

# Cascade Creek:

## Revitalizing Community



**A four stage project set to revitalize Cascade Creek and Kutzky, Northrop, and Washington Neighborhoods.**

CASCADE CREEK  
-Revitalizing Community-

A Design Thesis Submitted to the  
Department of Architecture and Landscape Architecture  
of North Dakota State University

By

Josh Wildt

In Partial Fulfillment of the Requirements  
for the Degree of  
Bachelor of Landscape Architecture

A handwritten signature in black ink, appearing to read "Matthew Quinn". The signature is fluid and cursive, with a long horizontal stroke at the end.

Primary Thesis Advisor

May 2014  
Fargo, North Dakota



CASCADE CREEK  
-Revitalizing Community-

By

Josh Wildt

Primary Advisor:

Matthew Kirkwood

In Partial Fulfillment of the Requirements  
for the Degree of  
Bachelor of Landscape Architecture

Department of Architecture and Landscape Architecture  
of North Dakota State University

Fall 2013 - Spring 2014  
Fargo, North Dakota

# Table of Contents

Chapter 1: Project Typology & Introduction		Chapter 4: Opportunities and Challenges of the Research	
Building Community through Public Space		Understanding Community	
Project Typology	p. 12	Community Connection	p. 66
Introduction	p. 12	Community Involvement	p. 67
Site Information, Opportunities and Challenges	p. 13	Development of a Community Identity	p. 68
Literature Review	p. 14	Reclamation of a Waterway	p. 69
Research Questions	p. 16		
Case Studies	p. 18	Chapter 5: Opportunities and Challenges of Site	
		Moving forward with Cascade Creek	
		Community Connection	p. 72
Chapter 2: Methodology		Community Involvement	p. 72
Cascade Creek and Surrounding Neighborhoods		Development of a Community Identity	p. 72
		Reclamation of a Waterway	p. 73
Research Methodology	p. 26	Chapter 6: Design Implementation	
Measures	p. 26	A four stage revitalization project	
Site Introduction	p. 28	Program	p. 76
User & Client Description	p. 32	Masterplan	p. 87
		Perspectives	p. 88
Chapter 3: Site Inventory, Findings & Goals		Parts Kit	p. 99
Examining, Investigating & Exploring Cascade Creek		References	
Site Inventory	p. 36	References	p. 102
Findings from Research	p. 55	Annotated References	p. 106
Applicable Values for Site & Research	p. 58		
Design Goals	p. 60		
Plan for Proceeding	p. 62		

## Abstract

Located adjacent to downtown Rochester, MN are three neighborhoods that are in the midst of revitalizing their housing infrastructure. Each neighborhood is taking steps to become a viable family neighborhood with a developed community to be proud of. Currently, the sense of community is lacking and not apparent within and between these three neighborhoods. Cascade Creek – Revitalizing Community questions and looks into how the Cascade Creek waterway can be transformed into a functional and desirable gathering point in order to achieve a greater sense of community. Revitalizing the creek is the catalyst that brings people back out into the community while at the same time being beneficial to the creek's ecosystem. In return, both the revitalization of the creek and newfound community helps counter the political, economic, and criminal issues that the site faces now. What is needed to form the community and revitalize the creek is determined by connecting to the history of the area and the culture along with hard numbers about the creek surrounding green space and neighborhoods. This project includes a master plan that may be executed in order to revitalize the four neighborhoods of the Cascade Creek region.

# Chapter 1

## Project Typology & Introduction

### Building Community through Public Space



## Project Typology

This thesis project focuses on the revitalization of urbanized and contaminated waterways. The project takes into account the ecological impact of daylighting a waterway through unmasking it and un-channelizing the creek. Incorporating historical and cultural elements into the project draws in community interest and activity. The project also looks into how the repair and emphasis of a waterway in an urban community not only physically improves the area but also affects the surrounding communities economically and politically.

## Project Introduction

With the rise of ecological awareness and preserving our planet for future generations, repairing the impact on the earth that has been inflicted is now fluidly integrated into our daily lives. There is not just one way that these environmental situations can be solved; each situation provides its own opportunities and challenges. A systematic and calculated approach can be taken to resolve the situation; at the same time a creative and artistic approach is incorporated in order to boost aesthetics. As landscape architects, we have to meld both beauty and science to form a holistic design.

In our modern times, many of us have witnessed that urban development during the Industrial Revolution and up until present has destroyed and covered up natural artifacts and elements in the landscape. This happened because the focus was on expansion, and there was no regard to the impact on nature because it was assumed that land

was a limitless resource. We now understand that land is limited and not an expendable resource. New technology makes land use more efficient and can leave less of an impact upon the earth, but it is believed that this is still not enough. It is known, although, that returning wasteland and negatively impacted land certainly helps preserve the land for future generations (Hardin, 1968) .

There are movements to unmask and reveal what has been lost to the past and forgotten by history. The revealing of creeks and streams long covered up is a large part of unmasking the forgotten past. Once above ground waterways were channelized and even completely submerged underground to be forgotten about in the name of expansion. The revealing of these covered or otherwise obscured creeks and streams, commonly called 'daylighting', is just one of the different ways that people have been correcting the damage to the landscape.

Looking at how uncovering a waterway does more than just appease nature but also can be turned into a functional and desirable gathering point is the question to ask when looking into this thesis. It is also important to examine how to reveal and expose the area in order to attract the public to the area while making the community have pride in the area. This project will consider and further understand how the political, economic, and criminal issues affect the area and can be solved by design.

## Site Information, Opportunities and Challenges

In applying this idea of waterway revitalization to a physical site, there are certain criteria that are to be considered. Of the following criteria, each needs to be carefully considered so as to not leave gaps in the project's integrity that would cause the final design to not be successful.

**Revitalization:** The site should be in need of repair, revitalization, etc.

**Urban Design:** The site should be located in an urban or densely populated suburban area.

**Accessibility:** The public should be able to access the site.

**Community:** The area will require a lack of community that needs to be built up, or a community that needs to be strengthened further.

**Historical:** The site should have elements from the past century that tell why it is the way it is currently and what should be changed to reflect the area.

**Masking/Unmasking:** The site should have components that need to be brought to attention or hidden.

**Daylighting:** The site should include a waterway that needs to be brought back to public attention.

**Ecological:** The proposed area will need to be rid of contamination and other ecological impacting elements.

**Natural Drainage System (NDS):** The site should require retrofitting to a natural drainage system.

**Economic:** The area should have negative aspects that affect the economics of the area and related vagrancy and criminal activity.

**Political:** The area should require political aspects to be changed to reform the area.

**Cultural Identity:** The area should have a need for a cultural identity aspect to focus on during the design phase.

With these site criteria, the site faces challenges with the political, economic, and historical criteria holding the site back into its current stigma. If these criteria are not addressed, a design could be implemented and not be successful because of lack of users and visitors. Opportunities include the ability to set a precedent for the other local communities to follow when revamping the natural systems in which they live. A successful design that unmasks the site to the community and returns the site back to a natural state can be used as an example for the surrounding area.



# Literature Review

Criteria Covered: Masking and Unmasking, Daylighting, Historical, Community, Ecological, Cultural Identity, Economic

Almost every individual site that a modern day designer works on has been disturbed in the past. These disturbances have altered the landscape more than just physically; they have created a story for the site.

Narratives intersect with the sites, accumulate as layers of history, organize sequences and inhere in the very materials and processes of the landscape. In various ways, stories “take place.” The term “landscape narrative” designates the interplay and mutual relationship between story and place. More than just a backdrop, places become eventful changing sites that engender stories. And we come to know places because we know their stories.

- Potteiger and Purinton, *Landscape Narratives, Theory in Landscape Architecture* (2002)

Creating a landscape that is both aesthetically pleasing and at the same time functional is a key element to design for landscape architects and designers alike. In order to achieve both aesthetics and function, often the landscape’s narrative is important to developing the area. What is a landscape narrative? As stated in their book *Landscape Narratives*, Matthew Potteiger and Jamie Purniton (1998) inform the reader that they “understand landscape narratives not just as literal stories of texts to be read but as integral to the

processes that shape landscapes in the first place” (Potteiger, 1998). In essence, the narrative can influence the programming of the design. There are many facets to the landscape narrative, and one that is often overlooked in design is the idea of revealing and concealing the landscape. Potteiger and Purniton explain the aspect of revealing and concealing as having “three fundamental ideas... first the idea of secrets or hidden information; second, the idea of transparency; and finally the idea of masking and unmasking information”. These three ideas all individually influence how the landscape and its’ narrative are viewed.

In the case of streams and creeks, the revealing of once concealed waterways is called daylighting. “Daylighting began in the Bay Area when the city of Napa removed a cover over a channelized portion of Napa Creek in the 1970s” (Pinkham, 2000). The term daylighting was coined in the early 1980’s with the “movement of uncovering natural drainage systems in the East Bay Streams [in Berkeley, CA] as well as other culverted and covered streams across urban and suburban North America” (Potteiger and Purinton, 1998). Often the focus was not just on the stream but the surrounding context. Many designs “set out to create a public park for human use and enjoyment, and the daylighted stream was just one element” (Buchholz and Younos, 2007). In daylighting a stream, the past is often revealed physically with the excavation. The historical content, now unveiled, becomes part of the narrative of the new landscape.

Codornices Creek is a social experiment in how the process of the design was implemented. The creek, for over a year was worked on by hand by

hundreds of volunteers from the area instead of a crew with machines coming in and disrupting the eco system more. As a secondary result, it is considered “that doing it by hand developed a constituency of community support that will ensure the long-term viability of the creek” (Potteiger and Purinton, 1998). Later Potteiger and Purinton talk about how, “Revealing this small creek is part of larger ecological and cultural narratives about restoring neighborhoods and creating healthier communities” (1998). These changes impacted the narrative of the area. According to Potteiger and Purinton (1998) in their conclusion of the site that,

The open and vital creek is a cleansing “connective tissue” attached to a social story of creating viable, integrated communities with better child care, drug rehabilitation, and community centers. Reestablishing local and distinct waterways is an important mean for establishing and celebrating local identity.

The physical work of unmasking the landscape and revealing the narrative is not the only integral aspect to daylighting and revitalizing a waterway. This can be done simply by a designer that has the budget and the knowledge. The project is not inherently successful if it is ‘dropped’ into the site. The social process of implementing and integrating the design is what culls community, ecological, and cultural identity into the project and inevitably assures and prolongs the role of the community in the project. This, as a result, has a greater effect on the economics of the area. As a result of the boosted economy in the area, petty crime and the number of vagrants, such as transients and the

homeless, has decreased. This is found to be an inverse correlation with the economics of the area because as places become a social stronghold, they are often found less appealing to the people that try to stay out of the public eye (Potteiger and Purinton, 1998).



Figure 1.1: Example of existing conditions at Cascade Creek. (Photo Credit Josh Wildt, October 2013)



Figure 1.2: Example of existing conditions at Cascade Creek. (Photo Credit Josh Wildt, October 2013)

## Research Questions

Research questions to be addressed about how to reclaim a waterway so that it forms a sense of community are:

How do communities connect to existing waterways?

- How does reclamation of a waterway effectively address water connections?
- How do connections to a waterway create a strong sense of community?

How does reclaiming a waterway affect the public?

- What is the best way to engage the public?
- How can the public help with and be incorporated into the process of reclamation?

How can the waterway be made an integral part of the surrounding city?

- How can a site identity be created from a waterway?
- How can specific features bring people to a waterway?

How can altering a waterway affect the surrounding communities?

- How does political reform of a waterway impact a community?
- How does economic reform impact and affect the economy of surrounding communities along with the outlying communities?
- How do political and economic reform affect issues with vagrancy and unwanted people in an area?

This project will explore the hypothesis that as natural design work is incorporated into an area, the new focus on the area will spark interest in the community that continues past the construction phase and into the maintenance phase and further into the future. As a result this interest will help strengthen the community to stand up for themselves and be a unified presence that can systematically trounce the political, economic, and criminal attributes that plague the area.



# Strawberry Creek Case Study

Criteria Covered: Daylighting, Urban Design, Masking/Unmasking, Revitalization, NDS, Ecological

Location: Berkeley, CA  
Instigator: Douglas Wolfe and the University of California, Berkeley  
Date: 1987-2004  
Size: The entire University of California Berkeley Campus

Chosen in 1860 as the site for the University of California, Berkeley campus, the site has undergone numerous changes in architecture and corresponding landscape architecture (“Uc berkeley strawberry,” 2006). Over time, with development, land was needed and the two forks of the creek were slowly covered up for room for a railroad freight yard. The creek was culverted in 1904 and remained that way until local landscape architect Douglas Wolfe came to the site. He instigated the idea that a chunk of the stream be revealed in the form of a neighborhood park. The total stream length being revealed was roughly two-hundred feet in a four acre park that was renamed Strawberry Creek Park. With the completion of this phase, arousal from the public started many more ‘grassroot’ organizations to keep uncovering the streams in the Berkeley Hills area (Potteiger, 1998). This eventually formed Friends of Five Creeks which maintains the area creeks to this day (“Friends of five,” 2012).

As one of the first examples of daylighting a creek in the urbanized Berkeley Hills area, this project

catalyzed many more unmaskings of streams in not only the region but nationwide (Potteiger, 1998). The modern stream is now a home to a vast ecosystem not seen in hundreds of years: “Fish, newts, egrets, banana slugs, crayfish, and small creatures such as mayflies, water striders, and snails are now common” (“Uc berkeley strawberry,” 2006). It took more than just the unmasking and physical revitalization of the stream through a natural drainage system. Political aspects, such as rerouting the sanitary sewers out of the creek and into the local sewage treatment facility, were key to making the project successful. Until all the sanitary sewers were rerouted in 1987, the exposed creek still had a very unstable and unsafe ecosystem that was classified as a public health hazard. Ecologically, the stream is now considered to have an enhanced integrity as of 2004 when the biological material in the stream was measured (“Uc berkeley strawberry,” 2006).

The concept of including the community in the daylighting of a waterway is the integral part of developing the community that directly surrounds the site along with outlying areas. Bringing the community into the project brought about awareness to the fact that these creeks even exist, the shape that they are in, and how the surrounding areas are lacking without their presence. This vital step of incorporating the volunteers created a new community for the area, a community that cherishes what they have now and will go forward protecting the area and not forgetting about it. Without the community in action and keeping the area up, all of the work of planning and revitalizing the creeks would fall apart again and no longer attract people to the area. This concept is applied to this project

in order to embrace the idea of having a self-sustaining community that envelops the project location. By creating a sense of community, the project will not just be at its prime once completed but will continue to evolve with the community into the future.



Figure 1.3: Reintroduction of native fish into Strawberry Creek  
(Photo Credit: UC Berkeley)



Figure 1.4: Egrets feeding along the reclaimed Creek  
(Photo Credit: UC Berkeley)



Figure 1.5: Volunteers removing invasive plants.  
(Photo Credit: UC Berkeley)



Figure 1.6: Existing conditions along the creek  
(Photo Credit: UC Berkeley)

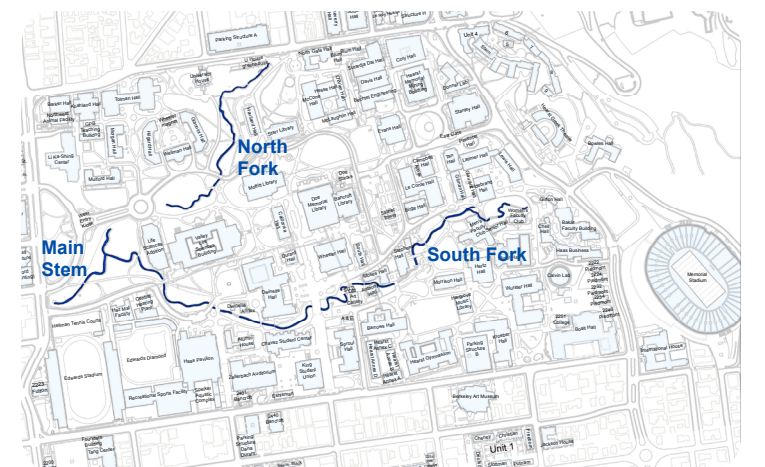


Figure 1.7: Creek plan showing the path through campus  
(Photo Credit: UC Berkeley)



## Waller Creek Case Study

Criteria Covered: Urban Design, Revitalization, Historical, NDS, Ecological

Location: Austin, TX

Designer: Michael Van Valkenburgh Associates Inc. and Thomas Phifer & Partners

Date: 2012

Size: 7 Miles through downtown Austin, TX

Located in the heart of an urban epicenter, “Waller Creek is a seven-mile urban creek that flows from north Austin, TX, southward through the University of Texas at Austin (UT) campus and the eastern edge of downtown Austin to Lady Bird Lake” (Coronado, Tuttle & Zhang, 2013). Due to channelization, flooding, and erosion the ecosystem of the corridor has become increasingly stressed (Coronado, Tuttle & Zhang, 2013). The study conducted by graduate students Maria Coronado, Lauren Tuttle, and Weijun Zhang at the University of Texas at Austin finds that the stream suffers not only the physical issues previously listed but also that the creek is lacking cultural diversity and a sense of community involvement and awareness (2013). Allan Shearer, Ph.D., an Associate Professor of Architecture at the University of Texas at Austin, finds that, “This narrow riparian corridor currently suffers from invasive plants, failed stream banks, and high concentrations of bacteria. It can also be a danger to human life and property” (2013).

There had been a master plan created by the University of Texas at Austin and has been the focus of their Landscape Architecture Department’s studios for quite some time. These works never

left the drawing board. In time, the Waller Creek Conservancy sponsored a design competition that was narrowed down to four finalists. The competition selection was Michael Van Valkenburgh Associates Inc. and Thomas Phifer & Partners, selected on October, 18th 2012 (“Waller creek conservancy,” 2013).

To both preserve its historical character and better sustain regional ecologies; the MVVA proposal employs durable bioengineering techniques and a native plant palette along the banks of the creek. At places where the old masonry creek walls have dignity and durability, the plan conserves them as embodiments of local history.

-Michael Van Valkenburgh Associates Inc. and Thomas Phifer & Partners (“Waller creek”, 2013)

The overarching goal of Van Valkenburgh Associates Inc. and Thomas Phifer & Partners was to “create an exciting and humane landscape that will be critical to great city life in Austin” (Waller Creek Conservancy). When the design team looked at the area they realized that “Waller Creek is too long, and its condition too varied, to be resolved with a single sweeping design gesture” (“Waller creek”, 2013). Their urban design resulted in various parks along the riparian corridor that corresponded to each of the neighborhoods along the route. The stream in the meantime was reclaimed in a manner that saved some of the historical aspects of the bricked creek walls but utilized the concept of natural drainage systems to encourage ecological stability.

The idea of incorporating smaller, singular designs into an overarching project is what is taken into

account for this project. This is in order to adapt to the varying conditions encountered along a large scale linear project. A generalized plan does not work along a multi mile waterway because, especially in an urban environment, a lot of changes can happen in a matter of feet. Just like the different historical and environmental aspects were taken into account while designing Waller Creek, this project will look at designing specifically for the adjacent areas.

