Accessed May 20, 2019, https://www.arcgis.com/apps/webappviewer/index.html?id=0b121e41d8914b78bda420f0bb0239c0

Map 1.2a

Manhattan has a Good Trail System to Build Upon

Figure 1
Madsen, Rainie & "Bicycle & Pedestrian Systems Plan | Manhattan, KS - Official Website." Accessed June 1, 2019. https://cityofmhk.com/2984/Bicycle-Pedestrian-Systems-Plan.

Figure 2
Madsen, Rainie Wildcat Creek Exploration. Image gathered 17 March, 2018.

Figure 3
"Kansas's First Protected Bike Lane." Kansas Cyclist: Your Guide to Kansas Bicycles, Bike Rides, Bike Clubs, Bike Shops and Trails. Accessed June 02, 2019. http://www.kansascyclist.com/news/2014/10/kansass-first-protected-bike-lane/.

Figure 4
Chesney, Paden Kansas River. Image gathered 23 February 2019.

Map 1.2b

Several Opportunities Exist to Improve Trail Connections and Crossings

Figure 5
Madsen, Rainie Arc GIS Opportunity Map. Image gathered 1 June 2019

Figure 6
Madsen, Rainie Arc GIS Intersections. Image gathered 3 June 2019

Figure 7
Amrine, David. "Linear Trail." AllTrails.com. May 06, 2019. Accessed June 02, 2019. https://www.alltrails.com/trail/us/kansas/linear-trail-river-trails.

Figure 8
"Hiking and Walking Trails around Manhattan." The Pathfinder. Accessed June 02, 2019. http://www.thepathfinder.net/tips-and-resources/hiking-and-walking-trails-around-manhattan.

Figure 9
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Map 3.2a

Several Stormwater Basins Exist Upcreek from Plaza West

Figures 1-2
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Figures 3-6
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Map 3.2b

Underutilized Acres Along Wildcat Creek Could Serve Detention Functions

Figure 7

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Map 3.3c

Various Levee Configurations and Proximities Offer Potential Recreation Opportunities

Figure 17
Weinberg, Haley. 2014. Site Strategy 1. Source map: Google Earth. Manhattan, KS. 39d11'22.23"N 96d36'42.49"W. Accessed May 30, 2019

Figure 18
Weinberg, Haley. 2014. Site Strategy 2. Source map: Google Earth. Manhattan, KS. 39d11'22.23"N 96d36'42.49"W. Accessed May 30, 2019

Figure 19
Weinberg, Haley. 2014. Site Strategy 3. Source map: Google Earth. Manhattan, KS. 39d11'22.23"N 96d36'42.49"W. Accessed May 30, 2019

Figure 20
Weinberg, Haley. 2014. Site Strategy 4. Source map: Google Earth. Manhattan, KS. 39d11'22.23"N 96d36'42.49"W. Accessed May 30, 2019

Map 3.4a

Structures have Varying Levels of Vulnerability are Dependent on Storm Event

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Figure 1
Ferrara, Nick, ArcGIS, and the City of Manhattan, KS. 2019. Levels of Vulnerability Map.

Figure 2
Ferrara, Nick, ArcGIS, and the City of Manhattan, KS. 2019. Watershed Context Map

Map 3.4b

Various Flood Control Strategies Create Options and Opportunities

Figure 3
Ferrara, Nick. 2019. Strategy A - Building Elevation via Earthwork and Fill

Figure 4
Ferrara, Nick. 2019. Strategy B - Building Elevation via Piering

Figure 5
Ferrara, Nick, ArcGIS, and the City of Manhattan, KS. 2019. Retrofitable/Reconstructable Buildings vs. Non-retrofitable Buildings

Figure 6
FEMA and US Department of Homeland Security. 2014. An Overview of the Retrofitting Methods. FEMA. Retreived May 28, 2019 from, https://www.fema.gov/media-library-data/1404149230242-8f5a97a5d9aa426b83e3fef354e8ffa8/FEMA_P312_Chap_3.pdf.

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Map 3.4c

Flood Resilience can be Achieved Through Retrofitting and Building Methods

Figure 9
Ferrara, Nick, ArcGIS, and the City of Manhattan, KS. 2019. Retrofit and Building Strategies for Existing Structures located on Site.

Map 4.1a

Land Use, Steep Banks, and Thick Vegetation Create Barrier For Accessing Wildcat Creek

Figure 01

Titus, August. 2019. Land Uses Bordering Wildcat Creek. Source Data: ArcGIS Mapping, City of Manhattan, "WaterbodyRileyCounty," "Zoning," "BuildingFootprints" - Modified by Titus Using Adobe Photoshop and Illustrator

Figure 02

Titus, August. 2019. Steep Banks Constitute 96% Of Creek Frontage And There Are Few Opportunities To See Creek. Source Data: ArcGIS Mapping, "SlopeAspect1," "Site Boundary," "BuildingFootprints" - Modified by Titus Using Adobe Photoshop and Illustrator

Figure 03
Titus, August. 2019. House Atop Steep Cut Bank Along Wildcat Creek (Manhattan, Kansas). Digital Photograph.