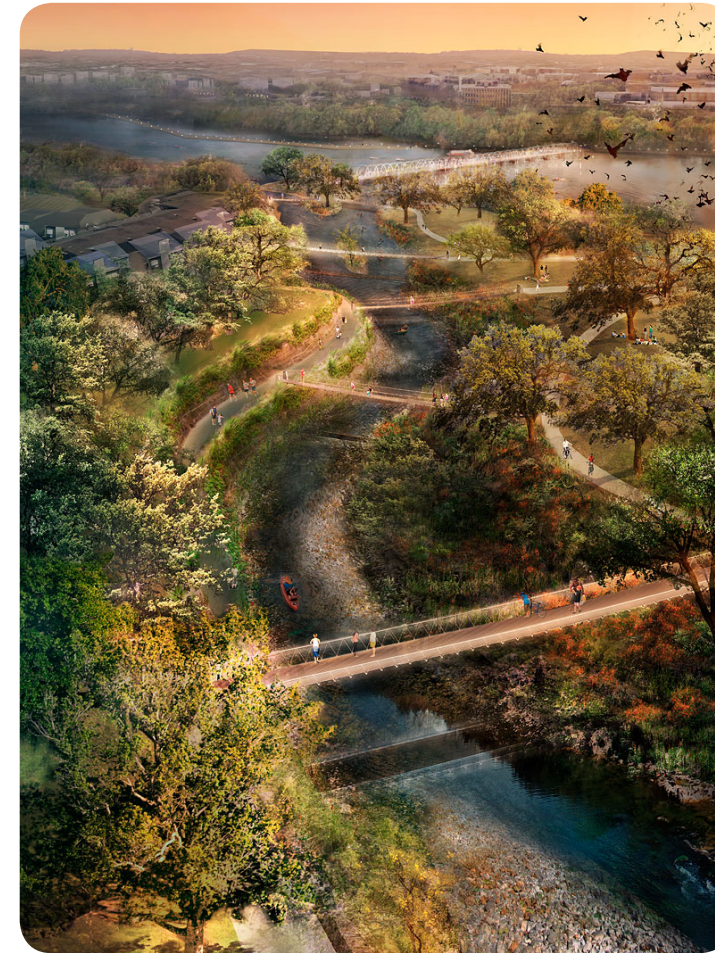


Figure 1.8: Rendering of completed Waller Creek (Photo Credit: MVAINC)



Figure 1.9: Master plan of completed Waller Creek (Photo Credit: MVAINC)



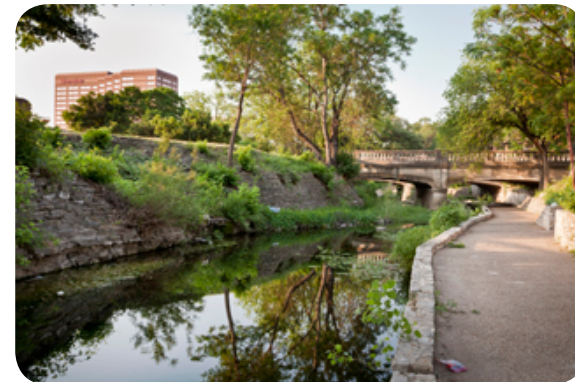


Figure 1.10 (Above): Photos of the current Waller Creek  
(Photo Credit: Waller Creek Community)

Figure 1.11 (Right): Renderings of proposed Waller Creek  
(Image Credit: MVAINC)





# Chapter 2

## Methodology

### Cascade Creek and Surrounding Neighborhoods



## Research Methodology

The Cascade Creek reclamation requires qualitative and quantitative research on communities, crime, existing reclamation attempts in the area, waterways and existing amenities. Data is collected first hand from the site, through locals living at the site, the local government, and through online research.

In order to rebuild the sense of community, separate research is done on what elements make a community such as: existing community programs and outreach groups, cultural aspects of the community, and demographics of the area. These elements will help tailor a design and determine what will make the community a successful one. Data is also gathered to determine what the community lacks currently. Interviews with the leaders of the neighborhood associations and other long time and prominent locals brings first-hand knowledge of the area and the people.

Looking at the physical reclamation of Cascade Creek, research and data collection on the status of the creek physically right now is necessary. Such elements include: erosion, plant material, flooding, and runoff rates. This data is collected first hand on a site visit and is included in the general inventory and analysis of the physical site. Other quantitative data is collected from the city, such as water quality, underlying issues of the site, ecological issues, etc.

Finally, research can also be done using Geographic Information Systems and other government operated online databases to collect various statistics, population, demographics, and other

relevant quantitative data about the study area and the surrounding area.

## Measures

### Qualitative

- General park conditions in order to gauge and inventory what needs fixing, updating, or total replacement.

- Existing architecture in the immediate surroundings of the waterway and included communities.

- Ambient noise such as traffic, people and animals and the role they play in the area.

- Vegetative conditions in order to inventory what is in good shape and can stay and what needs replacing.

- Apparent pollution of the land, air, and water, in order to mediate appropriately in the final design.

- Areas of disrepair especially among houses and other physical structures to help determine what areas could use immediate revitalization.

- Historical information of the neighborhoods in the surrounding communities in order to embrace and recognize the history of the site.

- Green space that is preexisting in the area, the total extent and current condition.

- Parking accommodation throughout the site; including parking lots and street side parking and what areas are under the most strain currently.

- Open space such as vacant lots, privately owned land, undeveloped commercial land, and current parks and parkways.

- Recreation areas such as sports fields, shelters and other multifunctional areas along with their current condition and accessibility.

### Quantitative

- Total park area and the determined park area in order to calculate numbers and determine possible correlations and statistics.

- Neighborhood population and demographics to see what types of people are present in the surrounding area and who they are.

- Daily visitor information throughout the different areas of the park to judge needs of each area.

- Traffic counts on the surrounding local roads to determine possible human and vehicular conflict at intersection points.

- Waterway contaminant condition in order to determine the basis and extent of pollution.

- Waterway depth, length and flow volume to determine actual numbers from the waterway for accurate analysis and reclamation.

- Flooding of the waterway and the impact that it has on the surrounding area and if it is even an influential issue.

- Walkability of the site and surrounding communities in order to determine what is missing to make that happen or what can be done to develop walkability further.

- Accessibility on foot, bicycle or vehicle of the site from the local community along with the outlying community.

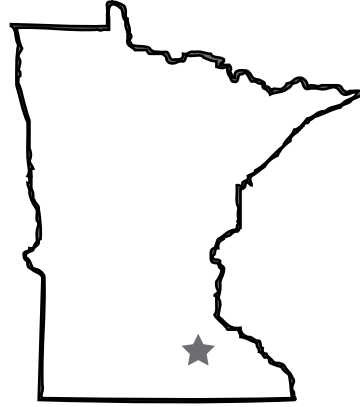
- Surrounding businesses and the impact they have on the waterway and park and the impact the park has on the surrounding businesses.

- Existing structures including the total number and general condition they are currently in.

The collected data will be used to analyze areas of the site that are vital to the reclamation of the area. Looking at what the site has and lacks is the next step to identifying what needs to be designed. Analyzing the surroundings will help integrate the project seamlessly into the area. Taking into account the number of people and the type of people that are using the site will influence the design, how to make the current users happy and how to attract a larger user base. Looking into the history of the area will help define a design that fits in with the past and will become part of the future. Finally, looking at the contamination and flooding issues of the creek will help revitalize it in the ways that it needs in order to be healthier and function properly.



## Site Introduction



Cascade Creek, located in the heart of Rochester, MN, flows through Kutzky Neighborhood, a late nineteenth century development, and two neighborhoods: Washington, and Northrop Neighborhood. These last three neighborhoods are all developments from the post-World War II period to the economic collapse of the 1970s (“Rneighbors,” 2012). Benefiting from the urban renewal that the Midwest has been experiencing the last two decades and the monetary magnet that the Mayo Clinic is to the area, Kutzky Park has entered a renaissance era over the last decade. This continues and has turned derelict low income housing into renovated starter homes for many families. For over forty years there was no new construction in the neighborhood (Pieters, 2009). The other two neighborhoods are considered aging, although because of the Mayo Clinic these neighborhoods have continued to be occupied with young professionals due to their close physical proximity to the Mayo Clinic and the extensive health care system in downtown Rochester (“Rochester, Minnesota city,” 2013).

Cascade Creek currently provides a basic floodplain and city built bike trail for the local community and the town as a whole to use over the mile and a half before Cascade Creek empties its contents into the Zumbro River. Parks connected to the waterway have some amenities, but they could be considered basic and seasonal, such as tennis courts, baseball fields, a playground, and an ice rink in the winter. Rochester has been unofficially recognized by many cyclists in the region for their extensive and intricate in-town and around town bike trails and takes certain pride in their ride-ability and walkability (Personal Interview). The Cascade Creek trail-way is not up to the same general standards that are set by the highly rated trail system that Rochester has. In comparison, the trail is neglected maintenance wise and is falling into disrepair. Whereas the rest of the town’s trails have been kept up in their surface coating, surrounding vegetation, signage, and physical size to meet demand.

To the North, the trail along the creek is isolated from the two neighborhoods. The backs of houses face the trail which in turn forms a channelized viewport that creates a sense of containment. Visitors feel like they are passing through an empty corridor of backyards that seem like they should not be seen, with trash and unkept grass scattered about. To the South, while in Kutzky, the greenway opens up allowing the trail to meander among a few trees. The oldest and most decrepit houses can be found intermittently throughout this area. The neighborhood has a high quantity of group houses, halfway houses, and drug houses that are scattered throughout the neighborhood. The transients associated with these houses can be found wandering during the daytime causing disruptions

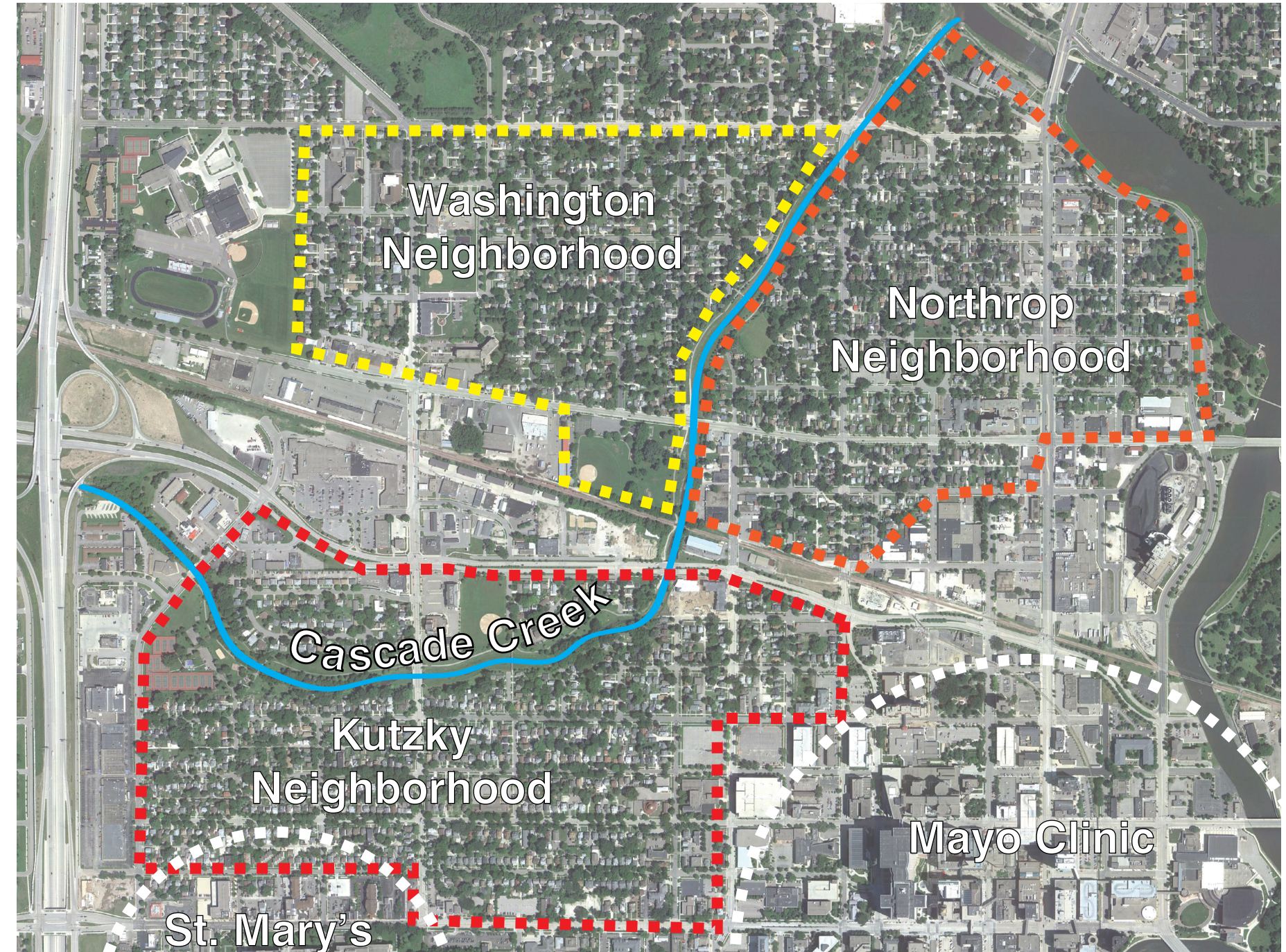


Figure 2.1: Aerial image of Cascade Creek, Kutzky Neighborhood, Northrop Neighborhood, and Washington Neighborhood. (Image Credit: Google Earth, Edited by Josh Wildt)





Figure 2.2: The first house to be built in Kutzky Neighborhood in over forty years.  
(Photo Credit: Josh Wildt, October 2013)



Figure 2.3: Example of existing bike trail conditions.  
(Photo Credit: Josh Wildt, October 2013)



Figure 2.4: Example of graffiti located in Cascade Creek  
(Photo Credit: Josh Wildt, October 2013)



Figure 2.5: Example of how Northrop and Washington Neighborhoods are contained.  
(Photo Credit: Josh Wildt, October 2013)

for the schools, businesses and law enforcement in the area (Personal Interview). The experience, in general, leaves an uneasy feeling for the people on the trail and discourages people from using the parks as prevalently as possible. Although the area has been on the upturn, the stigma associated with the area still resides and causes people to be hesitant and resistive to accepting the area. The neighborhoods are already experiencing revitalization within housing and infrastructure updates, and new influxes of people are being drawn to the area. This is a start for the neighborhoods on their own as they have already shown to be very successful in rebuilding themselves lately, but they can only grow stronger if a sense of community is brought back and instilled into these neighborhoods more than mentally.

Cascade Creek is a waiting opportunity to incorporate natural drainage systems into the area. Adjacent to this area they have already worked on removing the channelization of the creek. This section of the creek through the neighborhoods is the only part not revitalized before emptying into the Zumbro River.

Daylighting and revitalization of the site will potentially be a forceful draw to the surrounding communities and the public. The existing site is currently underused with a semi-hidden creek that is often taken for granted. The area has economic, political, and criminal issues that are in some ways, slowly correcting themselves. As the neighborhoods try to revitalize on their own they have begun to address issues such as out of date zoning, small and large businesses in the area, multifamily housing and rental properties. With the

reclamation of the stream, all four communities would share a common item of focus and the work they each are doing on their own could be conglomerated and become a group effort.

The site faces issues with politics and economics with zoning and private property encroaching on the working site area. Currently many of the homes exist as multifamily complexes or rentals for the Mayo Clinic workers that are only temporarily interning at the Mayo Clinic. Many businesses have moved out of the area due to the conditions and exist in outlying parts of Rochester. Businesses that do exist in the area are generally small and new enterprises working their way out of the area and into a more prominent area of town. They generally reside on the edges of the communities surrounding Cascade Creek where access by the greater community is the greatest. Opportunities are working in the oldest neighborhood in town and the history and culture that comes with it. Emphasizing the affordability of shop space and real estate in the area can be turned into a positive aspect and a potential draw for new and developing businesses. The neighboring Mayo Clinic will also bring many design opportunities for the increased possibility of users.



## User/Client Description

### Neighborhood Residents

The main users will be the residents of the neighborhoods that surround Cascade Creek. These users are divided into three predominant age groups: the elderly, the working age, and young adults/youth. Planning for multi-season use is critical to the design. The park areas should be available for field sports and gatherings in the summer along with recreation in the winter, as Cascade Creek is located in a Northern climate. Not incorporating winter activity in a Northern climate creates a period of neglect and limited use. Planning for year round activities effectively doubles the usable time frame of the site.

- Designing for the oldest age group (age 50 and up) will focus on creating leisurely elements so that the users can use the park to relax and not be bugged by kids playing nearby or overtaken by cyclists passing on the trail. Designated gathering areas will encourage this group to use the park to meet up with others and find privacy in the outdoors.

- The youth/young adults (age 18 and under) will require design that is meant to entertain and keep them busy. This group will need more year round physical and recreation focused amenities to keep them occupied so that respect, not vandalism, is given to the park.

- The median age group of people (age 18 to 49) will be able to benefit from the aspects incorporated for the youth and the elderly. There will be activities for both individual adults to do out at the park or parents

with kids. The biggest element to implement for the median age group will be incorporating design around the amenities for the other groups, such as benches around playgrounds, in order to encourage them to go there.

### Clinic/Hospital Visitors/Patients

Another main user group will be the visitors and patients that have come to Rochester and the Mayo Clinic and Saint Mary's Hospital. People at the clinic and hospital come from all over the world for varying amounts of time. Many of these people have other things on their minds and a place to escape to relax outdoors or go for a walk is beneficial. For these users, the ability to easily locate the site without any hassle is a necessity in order for it to be used. They will also most likely only take advantage of the portion closest to the facilities as time is often limited.

### Clinic/Hospital Workers

Just as the visitors and patients at the Mayo Clinic, less than a mile away, the workers will be able to access the site during lunch breaks to go for a quick jog or walk with their coworkers on the mile and a half of existing trail. To keep them coming to the site ever changing aspects will be vital. Amenities for walking, jogging and eating lunch, such as seating and stretching areas, will give the area a designated purpose for the workers.

### Town Residents


Overall, the town will also be users of the site, especially because the trail system runs through the

site. Bikers and runners will be the predominant non local residents that will be using the site. Normally, with the trail the area would be seen as a pass through and greatly underappreciated. In order to get these users to stop and enjoy the park public amenities such as water fountains and bathrooms will create a pit stop for people and then draw them out into the park for an extended break if they desire. For other town residents that want to come to the park, parking, along with proper signage, will need to be incorporated in order to draw them in.

# Chapter 3

## Site Inventory, Findings & Goals

Examining, Investigating & Exploring Cascade Creek





## History

Even though the Cascade Township (later Rochester) was founded in the late nineteenth century, upwards of sixty percent of the construction and development in the downtown area neighborhoods did not occur until after the founding of the Mayo Clinic in 1914. The 1920s and 1930s saw the majority of the development of the surrounding downtown area around Cascade Creek. Some houses were not built until the 1960's and the last official house to be built in Kutzky Neighborhood was in 1968 ("Kutzky park neighborhood," 2009). For over forty years, from 1968 until 2009, there was no new construction permitted in Kutzky Neighborhood. In 2009, the existing house on 212 9th Ave NW, was deemed not worth the effort and money to fix up was torn down. A permit was then issued to construct a new two story house on the site that would retain the characteristics of the other houses in the neighborhood. With the successful renovation of that property, the surrounding neighborhoods of Cascade Creek were revealed to be a profitable area for renovation and resale of properties (Pieters, 2009).

Until the construction of the first house (212 9th Ave.) in over forty years, the neighborhood reported to be losing an average of 20 residential houses a year that were being converted to rental properties and commercial units. As a response, in 2003 Kutzky Neighborhood, created the Imagine Kutzky Vision Plan for how the neighborhood should approach the future and redevelop. The vision plan was to approach redevelopment with modern urban design principles such as walkability, mixed use buildings, and high density residences. The

plan also embraces the existing structures and architecture on site and hopes that properties that are historic and/or architecturally prominent will be saved. With these goals, the Kutzky Vision plan hopes to continue the sustainability and prominence of the neighborhood well into Rochester's future ("Kutzky park legacy").



Figure 3.1: August Kutzky and his wife Bertha. (Photo Credit: Kutzky Neighborhood Association)

## Neighborhood Origins

The Cascade Creek area is regarded as the first location to be claimed and settled of what would become Rochester, Minnesota. Settled in 1854 by the Cummings and McReady families, the first settlers lived on their claims as subsistence farmers and hunters. By 1859, a proposed railroad from Winona, Minnesota to St. Peter, Minnesota was surveyed across the settlement, thus fortifying the permanence of the settlement ("Kutzky park neighborhood," 2009).

Kutzky neighborhood and Kutzky Park are both named after August W. Kutzky, a man often overlooked in Rochester's history due to the prominence of the Mayo Family. August Kutzky was born in Germany and immigrated to the United States with his parents while he was still an infant. The family farmed in the area around Cascade Creek in the later 1850's and through the 1860's when the area also became known as the Cascade Township. The family moved away in the late 1860's, but when August married his wife Bertha, he moved back to the area and the town which was now called Rochester, Minnesota. Living in town he held various jobs and with his money he began buying land on the Northwest limits of Rochester. Eventually he acquired over 90 acres that were turned into housing lots, and the area was named Kutzky's Addition. He lived in multiple houses in the area throughout his entire life. In 1927, August donated 51 more acres, which then became Kutzky Park, that were North of Kutzky's Addition to the town of Rochester. As the town grew the addition became Rochester's first neighborhood. In 1948, August Kutzky passed away ("Kutzky park

neighborhood," 2009). Both

Northrop and Washington Neighborhood were founded and built in the mid twentieth century as the town of Rochester grew at the same time that Kutzky Neighborhood was under full development.



Figure 3.2: House in need of repair in Kutzky Neighborhood (Photo Credit: Josh Wildt)



Figure 3.3: House under repair in Washington Neighborhood (Photo Credit: Josh Wildt)

## Community & Stories

Within the communities surrounding Cascade Creek are people who have spent their entire lives there, lived there for a few decades, and those that have moved in within the last few years.

One man, Tom Hennessey has lived there since 1933, right after when most of Kutzky Neighborhood was built. Hennessey recalls growing up in the house that his parents built in Kutzky for only 3,500 dollars in 1928. At this point in time, the neighborhood was in its prime, filled with upper middle class drawn to the area because of the recently founded Mayo Clinic (1914). As a resident he went to grade school, middle school, and high school all within the neighborhood. Tom's free time was spent biking around the neighborhood with his friends. They also frequently played around and in Cascade Creek year round, swimming in the summer and skating on the creek in the winter. He lived in his childhood home until 2006 when he moved just a few blocks away. Working for Mayo Clinic, both him and his wife walk to work daily. When his kids were school age they walked to school just a few blocks away just like Tom did when he was younger. Tom plans on sticking with the neighborhood good or bad, and is excited to see the improvements that have been happening recently in the neighborhood (Malugani, 2013).

Others have lived in the neighborhood for a few decades and have really noticed the change. Dave Edmonson moved to the Kutzky Neighborhood in 1981 when the neighborhood was hitting its low point. Dave mentions how, as the Mayo Clinic became more popular, people sold their single

family houses and converted them into rental property, bed and breakfasts, and small hotels. He says that as the town grew, the affluence from the Mayo Clinic left the area as driving to work became more and more popular. Dave's stance on the neighborhood was that it had the character and old houses that he was looking for when he moved to Rochester even though drug related crime and vandalism was frequent in the area. He views it that in comparison to other larger cities that he lived in before, it was pretty normal, but compared to the rest of Rochester it was looked down upon with its bad reputation. The reputation is mostly attributed to the rise in drug popularity in the mid 1980's and into the 1990's as Rochester became a stopping point for drugs traveling from Chicago to Minneapolis and Westward. Dave raised his kids in the neighborhood but he was always cautious with them especially at night, he wasn't able let them run free like Tom Hennessey was able to in his childhood (Malugani, 2013).

Then there is the third group of people that have moved into the last few years with goals of rejuvenating the area and reviving the old houses. Kellie Threinen is a recent resident of the neighborhood and real estate broker who has come into the neighborhood for its charm and recent redeeming qualities. Her motive is not just to own a home but to also follow the trend of people buying dilapidated houses and renovating them for a profit. She talks about in her profession the impact has already been noticed, with property in the area already going back up in value (Malugani, 2013).

## Groups & Goals

The Kutzky Park Neighborhood Association was formed in 1996 in order to help reconnect the neighborhood with the local government and the surrounding neighborhoods. The founders took it upon themselves to hopefully reverse the upswing of all types of crime and neglect in the neighborhood while looking towards the future of the neighborhood. According to the association website their goals are:

- To enhance the livability of the area by establishing and maintaining an open line of communication and liaison between the Kutzky Park neighborhood, government agencies and other neighborhoods.

- To meet with governmental representatives; report to governmental committees, agencies, boards; and generally to attempt to help local and state lawmakers establish enforceable legislation and policies to help protect and improve the livability of the Kutzky Park neighborhoods, the City of Rochester and Olmsted County.

- To provide an open process by which all members of the Kutzky Park neighborhood may involve themselves in the affairs of the membership area.

- To provide an organizational structure through which the membership neighborhood can coordinate community projects to enhance livability for the KPNA membership and surrounding areas.

Anyone who is a resident or a business owner in the Kutzky Park Neighborhood can become a member of the association. It is not required to

be a member but it is strongly recommended ("Kutzky park neighborhood," 2009).

First Homes is a Rochester Area Foundation and was formed in 1999 in conjunction with the Rochester Area Chamber of Commerce. While not just a Kutzky Park initiative, First Homes was originally meant for the greater Rochester Area, up to 30 miles around. Currently it extends throughout the entire South East corner of Minnesota as the organization grew and funding and grants have come from state and federal resources ("First homes: Rochester," 2013).

First Homes has ties to the Cascade Creek region as it was one of the first investors into the rehabilitation of decrepit single family houses and the conversion of multifamily rentals back into single family housing. Their goal is to achieve affordable housing for low to moderate income families who otherwise would not be able to afford the investment of a house. They do this through turning the properties into Community Land Trusts, which separates the ownership of the land from the house. This drastically decreases the price while locking the price for future buyers. To date, First Homes has returned over 875 homes back to the greater Southeastern Minnesota community and has raised over 129 million dollars ("First homes: Rochester," 2013).



## Pollution

Cascade Creek is part of the greater Zumbro River basin that eventually drains into the Mississippi River near the town of Kellogg, Minnesota. The entire watershed encompasses over 900,000 acres in Southeast Minnesota. The watershed is a very diverse environment with the area being mostly comprised of sandy bluffs, glacial tills to the East and plains and ground moraines in the Western half. The entire area is considered agricultural with row crops such as corn, peas, and soy beans being the most prominent harvested agricultural goods.

The state of Minnesota is investing a lot of time and money into the monitoring and studying of its lakes, rivers and streams because they are vital natural resources to the state. In 2012, the state began intensive monitoring of the Zumbro River Watershed, in order to determine hard numbers on the total maximum daily load of the Zumbro River and its major tributaries such as Cascade Creek. At the same time restoration and protection work is being done to address nitrate and mercury pollution issue along with fecal coliform bacteria issues. These pollutant issues are a result of agricultural runoff and cattle feedlots in the watershed ("Zumbro river watershed," 2013).



Figure 3.4: Pollution on the banks of Cascade Creek  
(Photo Credit: Josh Wildt, October 2013)

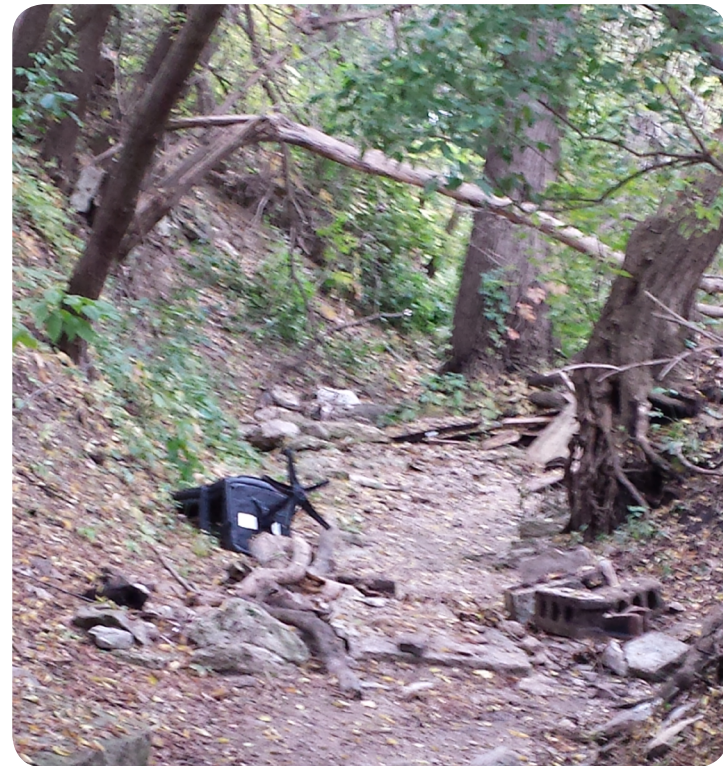


Figure 3.5: Garbage adjacent to Cascade Creek  
(Photo Credit: Josh Wildt, October 2013)



Figure 3.6: The Zumbro River Watershed  
(Image Credit: Minnesota Pollution Control Agency)



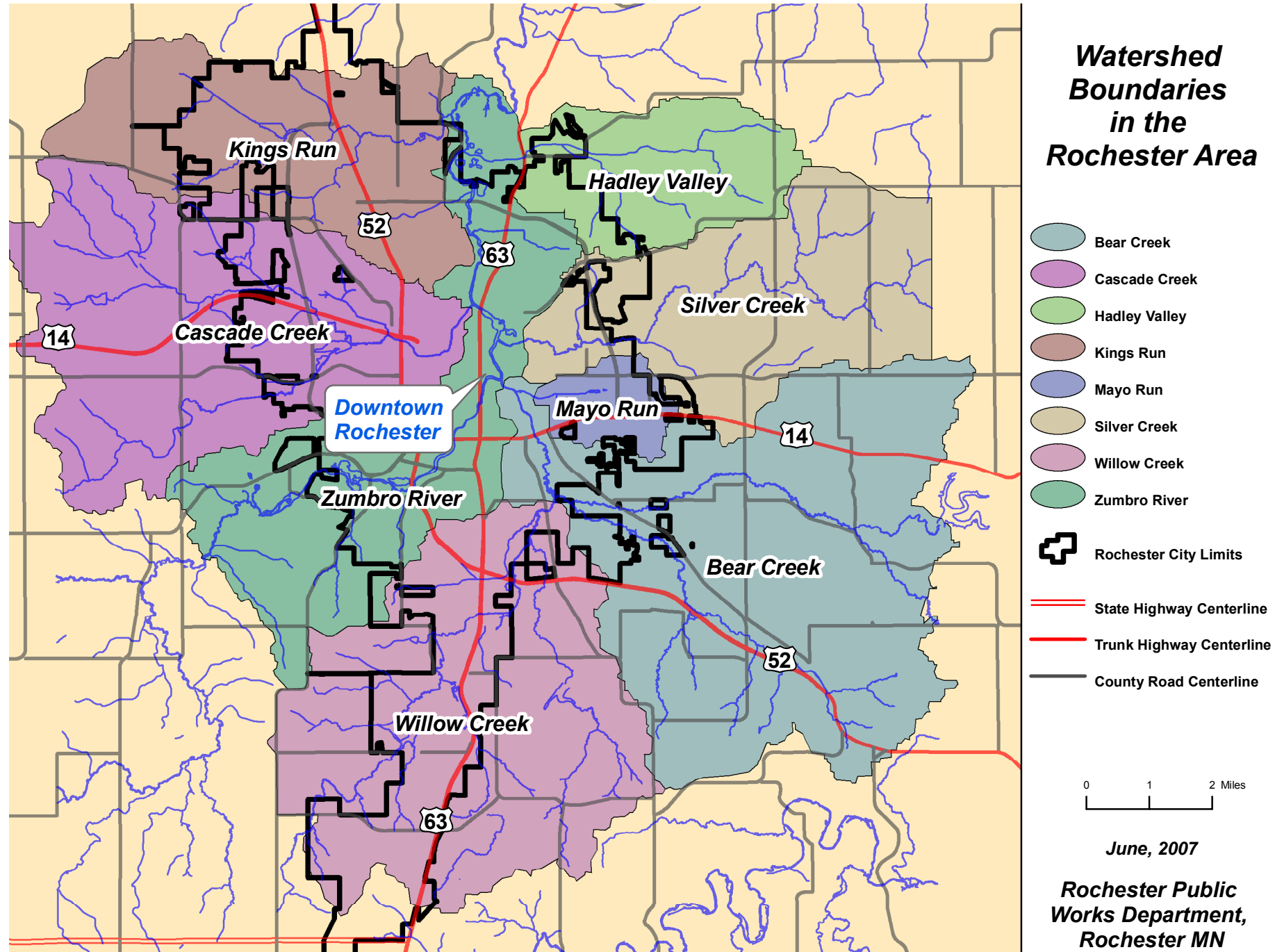


Figure 3.7: Rochester Area Watershed with the Cascade Creek Watershed located on the West side. (Image Credit: Rochester Public Works Department)



Figure 3.8: Concrete riprap found along Cascade Creek (Photo Credit: Josh Wildt)



Figure 3.9: Another example of a riprap bank. (Photo Credit: Josh Wildt)



## Water Systems

Cascade Creek begins in Dodge County, continues East into Olmsted County, and empties into the Zumbro River in central Rochester. The determined reclamation study area is the last mile and a half before the Creek empties into the Zumbro. Recent subcontractor studies in two counties that Cascade Creek runs through have been conducted in order to determine flow and load rates for the stream from the beginning of the creek to the western edge of Rochester. The studies took place entirely upstream from where the determined reclamation is located and is affected by any changes in the alteration of Cascade Creek (“Peak flow reduction,” 2008).

Max totals were determined and the concept of installing five weirs along the main waterway was developed in 2003. Seven individual berms at key tributaries were suggested by the contracted company in 2008 after further study. The structures were calculated to reduce the peak flow of Cascade Creek during a 100 year storm by 40% from the weirs and 12% with the berm installation. These numbers were calculated with the minimum amount of construction necessary to be cost effective for the time being; it was noted by the contracted company that additional installation of larger berms could be implemented in order to decrease max flow rates even further (“Peak flow reduction,” 2008).



Figure 3.10: Ecosystems found in Cascade Creek by Kutzky Neighborhood  
(Photo Credit: Josh Wildt, October 2013)



Figure 3.11: Existing flood prevention along Cascade Creek right before entering the Zumbro River (Photo Credit: Josh Wildt, October 2013)

## Business

There are a couple dozen small businesses that surround Kutzky, Northrop, and Washington neighborhoods. These businesses provide the basic amenities and infrastructure to the site. Some of the more prominent business centers include:

Miracle Mile, built in 1953, was the first outdoor mall constructed in Minnesota (“Kutzky park legacy”). Located on the Western edge of Kutzky Park, the strip mall provides a wide variety of small businesses. At sixty years old, the building has gone through multiple facelifts, the last one in the early 2000’s when the adjacent highway was rebuilt and expanding, impacting the traffic flow to the stores. Stores range from small convenience stores to independent restaurants. With the last round of cosmetic improvements to the site, a portion of the parking lot space was sacrificed in order to make room for the construction of franchise restaurants. By doing this, more people were drawn back to the area, benefitting the small businesses in the strip mall and increasing commerce in the area.

Barlow Plaza is located to the South of Miracle Mile and borders the West Side of Washington Neighborhood. With a large chain grocery store, a liquor store, bar, and a few small restaurants, the plaza provides a majority of the perishable goods for the surrounding neighborhoods. Similar to Miracle Mile, the plaza has been around for decades and has undergone multiple cosmetic changes in order to revive the area and attract people to the area again.

The most recent large business to enter the Cascade Creek region in downtown Rochester was the construction of a large daycare center on the East end of Kutzky Neighborhood and South end of Northrop Neighborhood in 2009. The construction of the two acre site removed twelve buildings that were dilapidated and in poor condition, of which, more than half were owned by First Homes in hopes of turning the property into mixed use commercial and rental properties. The daycare center not only brought more business and commerce into the neighborhood but it is also a convenient location for parents who work at the nearby Mayo Clinic to drop off their kids before and after work (Russell, 2008).



Figure 3.12: Cascade Creek with new mixed use commercial property in the distance. Currently the main occupant is a daycare center.  
(Photo Credit: Josh Wildt, October 2013)



# Demographics

**Kutzky Neighborhood**  
 Population: 1,094  
 Males: 611  
 Females: 483  
 Households: 635  
 Single Family Housing: 215  
 Multi Family Residences: 420  
 Median Age: 34.9  
 Median Income: \$46,771  
 Residents below the poverty level: 16.7%

**Northrop Neighborhood**  
 Population: 1,754  
 Males: 1,051  
 Females: 703  
 Households: 773  
 Single Family Housing: 269  
 Multi Family Residences: 504  
 Median Age: 46.3  
 Median Income: \$33,427  
 Residents below the poverty level: 15.6%

**Washington Neighborhood**  
 Population: 996  
 Males: 362  
 Females: 634  
 Households: 556  
 Single Family Housing: 227  
 Multi Family Residences: 329  
 Median Age: 47.6  
 Median Income: \$33,828  
 Residents below the poverty level: 17%

("Rochester, minnesota city," 2013)

# Zoning

Imagine Kutzky is a sub group that has formed through and with the support of the Kutzky Park Neighborhood Association in order to 'imagine' the possibilities for the future of the neighborhood. Their inherent goal was to develop a Land Use Plan Amendment that would set the future standards of the neighborhood in hopes of physically changing the downward trend of property neglect in the neighborhood. These standards addressed general items of grievance in the neighborhood such as homes and yards, streets, open space, and urban design (Kilen, 2006). The end result was an amendment with twenty-five different standards that range from building standards, multi-family housing limitations, boulevard and lot planting guidelines, garage size limitations, and general façade and appearance rules ("Overview of new," 2009).

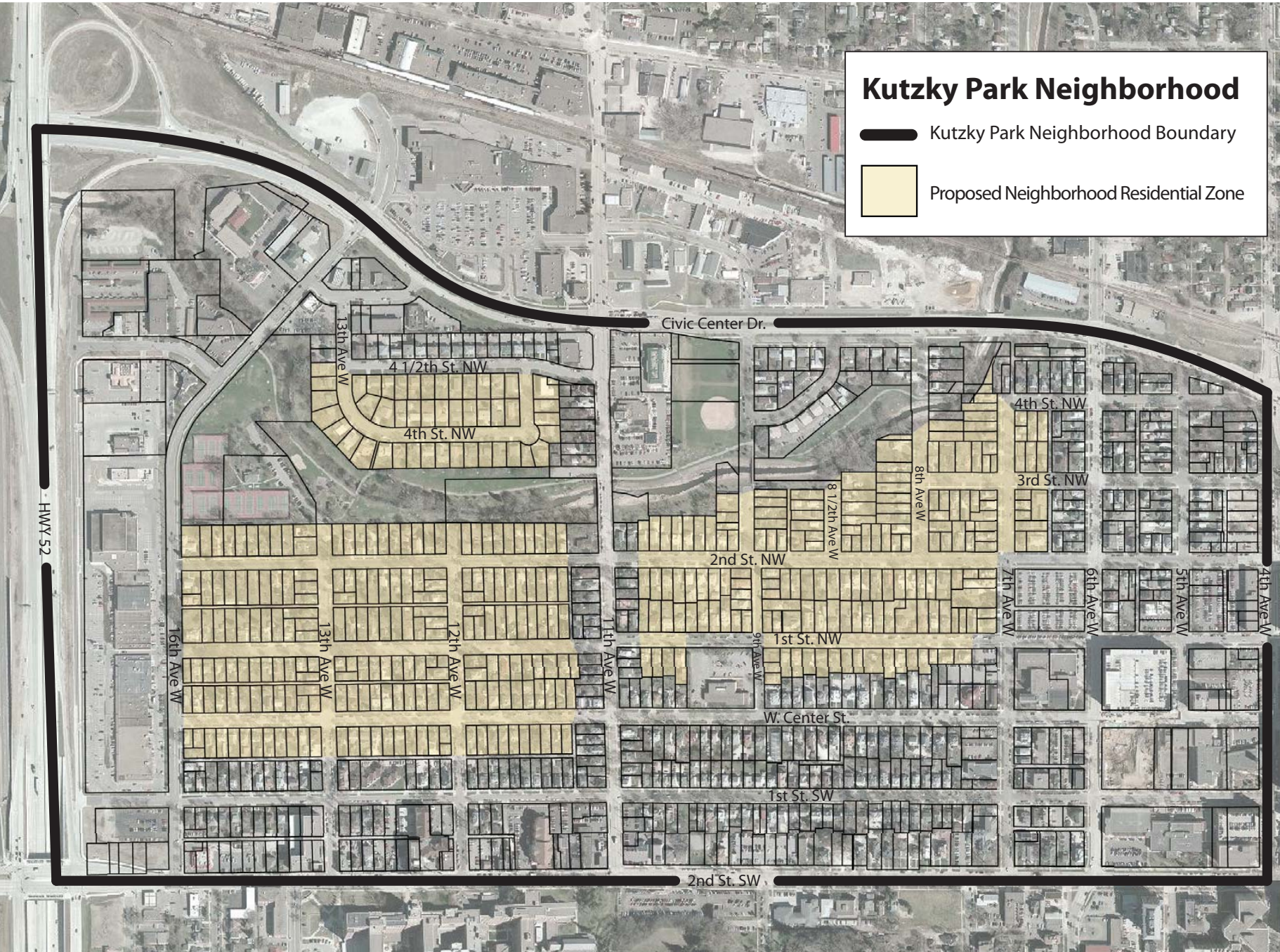


Figure 3.13: Proposed strictly residential zones determined by the Imagine Kutzky group. (Image Credit: Imagine Kutzky)



## Utilities and Infrastructure & Future Plans

Each of the three neighborhoods around Kutzky Park and Cascade Creek are experiencing a similar problem. The underground utilities are aging and wearing out. This problem is found to be a common occurrence throughout the entire town of Rochester, especially among communities that are fifty years or older. The most prominent issue is waste water not being properly managed, especially during hard rainfall (“Kutzky neighborhood sewer,” 2008).