Figure 04
Titus, August. 2019. Dense Vegetated Creek Banks. (Manhattan, Kansas). Digital Photograph.

Map 4.1b

Wildcat Creek Banks Are Steep, Soft, and Unstable.

Figure 01

Titus, August. 2019. Cross Section Locations Along Wildcat Creek. Source Data:
ArcGIS Mapping, "G1m_mosc_hs," "Section"- Modified by Titus Using Adobe Illustrator

Figure 02
Titus, August. 2019. Section A-A'. Source Data:
ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Figure 03

Titus, August. 2019. Section B-B'. Source Data: ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Figure 04
Titus, August. 2019. Section C-C'. Source Data: ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Figure 05
Titus, August. 2019. Section D-D'. Source Data: ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Figure 06
Titus, August. 2019. Section E-E'. Source Data: ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Figure 07
Titus, August. 2019. Section F-F'. Source Data: ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Figure 08
Titus, August. 2019. Section G-G'. Source Data: ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Map 4.1c

Visual Corridors Along New Trails Could Provide Visibility to Wildcat Creek

Figure 01

Titus, August. 2019. Proposed Locations Of Access Points, Trails, Visual Corridors, And Bridge. Source Data: ArcGIS, ESRI, "World Imagery (Clarity)" - Modified by Titus Using Adobe Photoshop

Figure 02.
Titus, August. 2019. Bank cuts generate fill for other areas of the site while providing access to creek, reducing erosion, and adding floodplain storage. Source Data: ArcGIS 3D Analyst, "G1m_mosc_el" - Modified by Titus Using Adobe Illustrator

Figure 03.

Hahn, Howard. 2019. Bridge Spanning Wildcat Creek (Manhattan, KS). Digital Photograph.

Figure 04.
"PROMENADA / Enota." 2015. Photograph by Miran Kambič. Courtesy of ArchDaily. Accessed June 3, 2019. https://www.archdaily.com/636611/promenada-enota

Figure 05
"The wall in 1836 separating pedestrian and bicycle pathway along with defining shoreline in the beginning of industrial domination era." 2016. Photograph by Unknown. Accessed June 2, 2019. Reproduced from "The Restoration Plan of the Barangaroo Reserve Area," Manzar, http://www.manzar-sj.com/?_action=showPDF&sc=1&article=47218&_ob=d6f338529cf0b71aab42e952a0e2047c&fileName=full_text.pdf

Map 4.2a

Water System Precedents Suggest Wildcat Creek could be More Publicly Accessible

Figure 01

Herbel, Erich 2019. Urban Oriented Water System Comparisons in the Midwest. Source: County of Riley GIS: "Trails" "Builidngs," Buildings," "Parks." Accessed June 4, 2019. Modified in Adobe Indesign.

Figure 02
Google Maps. "Wildcat Park" Accessed June 3, 2019. https://www.google.com/maps/place/Wildcat+Park/@39.2029904,-96.6826373,3a,75y,90t/data=!3m8!1e2!3m6!1sAF1QipMGQdfHuRfju_tV-qc7o1oJAu9N9MV59gnumIdG!2e10!3e12!6shttps:%2F%2Flh5.googleusercontent.com%2Fp%2FAF1QipMGQdfHuRfju_tV-qc7o1oJAu9N9MV59gnumIdG%3Dw203-h114-k-no!7i4160!8i2340!4m5!3m4!1s0x87bdcbe029d21c57:0x83ec005c2a1328db!8m2!3d39.2029904!4d-96.6826373

Figure 03
USGS Current Conditions for USGS 06879810 WILDCAT C AT SCENIC DRIVE, MANHATTAN, KS. Accessed June 01, 2019. https://waterdata.usgs.gov/ks/nwis/uv/?site_no=06879810&PARAmeter_cd=00065,00060.

Figure 04

HDR, Inc., Kaw Valley Engineering, Wright Water Engineers, Inc., and City of Salina. "Smoky Hill River Renewal Project - Mud Basin Channel." Lecture, Public Open House, Tony's Pizza Events Center, Salina, KS, November 15, 2018.

Figure 05

HDR, Inc., Kaw Valley Engineering, Wright Water Engineers, Inc., and City of Salina. "Smoky Hill River Renewal Project - Clean Up." Lecture, Public Open House, Tony's Pizza Events Center, Salina, KS, November 15, 2018.

Figure 06

HDR, Inc., Kaw Valley Engineering, Wright Water Engineers, Inc., and City of Salina. "Smoky Hill River Renewal Project - Edge Treatment and Activites." Lecture, Public Open House, Tony's Pizza Events Center, Salina, KS, November 15, 2018.