As a response the city of Rochester is systematically going through the most affected neighborhoods, recording the condition of the private sewers, and using smoke and dye testing to determine if there are illegal hookups or leaks in the system. The concern is that some of the houses have their roof and foundation drains hooked up to the city. This practice is now illegal but when any of the houses were built it was considered a standard practice. Throughout the last decade, any large storms have caused a backup in the system and have backed up into hundreds of houses in the most affected neighborhoods. Concern among the residents is that the problem may be attributed to the close proximity of St. Mary’s Hospital and the Mayo Clinic, but the city reassures that the system is capable of handling the regular waste water flow of these immense companies (“Kutzky neighborhood sewer,” 2008).

The initial process of inventorying the condition of each residence took two years to gather the information during rainfalls. The issues with the high influx of water and sewer backups were

attributed to each of the assumed problems such as illegal hookups in private residences and a failing infrastructure. The first year of analysis determined that in Kutzky Neighborhood 71% of the water flow through the sewer system was public and therefore an issue for the city to address. The study is going to continue in order to form a solid and definite model of the water issues in the area while the city determines an appropriate and cost effective approach to the solution. The city is addressing major problems section by section and is replacing infrastructure as the budget allows (“Kutzky and slatterly,” 2009).



Figure 3.14: An severe example of the existing conditions of the sewer system (missing cover, not repaired) along Cascade Creek.  
(Photo Credit: Josh Wildt, October 2013)

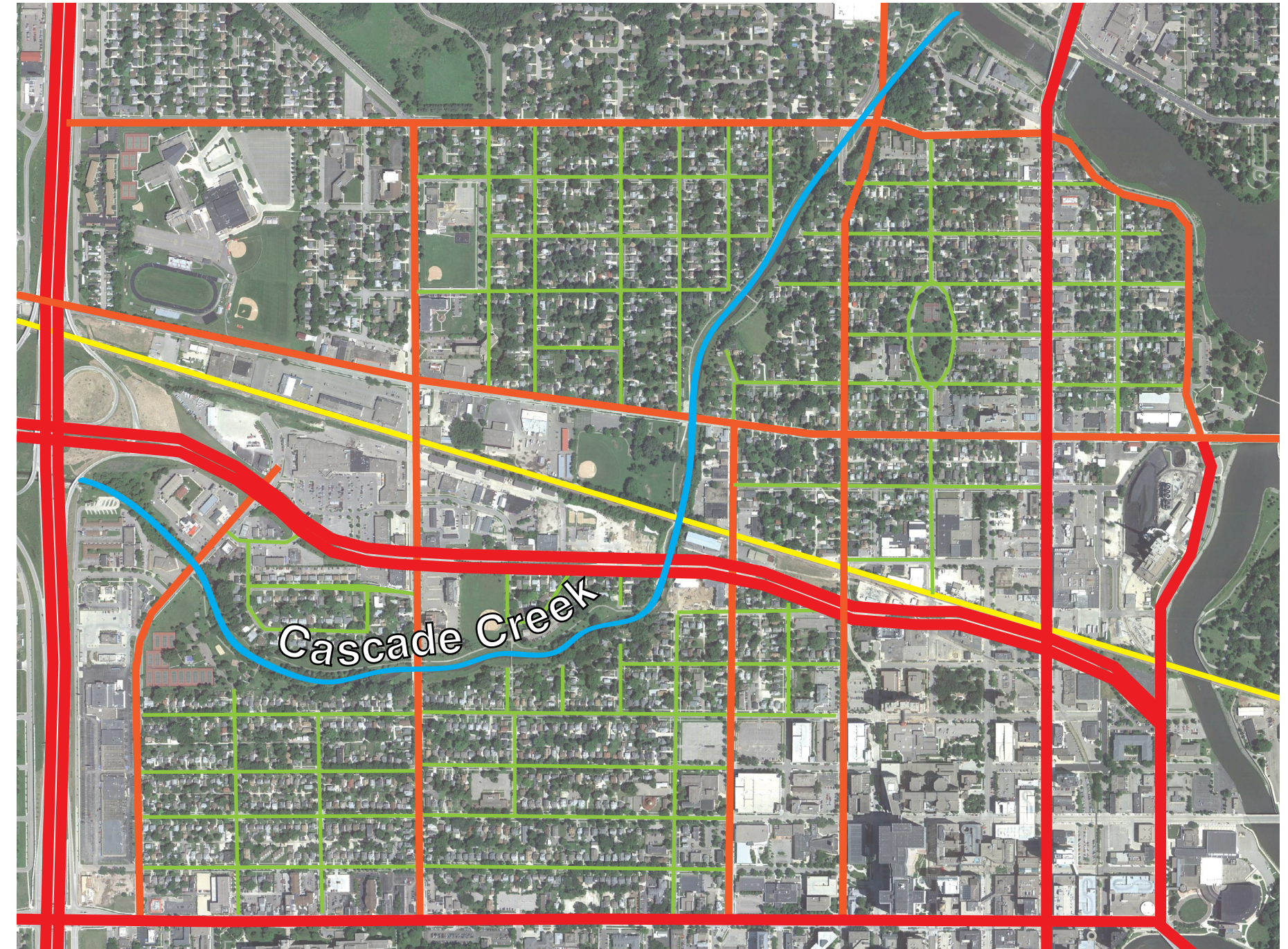


Figure 3.15: Road Traffic Patterns Map  
(Image Credit: Google Earth, Edited by Josh Wildt)



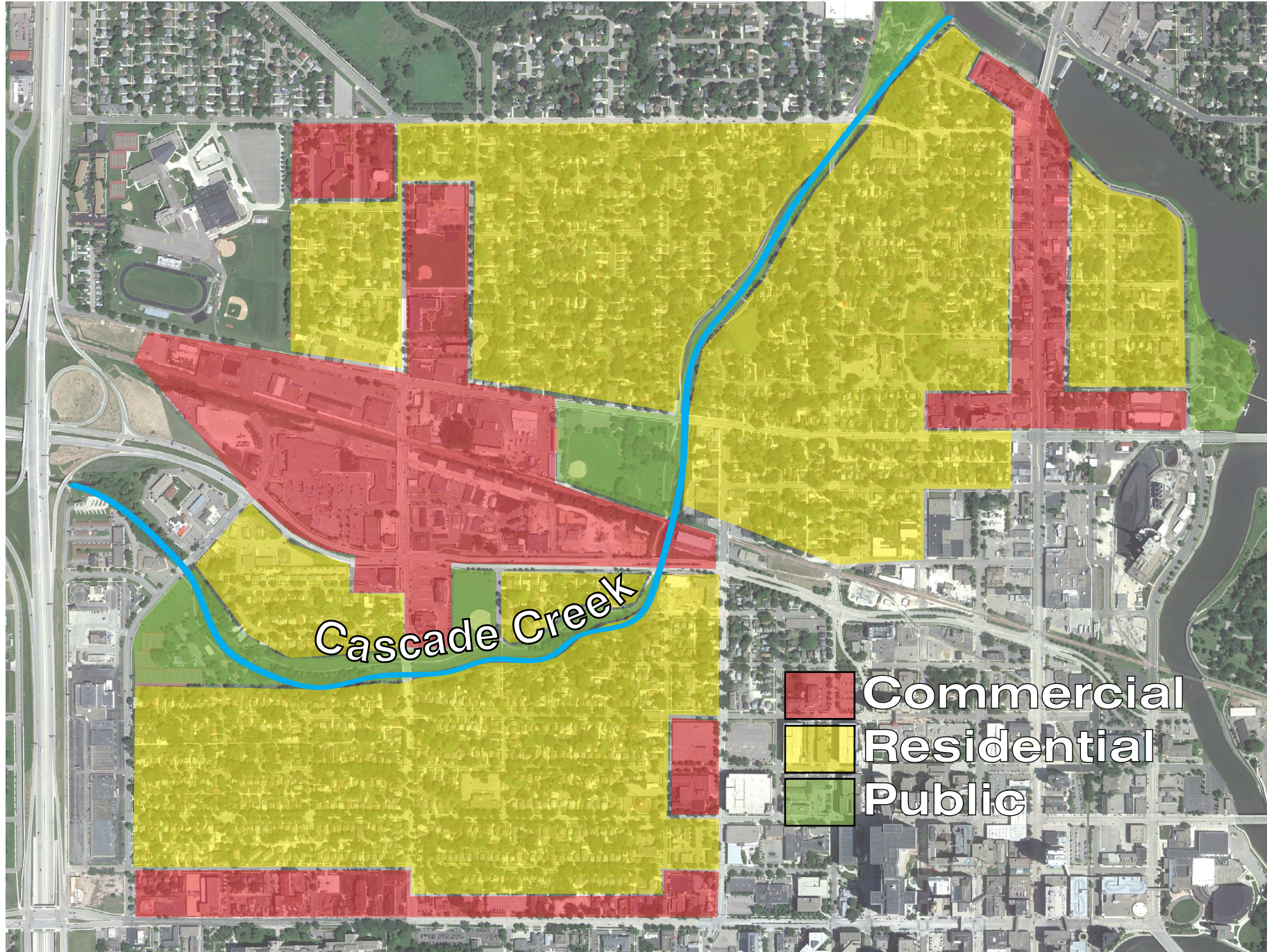


Figure 3.16: Commercial, Residential, and Public Sectors  
 (Image Credit: Google Earth, Edited by Josh Wildt)



Figure 3.17: Figure Ground  
 (Image Credit: Josh Wildt)



## Buildings

Kutzky Park is known for its housing character and varying architecture compared to the rest of Rochester. House styles that are prominent in the neighborhood include: Bungalow, Victorian, Cape Cod, Craftsman, and colonial. Exterior housing materials are comprised of wood lap siding, brick and stucco. The neighborhood is home to many historic houses, such as the multiple houses built by August Kutzky along with the home in Rochester which was built in 1856. Northrop and Washington neighborhoods are populated with ranch and rambler styles of houses that were rampantly popular after World War II (“Kutzky park neighborhood,” 2009).

Commercial buildings surrounding the neighborhoods are industrial with their construction and look. Brick and concrete façades face strip malls and a few large box style stores. As the area has begun to revitalize, the façades have been updated on the street side in order to help modernize the feeling of the stores. The overarching feeling from the flat topped generic four sided boxes is hard to overcome though, especially when the backs of the commercial builds often face towards the neighborhoods, presenting the nicer side to the public (“Kutzky park neighborhood,” 2009).



Figure 3.18: A Home in Kutzky Neighborhood  
(Photo Credit: Josh Wildt, October 2013)



Figure 3.19: Houses in Washington Neighborhood  
(Photo Credit: Josh Wildt, October 2013)



Figure 3.20: Houses in Northrop Neighorhood  
(Photo Credit: Josh Wildt, October 2013)

## Plant Ecosystem

The ecosystem of Cascade Creek, Rochester, and Southeastern Minnesota is classified as Eastern Broadleaf Forest. The Eastern Broadleaf Forest can be found in twelve different states in the United States, Minnesota being the northern most extent. Almost twelve million acres are considered Eastern Broadleaf in Minnesota and the other prominent ecological ecosystems in Minnesota are Laurentian Mixed Forest (to the North), Tall Grass Aspen Parklands (to the Northwest), and Prairie Parkland (to the West). The Eastern Broadleaf Forrest area is unique in the fact that average rainfall is relatively equal to the amount of water lost during evapotranspiration. As a result, this creates a climate that allows the broadleaf forests to exist in a narrow boundary. Average rainfall in the Southern half of the Eastern Broadleaf Forest in Minnesota is 24 inches. The average yearly temperature is 46 degrees Fahrenheit (“Eastern broadleaf forest,” 2013).

The types of broadleaf trees that grow in the area around Rochester natively are Bur Oak, Maple, and Basswood. Bur Oak savannah and tall grass prairie naturally populates the rolling moraine hills formed by the glaciers and is typically found to the West of Rochester. Forests comprised of zzzMaple and Basswood make up the more treacherous terrain such as ravines and bluffs that populate the area East of Rochester (“Eastern broadleaf forest,” 2013).



Figure 3.21: Eastern Broadleaf Forest in the Background  
(Photo Credit: Josh Wildt, October 2013)



Figure 3.22: Eastern Broadleaf Forest adjacent to Cascade Creek (Photo Credit: Josh Wildt, October 2013)



Figure 3.23: Eastern Broadleaf Forest surrounding Cascade Creek (Photo Credit: Josh Wildt, October 2013)



## Weather

As a Northern climate city, the weather goes from extreme cold to extreme humid heat in the summer. On average the warmest month is July and the coldest is January. Precipitation is the highest in the month of June normally (“Monthly averages for,” 2012).

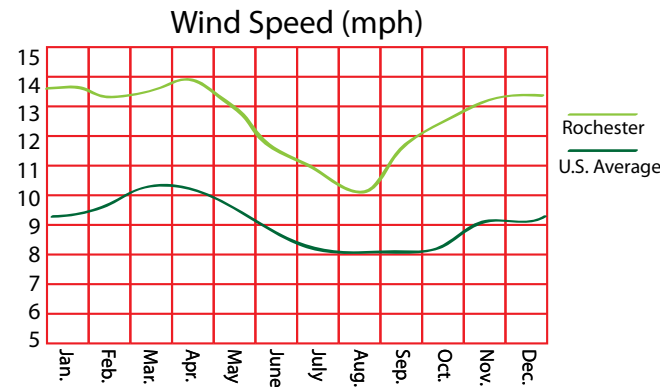


Figure 3.24: Wind Speed  
(Image Credit: Josh Wildt)

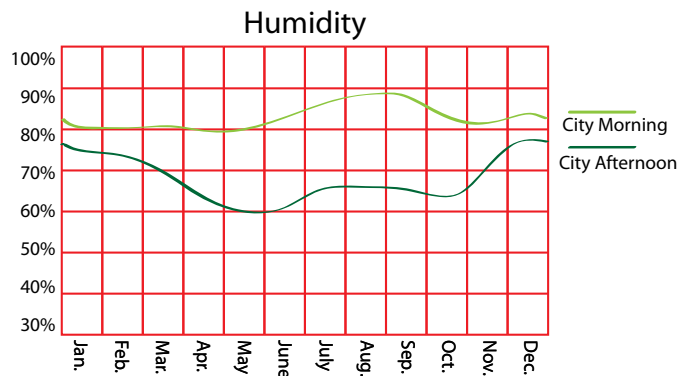


Figure 3.25: Humidity  
(Image Credit: Josh Wildt)

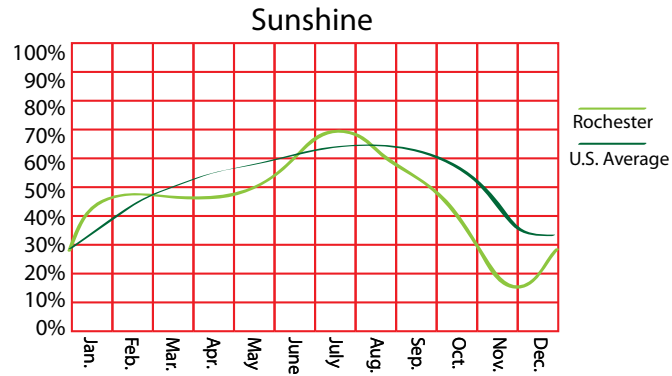


Figure 3.26: Sunshine  
(Image Credit: Josh Wildt)

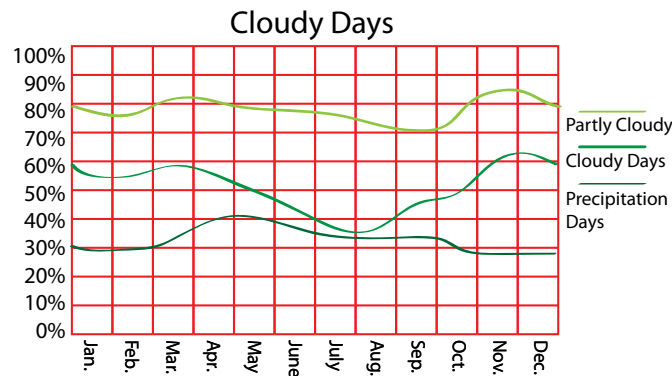


Figure 3.27: Cloudy Days  
(Image Credit: Josh Wildt)

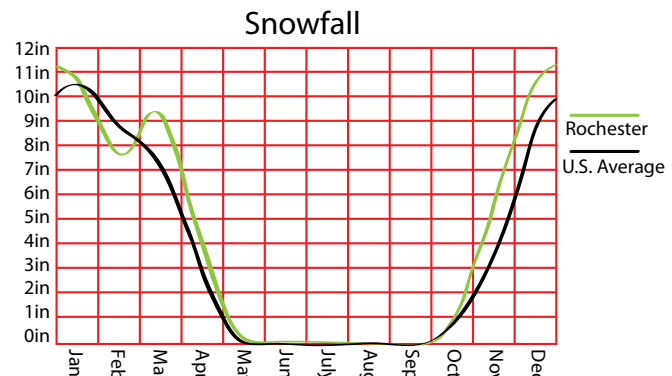


Figure 3.28: Snowfall  
(Image Credit: Josh Wildt)

## Findings from Research

Looking in depth at the physical and social characteristics of Cascade Creek and the three surrounding neighborhoods proves it to be a suitable site for reclamation. Studying other prominent examples of waterways such as Strawberry Creek and Waller Creek, along with researching into how a sense of identity and community positively impacts an area offers further backing to the feasibility and worthwhile of reclaiming Cascade Creek.

When looking at how communities connect to existing waterways, a rather depressing realization arises. Historically speaking, in the case of Strawberry Creek, the connection between the community and the creek was destroyed when the covering and culverting of the stream happened in the early twentieth century. When covered up, the creek no longer was in the public eye. As a result the creek was slowly forgotten until later exposed by people with the knowledge and want to see the creek on the surface again. Waller Creek, while not covered up, was still forgotten about as communities built up to the banks and slowly fell into the disrepair that now requires an ambitious and costly reclamation. It is clear that for a community to connect to a waterway it must be physically present so that it is not forgotten by surrounding communities. If the waterway is hidden or even entirely covered up, there cannot be a connection to the waterway. Cascade Creek has not been covered up, but as the area has expanded and developed, many houses and businesses have turned their backs to the Creek, giving it the feeling of being a nuisance and using up viable real estate

in an urban area. It has begun to be forgotten and fall into disrepair; no longer can kids play along the creek with its steep straight banks that were constructed in order to help with area flooding. The natural beauty of an untouched stream has been lost.

The need to reconnect the waterway to the community is apparent. Through reclamation, Cascade Creek will once again be a feature of the area. A simple reclamation of the site will help with the physical health of the creek and the surrounding micro ecosystems, and that alone will attract attention from a public that is much more environmentally conscious than previously.

Opening up Cascade Creek to the local communities is the first step in involving the local community. People are naturally curious about what is going on and the changes that are happening. Support may be shown during the reclamation process and the area may be considered a success when all is said and done. What happens after the initial reclamation is over is up to the surrounding communities. Currently, Cascade Creek and its surrounding communities have fallen on hard times and the lack of an idea of a strong unified community is lacking. Without an existing community to support the newly reclaimed area the project will not achieve its entire potential. Working on the revitalization of the communities at the same time as Cascade Creek will aid in the creation of a stronger community.

The concept of revitalizing the sense of community, something that is not physical or tangible, while reclaiming Cascade Creek is a limiting factor. A

simple reclamation of the site in an environmental sense will not draw everyone in the area to Cascade Creek once again and does not necessarily impact or affect the public. Breaking down the process of reclamation and showing the public how they are affected by the current creek conditions and how it can change after reclamation is a key item to address. Providing knowledge of the reclamation process along with promoting the process and benefits of reclaiming the creek will ensure engagement of the public. This is especially important when part of the process of reclaiming Cascade Creek is community involvement in the daylighting of the creek.

Community involvement is vital in involving the public with the process of reclamation and how they can be integral to the surrounding city. The process of daylighting a creek can be done using the public. With Codornices Creek, located in Berkeley, California just like Strawberry Creek, volunteers implemented the processes of daylighting and natural drainage systems. These volunteers were people who heard about these processes and were interested and willing to learn more. Rather than having contractors come in with heavy equipment and complete the job in a few weeks, the community surrounding Codornices Creek spent many hours reclaiming the creek through manual labor. During these hours of work together, many bonds were formed by people who may not have previously known each other. The bonds were formed over the sweat equity that they were investing into the creek. At the same time as forming bonds with the rest of the community, these volunteers were also creating ties to the creek and community physically. The bonds that they formed will always be tied into

the creek that they helped reclaim.

The connections formed between the volunteers and between the volunteers and the creek apply to the community as a whole, even if not everyone was a participant. Those that did physically participate with the reclamation develop a sense of pride that they will share with the rest of the community. As a result this sense of pride can spread throughout the neighborhoods as the project develops or more projects are created by the now involved citizens.

This process is the beginning of the development of a sense of identity for the community. With something being altered involving the community and accomplished by them, the community gains a huge sense of achievement. As a sense of identity is developed, specific features are identified as the focal points of the community. In the case of Cascade Creek, these specific focal points can be determined by the community or influenced by the design and reclamation of the creek, using the creek as a main focal point and going from there. The neighborhoods surrounding Cascade Creek are rich with history that is often looked over. The area is also rich with architectural value. As the neighborhoods move into the future, the implementation of urban design standards such as greenways, building restrictions and landscaping standards will help set the neighborhoods apart from cookie cutter suburbs on the edge of town. These elements can all be factored into the newly formed identity of the neighborhoods.

As mentioned, creating an identity for a neighborhood, such as those surrounding Cascade

Creek, sets the area apart from the rest of the town and further strengthens the community pride in the area. Reclamation of the area doesn't just deal the social and physical aspects of the area but also reforms the political and economic systems in the area. Political reform such as rezoning and neighborhood regulations that come from neighborhood associations and involved citizens directly affect the neighborhood's present stance in the community and helps assure the presence of the neighborhood into the future. Economic reform such as encouraging businesses to enter the area or fixing up and remodeling aging homes in the area brings more commerce into the area and increases property value. Businesses surround Cascade Creek currently, but many of them are aging or do not bring commerce into the neighborhoods. Many houses are considered to be in disrepair and could use renovating and modernization. These issues have been addressed already with promising results. New businesses have moved into and around the neighborhoods, increasing local commerce. Many people have also decided to invest in dilapidated properties in order to renovate them and sell them for a profit. The couple dozen homes that have already been revitalized in the area already show an impact on property value in each neighborhood.

The main impact of political and economic reform in the Cascade Creek area is the people that are now found in the area. The previous stigma of the drug scene, unsafe conditions, and local transients residing the area that developed in the 1980's and 1990's is already deteriorating. The decrease in negative influences in the neighborhoods will continue to with further actions of revitalization and restoration taking place in the neighborhood. With

the influx of new people and the rest of the town paying attention to the area, the people that want to remain out of the public eye don't find the area as favorable. Transients and homeless that use the park and creek as a place of residence are no longer able to remain because of either neighborhood actions making the place less desirable or the community offering those less fortunate more favorable options. People in the community are now attracted to the area, either trying to cash in on the increasing property and home values and hoping to make a profit or they have determined that they area is now a pleasant place to reside permanently.



## Applicable Values

The reclamation of Cascade Creek and the revitalization of the three surrounding neighborhoods, revolves around the values of land reclamation, urban planning, and growth management. Each of these values contributes to the field of design, especially current day design practices that look to fix the damage from the past, set up friendly and manageable goals, and plan for the future.

### Reclamation of a Waterway

Reclaiming an area is not about restoring the land to its original state, because the original state is often not desirable goal for the present status of the region. Remediation of a waterway just addresses and resolves the physical issues brought on by pollution and does not inherently include implementation of design. Reclamation incorporates the process of remediation while at the same time it revives a site into something that is once again considered usable by the masses. Reclaiming a waterway through the processes of daylighting, the implementation of natural drainage systems, and standard remediation processes lends toward the creation of a holistic design for a site. With a successful holistic design, cultural elements integrated into the design will stand the test of time through culture shifts and social changes if the majority of the masses can relate to the project in one way or another. A holistic design will help withstand not only cultural elements but also physical elements such as weather, vandalism, and neglect. Creating a design that at the core is resilient to whatever weather is thrown at it helps with the overall condition of the site year after

year. A reclaimed area that maintains its condition through time will not show possible neglect over the years and not be as susceptible to vandalism if it remains a prominent feature of the community.

### Urban Planning in Existing Neighborhoods

Revitalizing existing neighborhoods with the integration of urban planning elements in an increasingly urban environment helps unify the area and create a distinct identity for the area. Planning in an urban sense helps deal with the issues that arise as population density increases. The main items to address in any urban redevelopment situation are mixed use dwellings, building styles, secondary structures on site, boulevard standards and trees, planting palettes and restrictions, and water runoff management. Addressing building use in an existing neighborhood is the foremost way to bring the community into modern standards and prepare for the future. When working with an existing neighborhood, land is extremely scarce and important. Utilizing all the available land is vital and involves the removal of old structures that are not worth renovating and fixing up. Replacing the old structures with new high density housing such as apartments, condos, or mixed use living situations achieves a higher density of people in the area who become part of the community and bring their own essence to the identity of the area. Creating guidelines for development and the future of the area maintains the area's identity and sense of community throughout different residents and businesses in the area.

## Growth Management as a Future Framework

Creating a holistic plan for the future of a waterway and surrounding communities involves looking at more than the present. In an area limited by boundaries and total land, planning for the future is vital for a project to survive and be successful. Planning for future changes such as population growth, new building development, and ecological impacts are just a few of the ever changing issues that arise. Developing or redeveloping urban areas are catalyzed by population changes and the resulting impact on density. More buildings are necessary to create residences for the new people. With more structures, more land is consumed and the environmental impact increases. This is where modern urban design principles come into play. Setting up a future framework with specific goals catered to the area helps deal with growth and change in a structured way. Developing a land code that addresses commercial, public and residential sectors in an official document that can be enforced by the local neighborhood associations and backed up by the local government is necessary. Developing standards for any location with consideration to the future of the area creates a base for a successful and resilient design.



Figure 3.: Recycled concrete in wire baskets used for erosion control along Cascade Creek. (Photo Credit: Josh Wildt, October 2013)



## Design Goals

With the revitalization of Cascade Creek and the surrounding neighborhoods of Kutzky, Northrop and Washington Neighborhoods, clear theoretical, physical and social goals are required in order to go forward in creating a successful program and implementation of the eventual design of the area.

### Theoretical

The implementation and eventual end design of Cascade Creek will in a broad sense help reawaken the community surrounding the creek. By reclaiming the actual creek and revitalizing the adjacent parks and green spaces, this area will become the center piece and focal point of the immediate community. Eventually it is hoped that the feeling exuded by the local community will even spread into the outlying communities of Rochester. The project will be the catalyst that helps unify the three neighborhoods and gives them the boost to reawaken their attempts at reforming the neighborhoods and helping them thrive into the bright future that Rochester and the Mayo Clinic have together.

### Physical

The physical goals of the plan for Cascade Creek will be to daylight the creek that is currently channelized and ecologically dead. Using natural drainage system techniques, the creek will not be restored to what it originally may have been, but it will be reclaimed in order to once again support a diverse ecosystem while at the same time help with water pollution and runoff issues. The surrounding parks and green spaces will also be revitalized

and modernized. Worn out and decrepit public amenities such as playgrounds, shelters, and paths will be updated to work in unison with the reclaimed creek. A reformation of the existing vegetation and plant palette in the area will also be implemented in order to help with remediation of water pollutants in the creek, support a continuing biodiversity of the multiple new ecologies in the area and bring natural plants back to the area.

### Social

The social goals for the design of Cascade Creek involve working with the community on the implementation and installation of the project. The theoretical goal of reawakening and revitalizing the community and the physical goals that come from the reclamation of the area combine to form one main social goal. The ultimate social goal of the area is to create a unique sense of identity for the area. Reclaiming the creek is the catalyst for reforming the community. At the same time with work being done to revitalize the community it is hoped that the residents and business owners in the area now will be able to create a self-sustaining community that can form their own sense of community.



Figure 3.: Concrete creek banks located in some of the most channelized portion of Cascade Creek. (Photo Credit: Josh Wildt, October 2013)

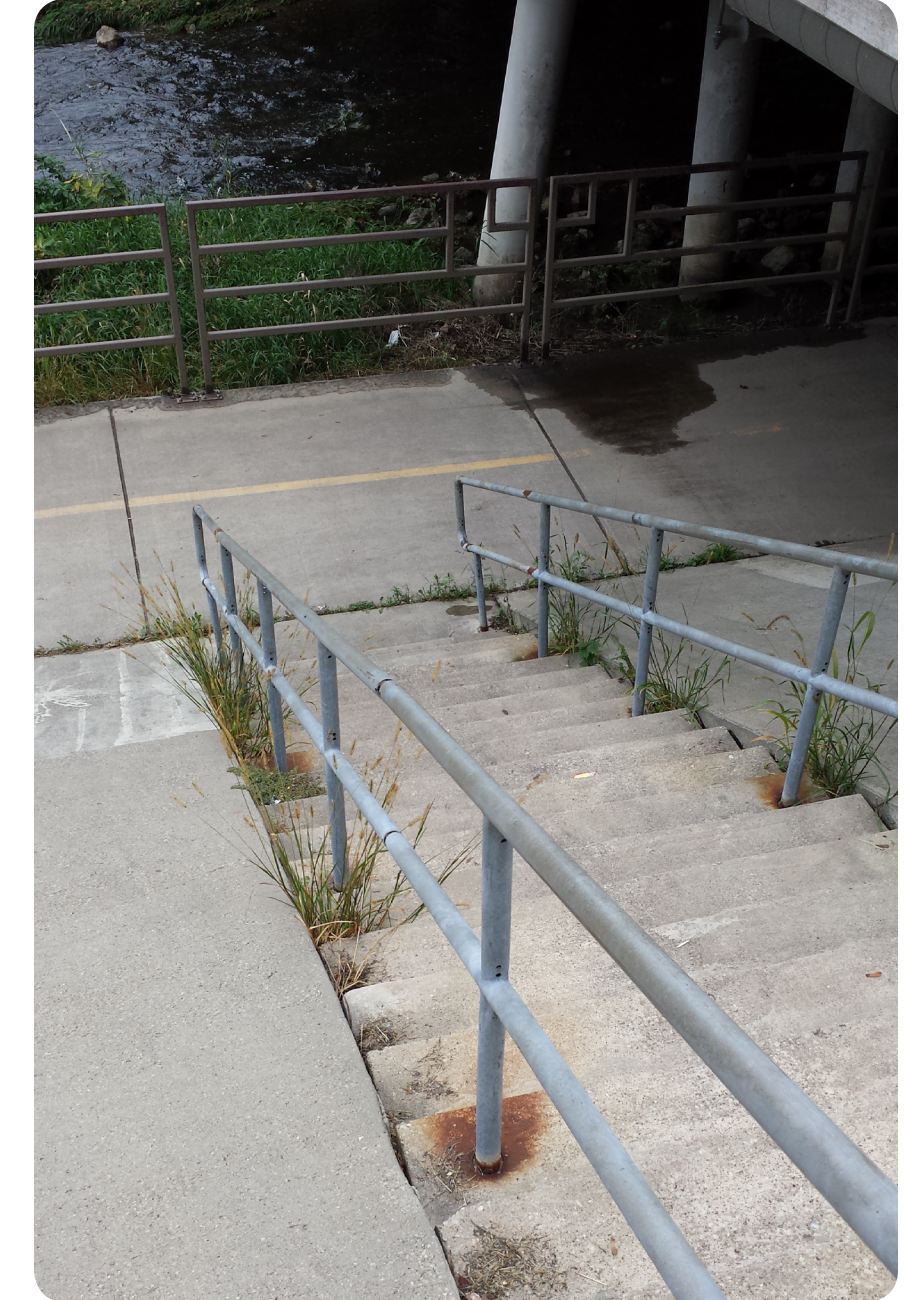


Figure 3.: Stairs built into concrete banks to allow human access. (Photo Credit: Josh Wildt, October 2013)



## Design Process

Week 1 (August 25th –August 31st)  
Determine topic of interest.

Week 2 (September 1st – September 7th)  
Determine project typology and site criteria.

Week 3 (September 8th – September 14th)  
Define research questions and begin research.

Week 4 (September 15th – September 21st)  
Continue research and develop literature review.

Week 5 (September 22nd – September 28th)  
Use research to determine and develop case studies.

Week 6 (September 29th – October 5th)  
Develop research methodology and necessary measures. Site Visit.

Week 7 (October 6th – October 12th)  
Introduce site and use/client description.

Week 8 (October 13th – October 19th)  
Visit site and beginning inventory.

Week 9 (October 20th – October 26th)  
Continue working on inventory, findings from research and design goals.

Week 10 (October 27th – November 2nd)  
Develop context for work and plan for proceeding.

Week 11 (November 3rd – November 9th)  
Complete chapter three.

Week 12 (November 10th – November 16th)  
Begin discussion.

Week 13 (November 17th – November 23rd)  
Discuss opportunities and limitations of project.

Week 14 (November 24th – Nov 30th)  
Apply research to the site and discuss outcomes.  
Site Visit.

Week 15 (December 1st – December 7th)  
Discuss opportunities and limitations of the site.

Week 16 (December 8th – December 14th)  
Complete final formatting and compilation of booklet.

Week 17 (December 15th – December 21st)  
Finals Week

Week 18 (December 22nd – December 28th)  
Christmas Break

Week 19 (December 29th – January 4th)  
Christmas Break

Week 20 (January 5th – January 11th)  
Begin design phase of project.

Week 21 (January 12th – January 18th)  
Discuss initial design goals

Week 22 (January 19th – January 25th)  
Determine design goals.

Week 23 (January 26th – February 1st)  
Complete further and necessary inventory of project site.

Week 24 (February 2nd – Feb 8th)  
Discuss inventory and determined analysis.

Week 25 (February 9th – February 15th)  
Begin conceptual design work.

Week 26 (February 16th – February 22nd)  
Determine conceptual design.

Week 27 (February 23rd – March 1st)  
Create schematic design.

Week 28 (March 2nd – March 8th)  
Review schematic design.

Week 29 (March 9th – March 15th)  
Finalize schematic design.

Week 30 (March 16th – March 22nd)  
Spring Break

Week 31 (March 23rd – March 29th)  
Create formal master plan.

Week 32 (March 30th – April 5th)  
Review and finalize Master plan and create 3d model.

Week 33 (April 6th – 12th)  
Finish 3d model.

Week 34 (April 13th – April 19th)  
Begin renderings and graphics.

Week 35 (April 20th – April 26th)  
Compile final graphics and create final boards.

Week 36 (April 27th – May 3rd)  
Finish final boards.

# Chapter 4

## Opportunities and Challenges of the Research

### Understanding Community



## Opportunities and Limitations of Research

In researching creek revitalization and how it ties into community development there are multiple opportunities presented by the findings from research. At the same time there are equal, if not more limitations in the findings from research that will have to be overcome with the project. Topics of opportunities and limitations include the areas of community connection, community involvement, development of a community identity, and the physical reclamation of the waterway.

### Community Connection

This project's goals do not look at the reclamation of a waterway and the development of the community surrounding the waterway as two separate ideas. Rather, the goals look into how the reclamation of a waterway can impact and catalyze the growth and redevelopment of a community. Determining how connecting community to a waterway is most effectively achieved in such a project is the overarching issue. Finding the most viable ways of achieving this through research and case studies brings up certain limitations and possibilities.

Looking at Strawberry Creek as an example of reconnecting the community to the waterway it is clear that there was a positive impact on the community as a result of the daylighting and reclamation of the stream. In the case of Strawberry Creek, the entire creek was culverted and covered up. Only those with knowledge of the history and the underground systems in the area previously

knew about the entirely hidden creek. When the creek was planned to be exposed and during the process of daylighting, it was a big deal for the community that now realized that so much natural beauty was hidden and the creek was ecologically dead. It was also brought to the attention of the public that this was a common occurrence in the area and that there were more creeks that could be reclaimed and brought to the surface.

The response of the community was to continue moving forward exposing and daylighting even more creeks within the area. The term daylighting was coined with the exposure of Strawberry Creek and the other creeks in the Berkeley Hills region. The community also created a precedence for the process of daylighting a waterway. The community in Berkeley Hills altered the term daylighting to not only about the reclamation of a waterway but also about the process of reclaiming a waterway with the physical and social support of the community.

The precedence set by the work on Strawberry Creek with the surrounding area of Berkeley Hills and the study of Codornices Creek creates an opportunity to use those works as an example of connecting community to a waterway and expanding upon it. The process of daylighting the Berkeley Hills area has been documented by the local association formed by those community members that became active in daylighting the local waterways. Taking these results and applying them to a comprehensive and holistic plan begins the process of tying the community to a design that will eventually become a physical project. Advancing and refining how exactly the community can be strengthened through a physical project will

be an opportunity to study when working on the design for Cascade Creek.

A limitation that cannot be ignored with developing a community connection is acquiring the initial community interest and keeping it active. When looking at the research, the downside is that the many research examples of community being involved in a daylighting project involve the same people around Berkeley Hills. The location of Cascade Creek is drastically different from the location and people in the Berkeley Hills area. How the locals react to such a project really depends on how receptive they are to the initial plan. This is a limitation that determines the success of the social goals for the site and whether or not the community will be active in creating their own sense of identity.

### Community Involvement

The precedence set by Strawberry Creek connecting the community to a project initiated the idea of community involvement. There are multiple ways to involve the community through meetings and conferences for input on the eventual design of a project. Normally this is where community involvement would cease until the final installation of the project. During this apparent gap of community involvement a lot of community interest is lost. The revealing of the final project brings out the people that have helped with the project since its initial conception along with those who are just interested in the final results and are naïve to all of the work that the project involve.

Codornices Creek is a great example of how to bridge the gap between the conceptual design

phase and the reveal of the final project. It is typical for the work to be done by contractors who can finish the project in a short period of time. The downside to this method is that the workers on the project do not have a personal connection to the project and only acquire a sense of pride from finishing another job and not the work that has been done to the area. What Codornices Creek changed, that broke up the normal construction process, was using volunteer labor provided by the surrounding communities to complete the project. This way people are able to be active in the project from the initial conceptual phases all the way until the final completion of the project. This also appealed to the people that may not feel like they are able to help with design and planning of a project but are more than willing to pick up a shovel and work. This process allows for the entire community to become involved irrelevant of age, class, or previous knowledge.

The research from Codornices Creek shows that involving the community in reclaiming a creek creates community members that are now activists for the community and have a sense of pride in a neighborhood that they physically changed and permanently altered. These activists are the initial connection between the community and the waterway. As they interact with the rest of the community they will help connect more people to the area. As a result the opportunity of forming an active and involved community is well underway by the time the project is finished. Newly inspired people in the area will now have something to brag about and have personal pride in. At the same time, some people will want to do more and remain active into the future. The initial framework of an active community association is well into development.