Figure 07

HDR, Inc., Kaw Valley Engineering, Wright Water Engineers, Inc., and City of Salina. "Smoky Hill River Renewal Project - Trails." Lecture, Public Open House, Tony's Pizza Events Center, Salina, KS, November 15, 2018.

Figure 08

Kearney Whitewater Park. Facebook. "Kearney Canal Cleanup." November 28, 2016. Accessed June 06, 2019. https://www.https://www.facebook.com/KearneyWhitewater/photos/a.1525548564139446/1525552047472431/?type=3&theater

Figure 09

Kearney Whitewater Park. "Kearney Canal Debris." Facebook. April 1, 2016. Accessed June 06, 2019. https://www.facebook.com/KearneyWhitewater/photos/a.170323272995322/1308921172468854/?type=3&theater

Figure 10

Kearney Whitewater Park. "Kearney Kayaking." Facebook. November 26, 2017. Accessed June 06, 2019. https://www.https://www.facebook.com/KearneyWhitewater/photos/a.170323272995322/2001951323165832/?type=3&theater

Figure 11

Kearney Whitewater Park. "Montrose Whitewater Feature." Facebook. November 26, 2017. Accessed June 06, 2019. https://www.facebook.com/KearneyWhitewater/photos/a.170323272995322/2146765202017776/?type=3&theater

Map 4.2b

Wildcat Creek Could Support Recreation but Requires Land Use Agreements

Figure 12

Herbel, Erich 2019. Manhattan regional map of park and neighborhood connections along Wildcat Creek to the Kansas River. Source: County of Riley GIS: "Trails" "Builidngs," Buildings," "Parks." Accessed June 4, 2019. Modified in Adobe Indesign.

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Figure 15

Herbel, Erich 2019. Wildcat Creek Public and Private Properties. Source: County of Riley GIS: "Trails" "Builidngs," Buildings," "Parks." Accessed June 4, 2019. Modified in Adobe Indesign.

Figure 16

Herbel, Erich 2019. Kansas River Public and Private Properties. Source: County of Riley GIS: "Trails" "Builidngs," Buildings," "Parks." Accessed June 4, 2019. Modified in Adobe Indesign.

Figure 17

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Figure 18

Herbel, Erich 2019. Source: Eric Banner. The Watersheds of the Middle and Upper Kansas Sub-Basins A Report on the Water Quality and Lands. "E-Coli Levels of Wildcat Creek." Report. Kansas Department of Health & Environment, 2008. Accessed June 4, 2019. Graphically Modified in Adobe Indesign.

Figure 19

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Map 4.2c

Five Strategies to Allow Seasonal Activities on Wildcat Creek

Figure 20

Herbel, Erich 2019. Proposed Conservation Reserve Areas on Wildcat Creek. Source: County of Riley GIS: "Trails" "Builidngs," Buildings," "Parks." Accessed June 4, 2019. Modified in Adobe Indesign.

Figure 21

HDR, Inc., Kaw Valley Engineering, Wright Water Engineers, Inc., and City of Salina. "Smoky Hill River Renewal Project - Master Plan and Wetland Proposal." Lecture, Public Open House, Tony's Pizza Events Center, Salina, KS, November 15, 2018.

Figure 22

Herbel, Erich 2019. Community outreach flyer for volunteer opportunities and creek/site awareness. Created in InDesign.

Figure 23

Herbel, Erich 2019. Kansas River Water Trail sign at Fairmont Park Manhattan, KS." Digital Photograph.

Figure 24

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Figure 26

Herbel, Erich 2019. Wildcat Creek Proposed Access Points, Crossings, & Trails. Source: County of Riley GIS: "Trails" "Builidngs," Buildings," "Parks." Accessed June 4, 2019. Modified in Adobe Indesign.

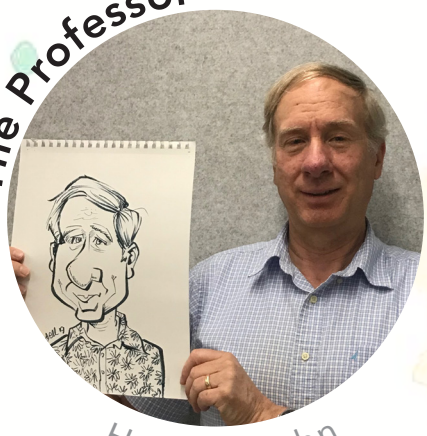
Cast of Characters

Growing West



Haley Weinberg • Erich Herbel • Ashley Akers

The Professor



Howard Hahn

KID-hattan



Rainie Madsen • Grant Pasowicz • Paden Chesney

New Corporate Green



Mikala Fitzgerald • Nick Ferrara • Julia Kappelman

The Compass



August Titus • Jessie Carmichael • Kastasya Jackson • Madelyn Cole