On the downside, initiating the public's involvement will be a major challenge to address. The initial promotion of the project and the corresponding design will have to get the attention of the community. In appealing to human nature, the best way to get attention to the project is by showing how the design will not only impact the future of the park and the community but to show the individual person how it will impact them. When a person sees personal gain from the project, they will not be as fast to hesitate from helping. As a result, a challenge will be to create a design that appeases as many people in the community as possible so that the entire area embraces the project.

### Development of a Community Identity

In order to help with community involvement and creating a design that appeals to as many people as possible, analysis of the site is the vital first step. Proper inventory of the site is the main way of determining what the site currently has, what it needs, and what the best way of implementing these changes will be. Waller Creek in Austin, TX shows how larger sites cannot be designed with a single style applied across the entire area. A waterway is a perfect example of an area that generally cannot be redesigned with one broad overview of a design. This is because even though the physical area of the site may be small, the site can traverse miles. In an urban area the problem has an even greater impact because a lot more is happening and changing per mile than would be in a rural area.

In the case of Waller Creek, the entire reclamation

site spanned over seven miles through an urban epicenter. The final design by Michael Van Valkenburgh Associates Inc. and Thomas Phifer & Partners addresses the reclamation of the waterway as a series of individual and unique sites. The project is united by an overarching theme that carries throughout the entire site. Studies of the Waller Creek region determined that the area lacked diversity and community involvement and awareness. Determined by preexisting conditions and natural occurring areas of interest, the sites were chosen. With the area lacking in diversity and community involvement and awareness, the determination of the individual sites was done mostly through physical remnants along the creek. Design inspiration was gathered from items such as the failing architecture in the area and the creek walls erected over a century ago. Embracing the small physical remnants of the area, the design team was able to form an identity for the area. In return, the community is able to embrace the reclamation project because of their shared commonality with the new work.

The opportunities provided by Waller Creek and addressing a site as a series of individual sites allows for a design that distinctly appeals to different groups or individuals throughout one large area. Now instead of one identity being forced upon an area, multiple unique identities can be fostered. A single overarching design might be general enough to appeal to just about everyone. With multiple smaller designs incorporated into the main design, tangents of the initial concept can be explored at each different site and be tailored specifically to the area. In an area like Cascade Creek, three different neighborhoods take claim to the one mile and a half

long waterway and park system. Each community shares some similarities, yet at the same time they all are distinct in their own ways, which can be emphasized with the final design work.

The prevalent limitations created by the process of creating a community identity based on the natural characteristics of the area are left to the design team. The work needed to complete the design is now increases with each individual site of focus added. Each area must be individually inventoried and looked at as an individual design. The end design results then have more facets and issues to be addressed and overcome. Now there are multiple unique designs to impress multiple groups and classes of people rather than just one design that is a generalization of the area. Each design therefore must be different yet equal at the same time. This is because if one design is not held as being up to the same standards by the community, the certain sector that the area was intended for would be turned off from the design and no longer receptive to the entire design. Creating a functional community identity is critical to the revitalization of the neighborhoods and will not be successful without everyone involved.

### Reclamation of a Waterway

When looking at a waterway and the connection to the community, community involvement, and development of a community identity, the actual process of reclaiming a waterway seems to set aside and lacking importance in the project. The actual remediation implementation has been developed by the scientific community and is straight forward. What is not as straight forward is the application

of the scientific standards to each individual site. The design process has to integrate the science of remediation into the unique situations presented by each. Political and economic issues also arise when dealing with the local government and the issues with acquiring funding for the project.

With Waller Creek, Strawberry Creek, Codornices Creek, and any other reclaimed creek, the economic and political issues are resolved or worked around before the reclamation and revitalization of the creek take place. It is necessary to have the support of the local government and agencies along with their support to complete a project that will affect public land. This is especially important with streams as an alteration at any point in the stream will affect both upstream and downstream ecosystems. Economic support from the local government, businesses and residents is also vital to the project as reclamation of such expansive areas is not to be done on a small budget.

The opportunity that arises from each application of daylighting, natural drainage systems, and reclamation of a waterway is a chance to refine existing standards and techniques and develop new ones at the same time. Applying reclamation standards to each individual waterway can be a limitation due to each site being unique; however, it can also be looked at as an opportunity. In the design process, an ambitious design team can use this opportunity to fine tune or refine common practices developed for reclamation of a waterway. In a design field the changes in process may look at how to streamline the process in order to make it more efficient, cost less, or to be more aesthetically pleasing.

# Chapter 5

## Opportunities and Challenges of Site

Moving forward with Cascade Creek



## Opportunities and Limitations of the Site

The revitalization and reclamation of Cascade Creek and how it ties into community development presents many unique opportunities. At the same time there are equal, if not more, limitations in the site that will have to be overcome with the project. Topics of opportunities and limitations include the areas of community connection, community involvement, development of a community identity, and the physical reclamation of the waterway.

### Community Connection

Connecting Cascade Creek to the surrounding neighborhoods raises the opportunity to give the surrounding neighborhoods the boost that they need in order to revive the ailing community. Currently, the main limitation is that each individual neighborhood does not have the community base to support themselves, let alone a project such as the Cascade Creek Revitalization. Each neighborhood is failing currently with their sense of community and its respective connection to the rest of the region. Rather than let the neighborhoods around Cascade Creek continue to be locked in by their political boundaries, the opportunity to initiate a connection between the three neighborhoods through their shared natural resources is vital to their successful development into the future. A successful revitalization of Cascade Creek and influential reconnection of the neighborhoods will help show how dramatic and far reaching the impact a project can have into the social sphere of the local community.

### Community Involvement

Connecting the Creek to the community is all about the impact that the project will have on the community. In order to have the community activity that is desired for a functional and self-sustaining community, active involvement is required by the residents of Kutzky, Northrop and Washington neighborhoods. Currently the lack of community involvement is the limiting factor of the area. Almost a decade ago, neighborhood associations were formed with the goals of raising neighborhood awareness and fostering community involvement in order to address issues in the area. Some of these issues were with general vagrancy and crime in the area, failing infrastructure, and out of date zoning regulations for the area. Activity faltered as these issues were resolved, or presumed to be resolved, and as goals were achieved. With the revitalization of Cascade Creek, the opportunity rises to once again activate the community members. Cascade Creek will show how connecting a community to a park and waterway system and involving the community will help with the creation of a sense of community identity.

### Development of a Community Identity

The neighborhoods that surround Cascade Creek are located adjacent to downtown Rochester and are some of the oldest and historically diverse. This provides a great opportunity to build off of the existing physical characteristics of the neighborhoods and combine that with the newly invigorated community involvement and connection to Cascade Creek. The limitations are the fact that currently there is limited

community involvement in the area and there is no connection between the communities and the rest of the region. The development of a community identity hinges on the successful involvement and connection of the community during the Cascade Creek Revitalization. If this can be achieved, the project will show how a single project can be the catalyst for the reconnection of a community to its natural surroundings, revitalized community involvement and the eventual formation of a distinct community identity.

### Reclamation of a Waterway

The physical reclamation of Cascade Creek is limited by the local economic situation along with political bodies such as the local government. To even proceed with the implementation of the project beyond the drawing board requires acceptance and approval of the local governing bodies. When altering a waterway, the results affect both upstream and downstream communities and ecosystems. The waterway impacts multiple communities, all of which will have influence and say on the final design.

# Chapter 6

## Design Implementation

A four stage revitalization project





# Program

## Community Connection



-Development-

The first stage of revitalizing Cascade Creek is to redevelop the park system with a holistic masterplan that physically links the parks to the neighborhoods, the trails to the community, and maintains the health of the creek. Creating thematic elements that pervade throughout the entire Cascade Creek corridor will help visually link the multiple parks. A plant palette based on remediating the runoff and creek water will further ensure the health of the creek ecosystem for future generations.

## Community Involvement



-Action-

The second stage in the process of revitalizing the Cascade Creek area is reinvigorating the existing community groups and associations. Instigating community involvement and volunteer days will get community members involved in items such as maintaining the parks plants and vegetation. This will help the community's residents foster personal connections with the parks at an individual level.

## Community Identity



-Pride-

The third stage of the revitalization process is the combination of the new community activism with the new park system. This will help create a radiating sense of pride that designates the Cascade Creek corridor as not only a local hub but a destination for the greater Rochester area.

## Creek Reclamation

-Result-

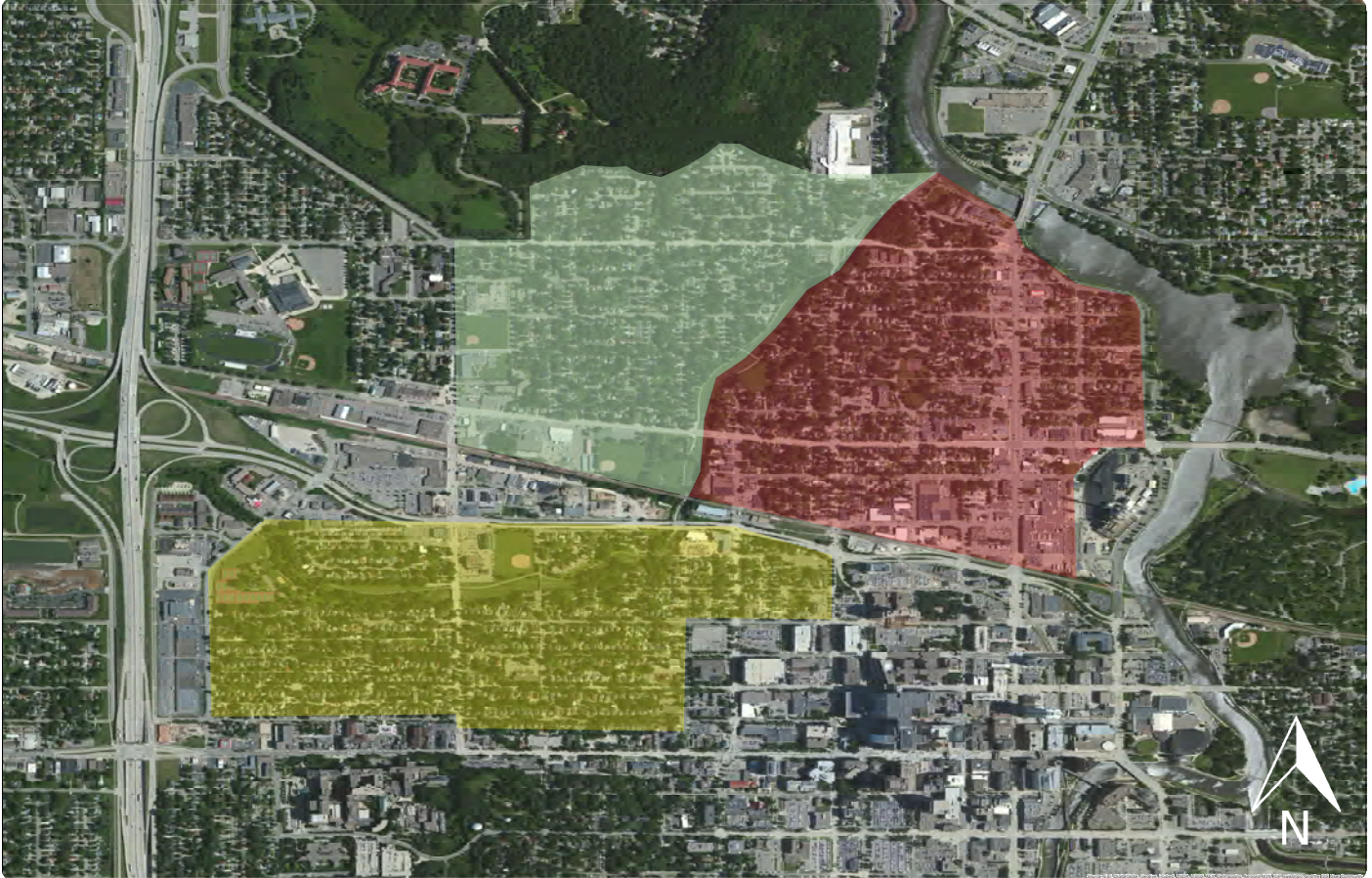
The end of the four stage project will be the culmination of the holistic master plan and the newly reinvigorated community resulting in a reclaimed creek that is maintained locally, void of pollutants (NPK, pesticides, salt, heavy metals and petroleum products), and responsive to water runoff during storm events. As a result the Cascade Creek will be able to progress into the future along with the surrounding and continually evolving neighborhoods.

# Site Background

Positioned a few blocks Northwest of the Mayo Clinic and the rest of Downtown Rochester, is the final mile and a half stretch of Cascade Creek before it empties into the Zumbro River and then into the Mississippi River.

Revitalizing the Cascade Creek corridor is a multi-step process that will take the cooperation and involvement of the surrounding neighborhoods, the city government and most importantly, the citizens that form the surrounding community.

The end result of the Cascade Creek Masterplan will be a revitalization of not only the physical elements of the corridor but also a revitalization of sense of community in the neighborhoods surrounding Cascade Creek.



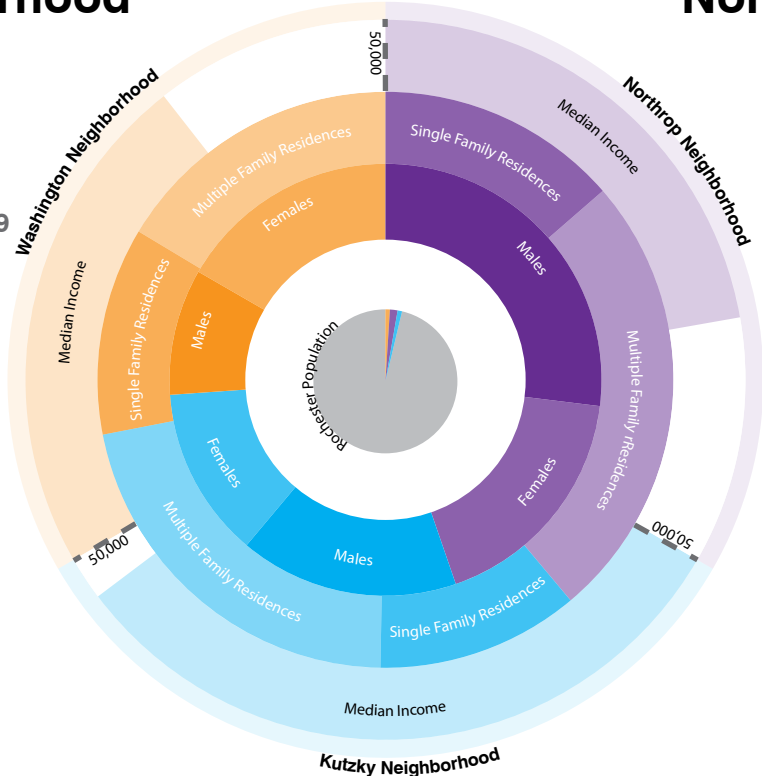
# Neighborhood Demographics

## Washington Neighborhood

Population: 996  
 Males: 362  
 Females: 634  
 Households: 556  
 Single Family Housing: 227  
 Multi Family Residences: 329  
 Median Income: \$33,828

## Northrop Neighborhood

Population: 1,754  
 Males: 1,051  
 Females: 703  
 Households: 773  
 Single Family Housing: 269  
 Multi Family Residences: 504  
 Median Income: \$33,427

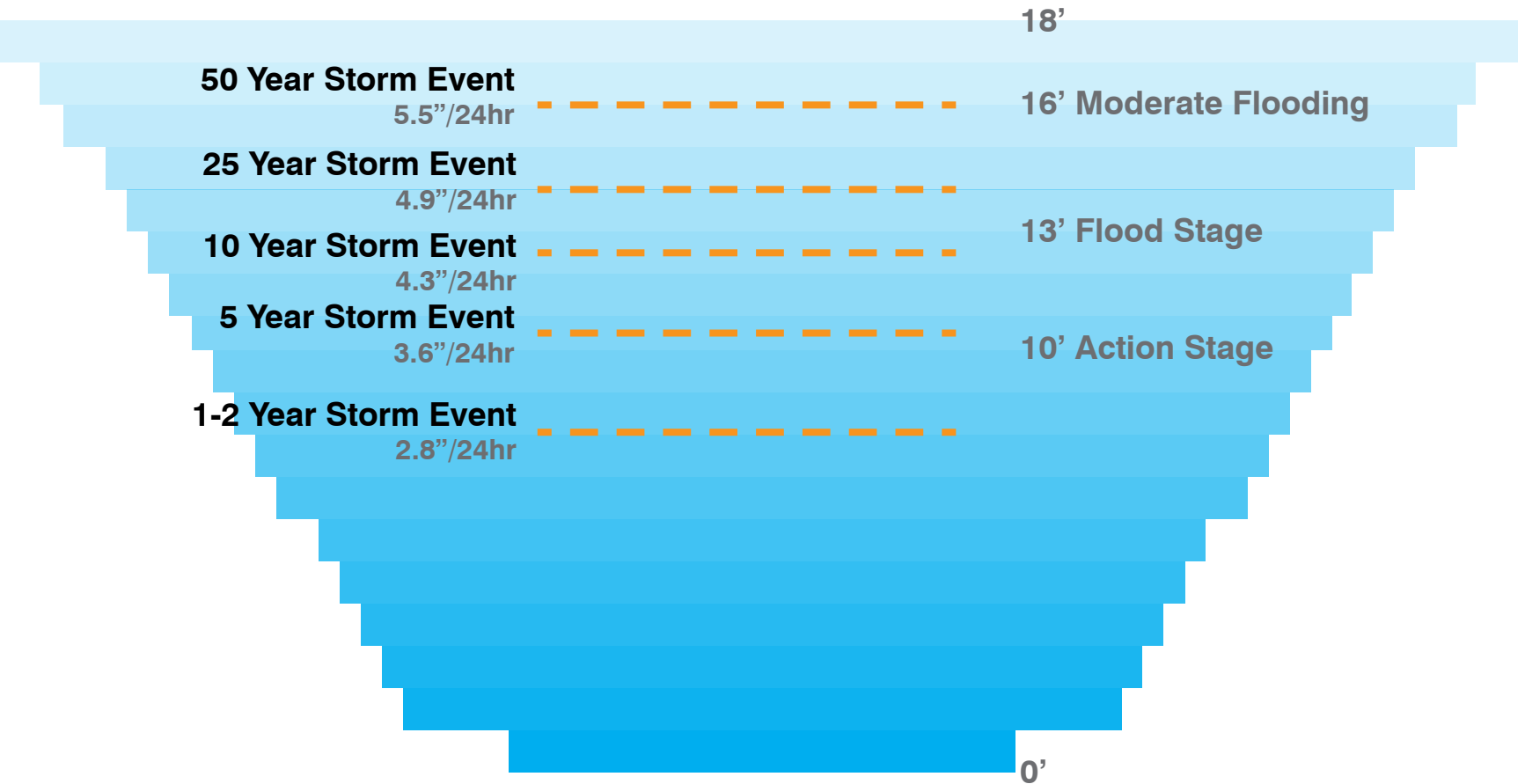


## Kutzky Neighborhood

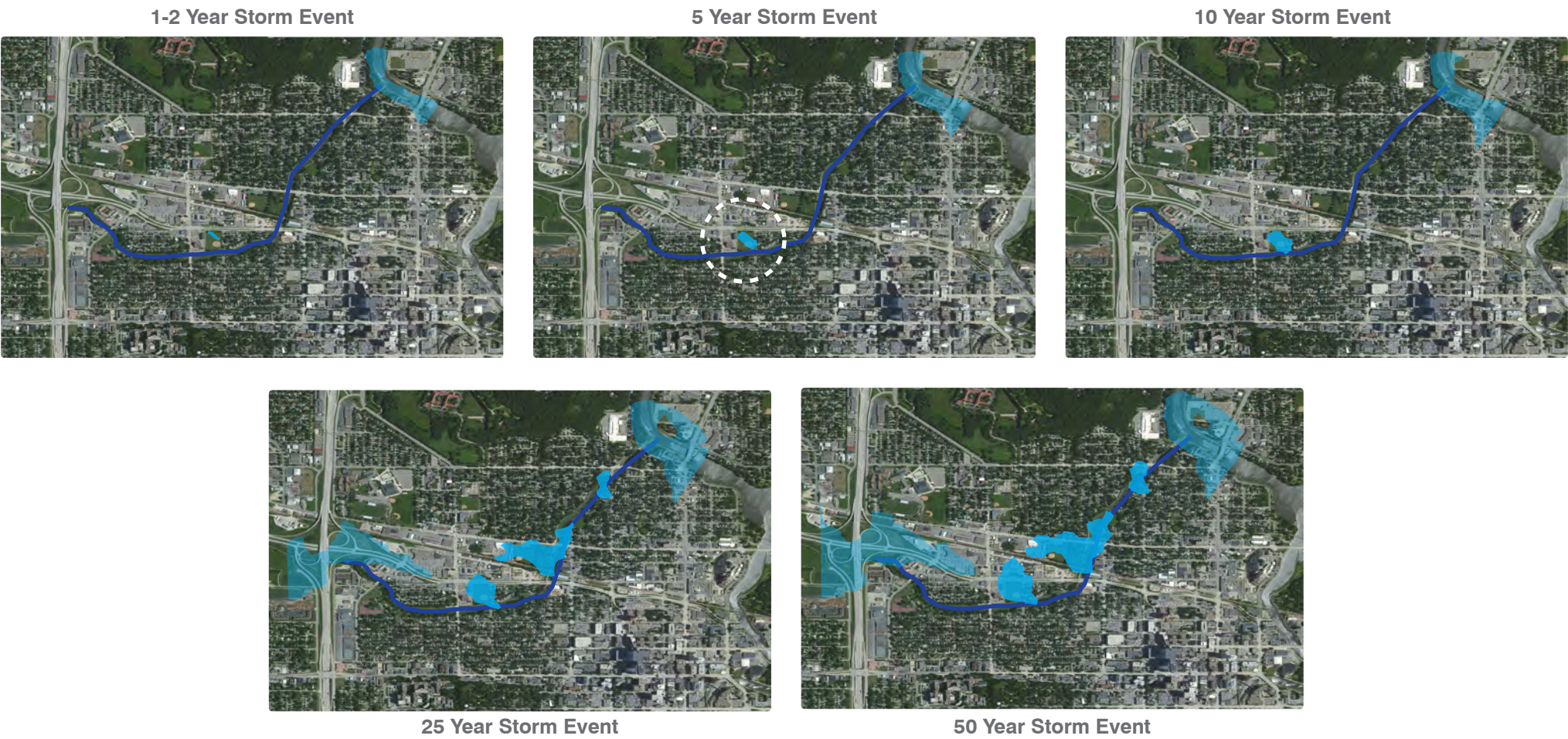
Population: 1,094  
 Males: 611  
 Females: 483  
 Households: 635  
 Single Family Housing: 215  
 Multi Family Residences: 420  
 Median Income: \$46,771



# Cascade Creek Flooding



# Flood Zones





## Existing Creek Conditions



Above: Temporary relief from erosion problems.



Above: One of the many flock of mallards that call the creek home.



Above: Engineered channels that form a majority of the Creek.

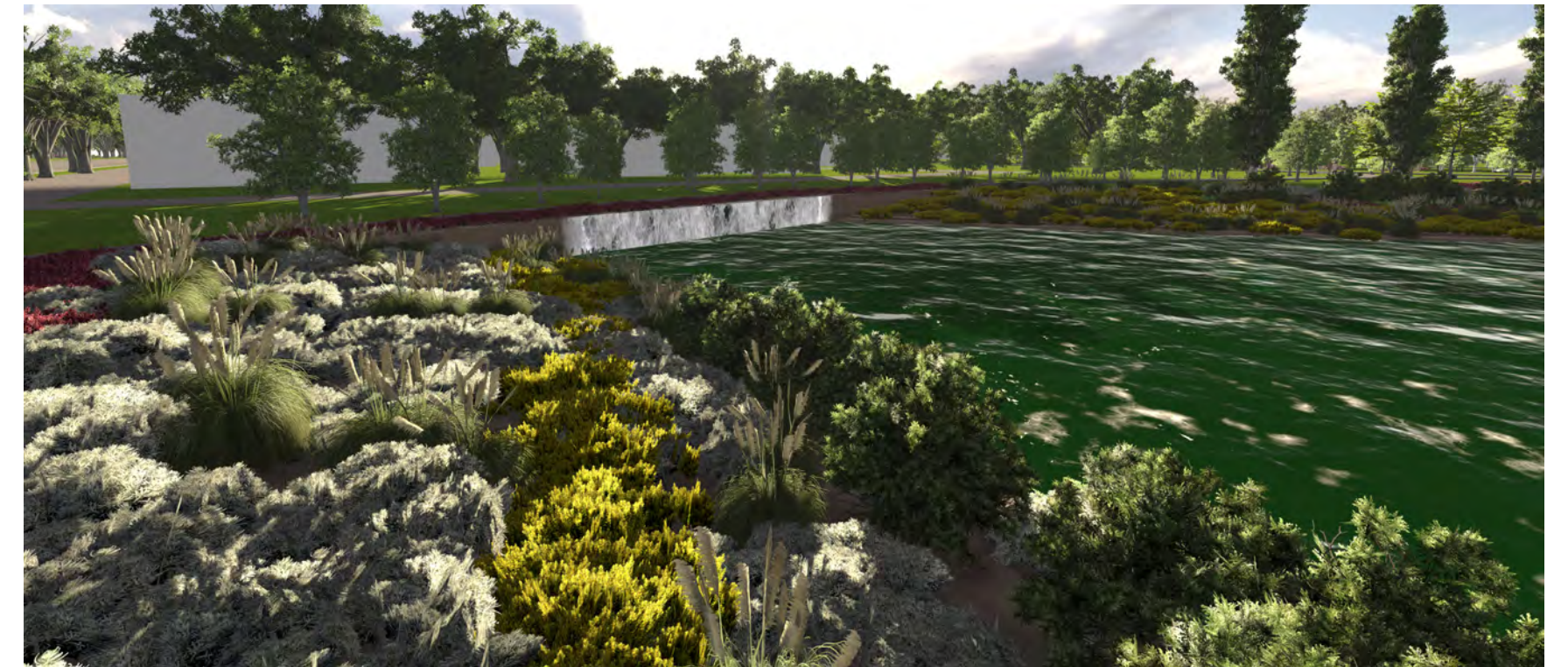


Above: Manmade weirs used as flooding control.

## Stormwater Remediation

Two retention basins will be located at Kutzky Field and Cooke Park as determined by the current ground elevations. As the two lowest locations, both parks naturally flood and become inundated with water even during 1-2 year storm events. The retention basins are designed to hold up to 40,000 cubic yards of water. This is enough storage to contain all the flow of Cascade Creek during a 50 year storm event for over half an hour in each retention basin, or over an hour total between the two basins.

As retention basins, they will never be dry, continually holding a couple of feet of water. Located on the far end of each basin there is a 60 foot long and seven foot tall waterfall. The waterfalls serve an aesthetic purpose for both pedestrians in the park but are also angled so that passing motorists can catch a glimpse of the falls. The waterfalls also serve a physical purpose of aerating the water to prevent algae growth and mosquito breeding.



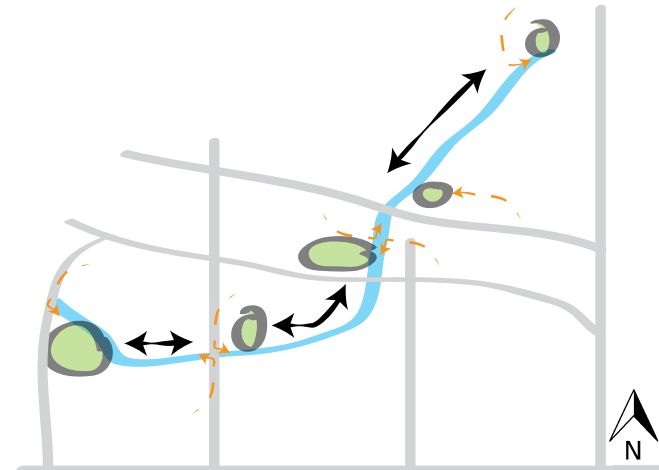
Above: View of the Kutzky Field from Civic Center Drive looking at the waterfall and retention basin.



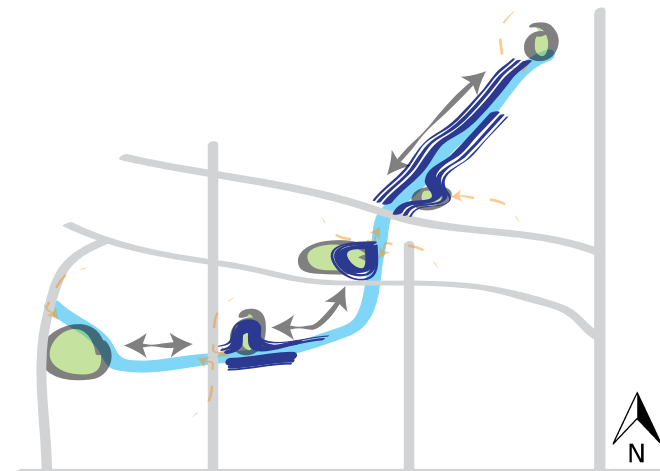
# Analysis



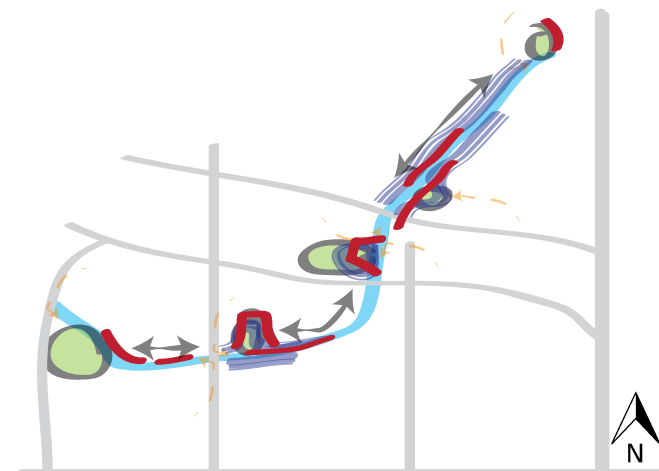
1. Existing Greenspace



2. Public Access

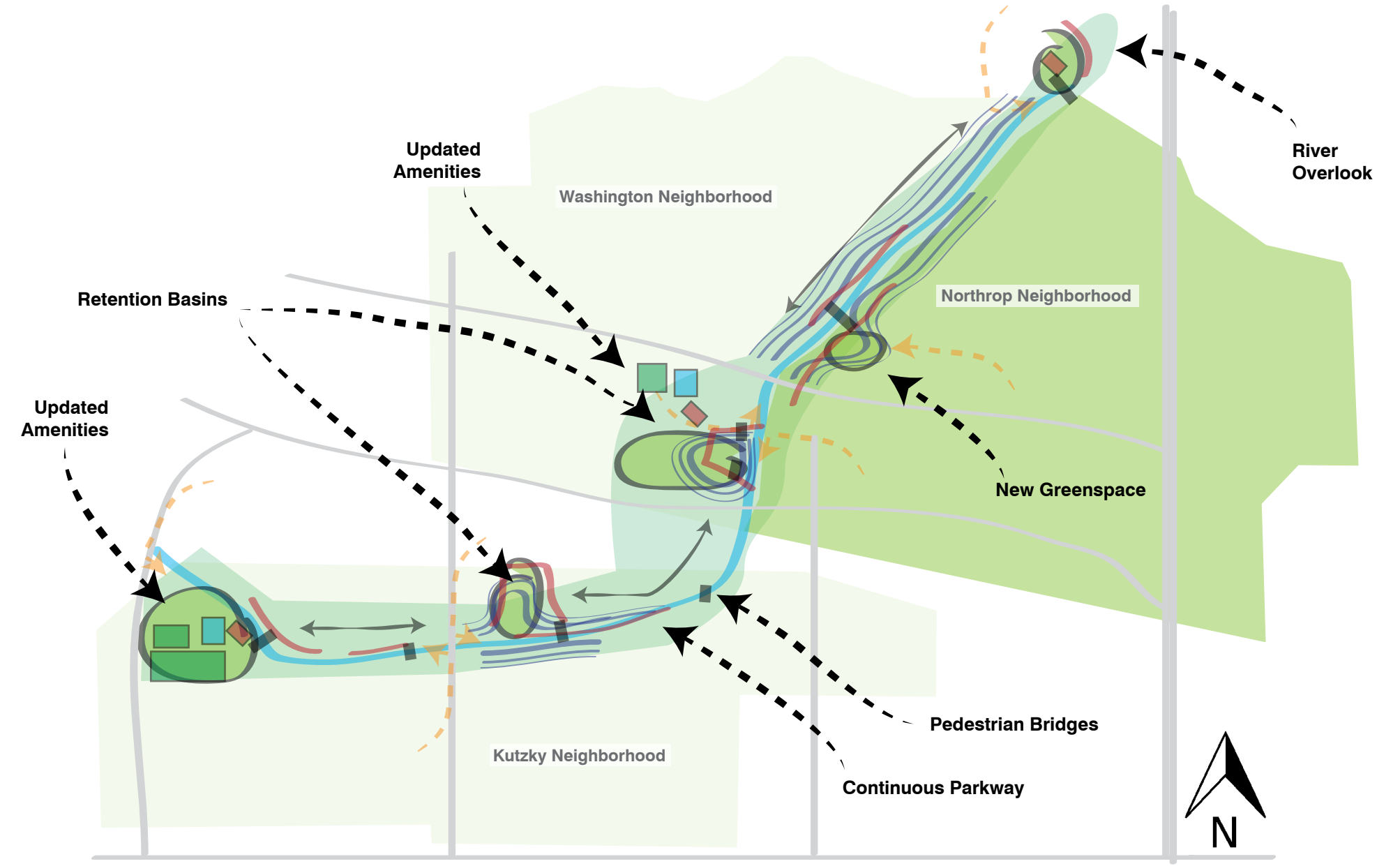


3. Flooding



4. Remediation

# Process



5. Concept



# Plant List & Masterplan

Plants selected for Casade Creek and the five parks connected to the creek are a combination of remediation based plants (NPK focused), native plants, and zone (4b) friendly plants.

## Remediation Plant List

- Trees:**  
 Fraxinus pennsylvanica - Green Ash  
 Pinus mugo pumilo - Dwarf Mugo Pine  
 Salix alba 'Tristis' - Golden Weeping Willow

- Shrubs:**  
 Viburnum odoratissimum - Sweet Viburnum

- Perennials:**  
 Agapanthus africanus - Lily of the Nile  
 Hemerocallis hybrid - Daylily  
 Typha latifolia - Broad Leaved Cattail  
 Typha angustifolia - Narrow Leaved Cattail

- Grasses:**  
 Cynodon dactylon - Bermuda Grass  
 Festuca arundinacea - Tall Fescue  
 Festuca rubra - Red Fescue  
 Lolium multiflorum - Ryegrass

## Plant List

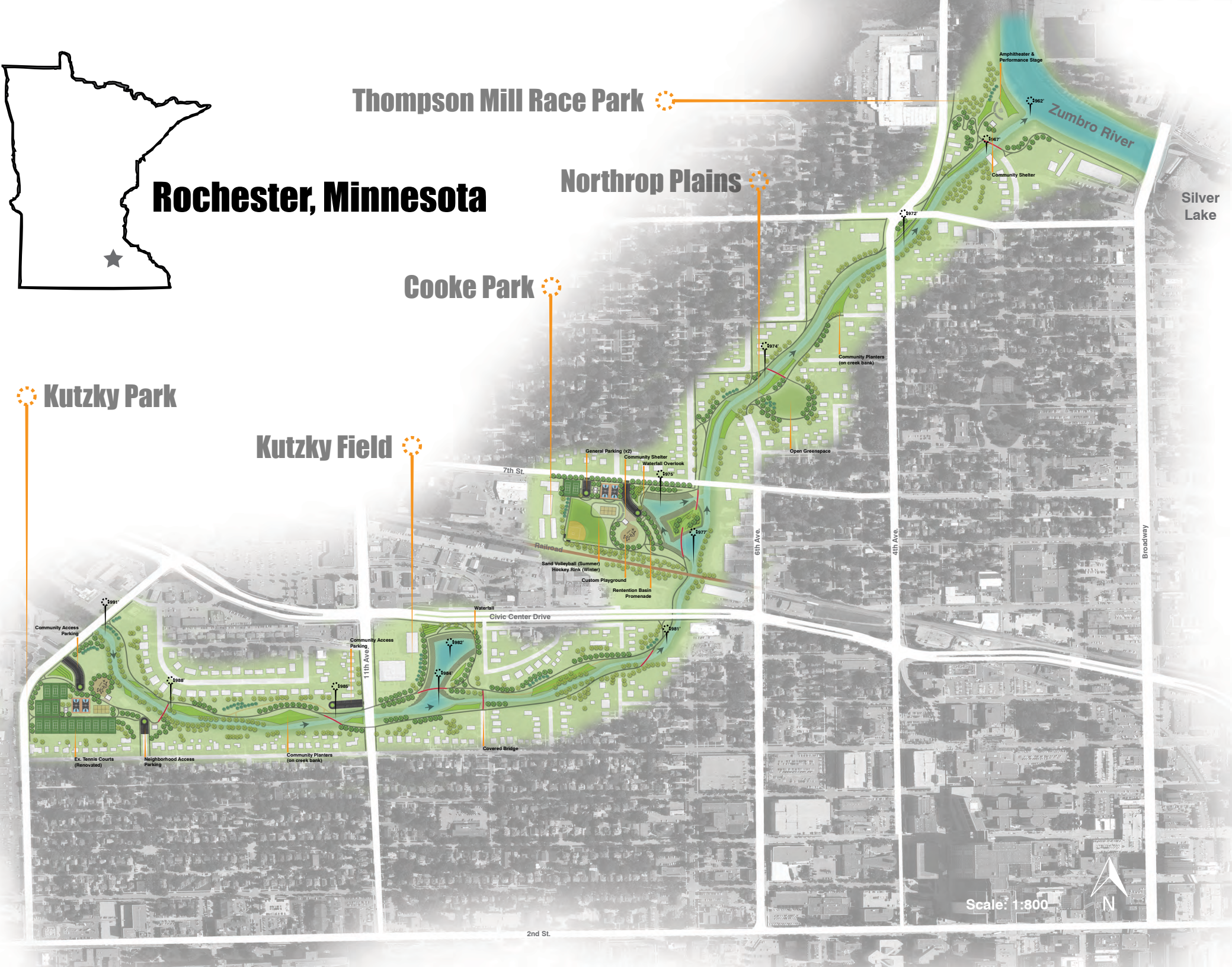
- Trees:**  
 Acer platanoides - Norway Maple  
 Acer saccharinum - Silver Maple  
 Betula nigra - River Birch  
 Tilia americana - American Linden  
 Quercus macrocarpa - Bur Oak  
 Pinus strobus - Eastern White Pine

- Shrubs:**  
 Buxus 'Green Gem' - Green Gem Boxwood  
 Cornus sericea - Redosier Dogwood  
 Forsythia 'Northern Gold' - Forsythia Northern Gold  
 Physocarpus opulifolius 'Diablo' - Diablo Ninebark  
 Physocarpus opulifolius 'Center Glow' - Center Glow Ninebark

- Perennials:**  
 Achillea millefolium 'Paprika' - Paprika Yarrow  
 Heuchera 'Can Can' - Can Can Coral Bells  
 Hosta 'Abiqua Drinking Gourd' - Abiqua Drinking Gourd  
 Hosta fluctuans 'Sagae' - Sagae Hosta  
 Spirea japonica 'Firelight' - Firelight Spirea



## Rochester, Minnesota



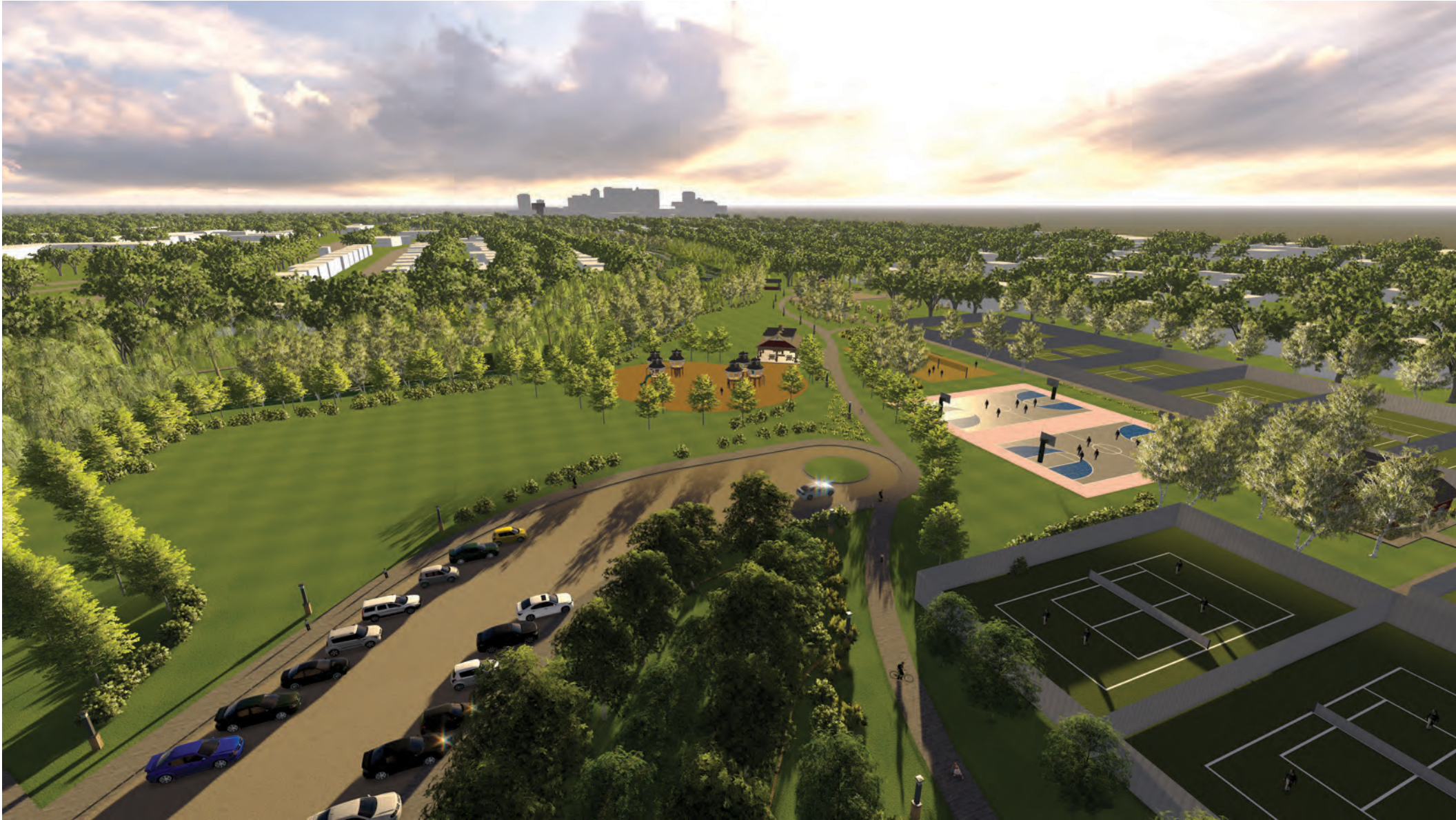
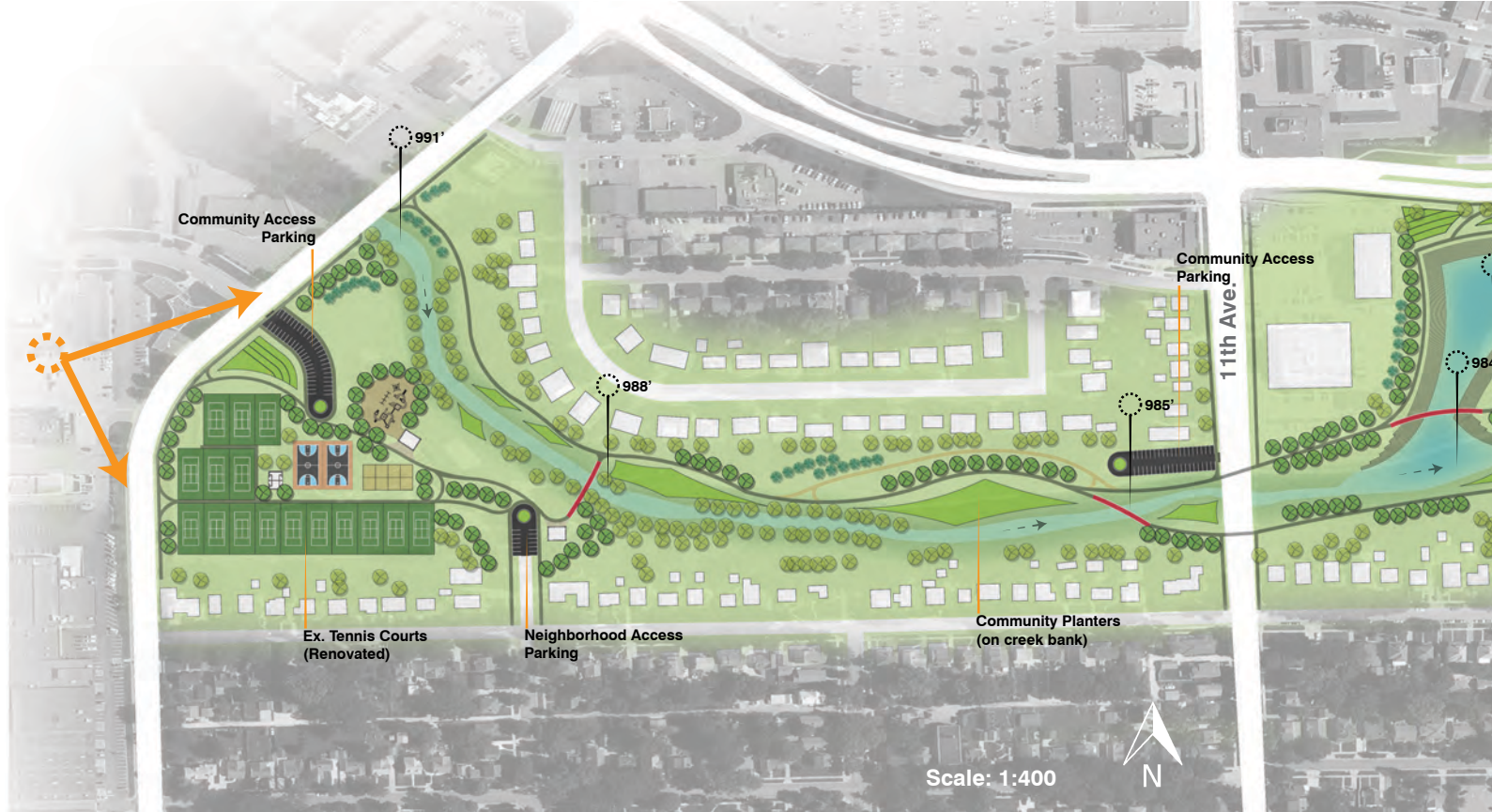


# Kutzky Park

As the far Western entrance to the Cascade Creek corridor, Kutzky Park currently supports an extensive yet outdated tennis court system. Remodeling the existing tennis courts, while adding volleyball and basketball courts, modernizes the park to current day standards.

Updating the community shelters and playground equipment and adding more parking to the park provides a use for all generations and ages of users while providing for different sized community gatherings.

Located at the Eastern edge of Kutzky, visitors will notice the first of over a dozen community planters that run along the creek banks. Unlike normal 'community gardens', these planters are not produce oriented but focus on vegetation that helps remediate and purify both the runoff water during storm events and the creek water that passes by during elevated water conditions.



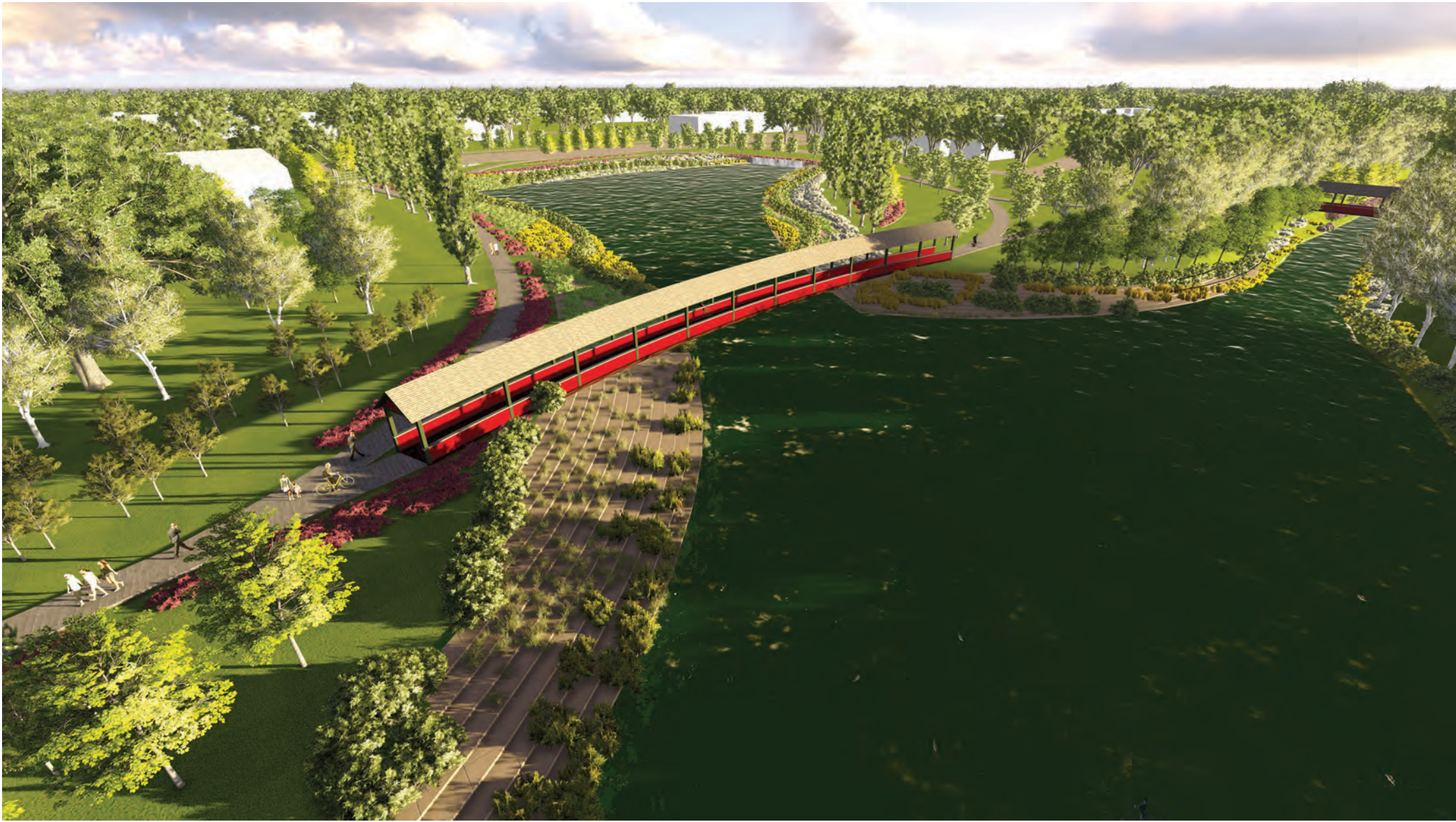
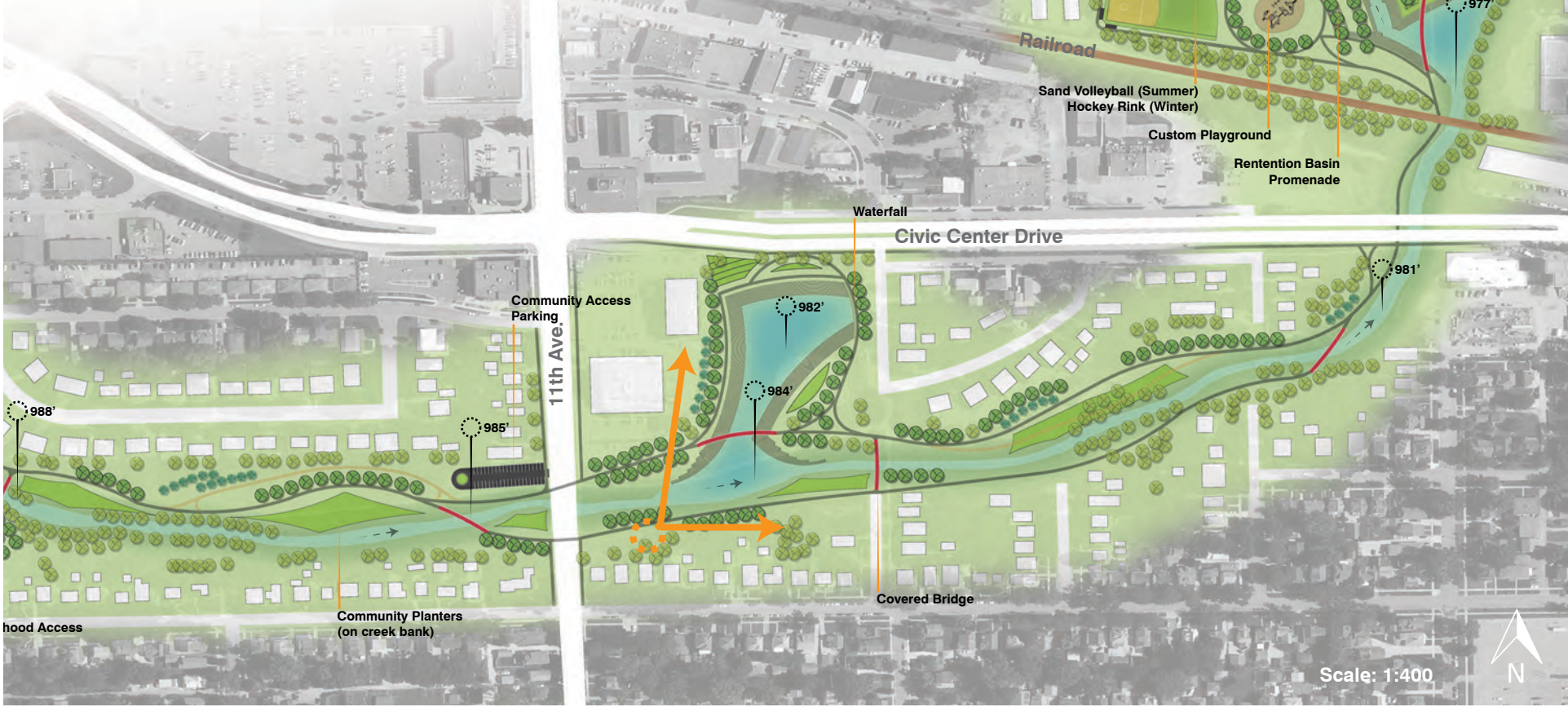
Above: View of Kutzky Park looking East towards the Mayo Clinic and the rest of downtown Rochester.



# Kutzky Field

Currently a low lying baseball and football field, Kutzky Field, as of recently is no longer used by the local high school as a practice field because the school relocated. One of the first areas to flood during even a 1-2 year storm event, the area is perfect for one of two retention basins that will be created along the Cascade Creek corridor. The retention basins will help reduce the peak flow rate.

The retention basin provides enough storage for over 30 minutes of a 50 year storm event. Not only does the basin serve a physical purpose, the 60' long waterfall that faces Civic Center Drive provides an aesthetic view for motorists heading downtown to the Mayo Clinic.



Above: View of Kutzky Field retention basin looking Northeast with the waterfall in the background.

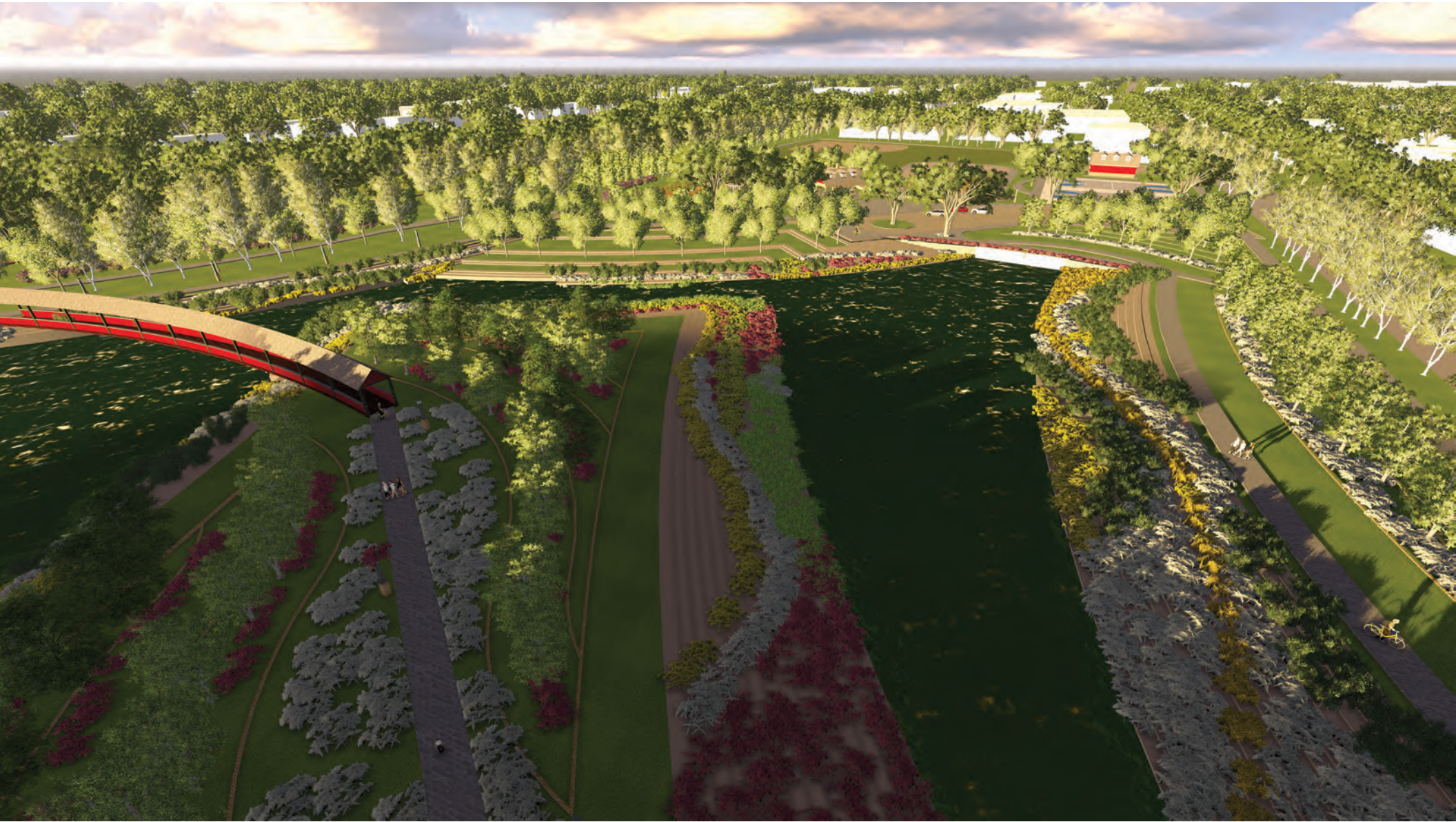


# Cooke Park

Located in the center of the revitalization project is Cooke Park. The aging and mismatched park equipment is replaced with an expansive modern play system. Modern sports facilities are provided for both league play and general games.

Winter activities include groomed trails for cross country skiing, sledding on the retention basin's banks. The locker room is used as a warming house for a full size hockey rink during the winter months.

Due to prevalent flooding in the lower portion of the park, the second retention basin along Cascade Creek is incorporated here to store runoff water during and immediately after storm events. When the creek is not flooding and still within the banks, the basin will still retain water and a 60' long waterfall will keep the water from becoming stagnant.



Above: View of the Cooke Park retention basin with community shelter and sports facilities to the West.

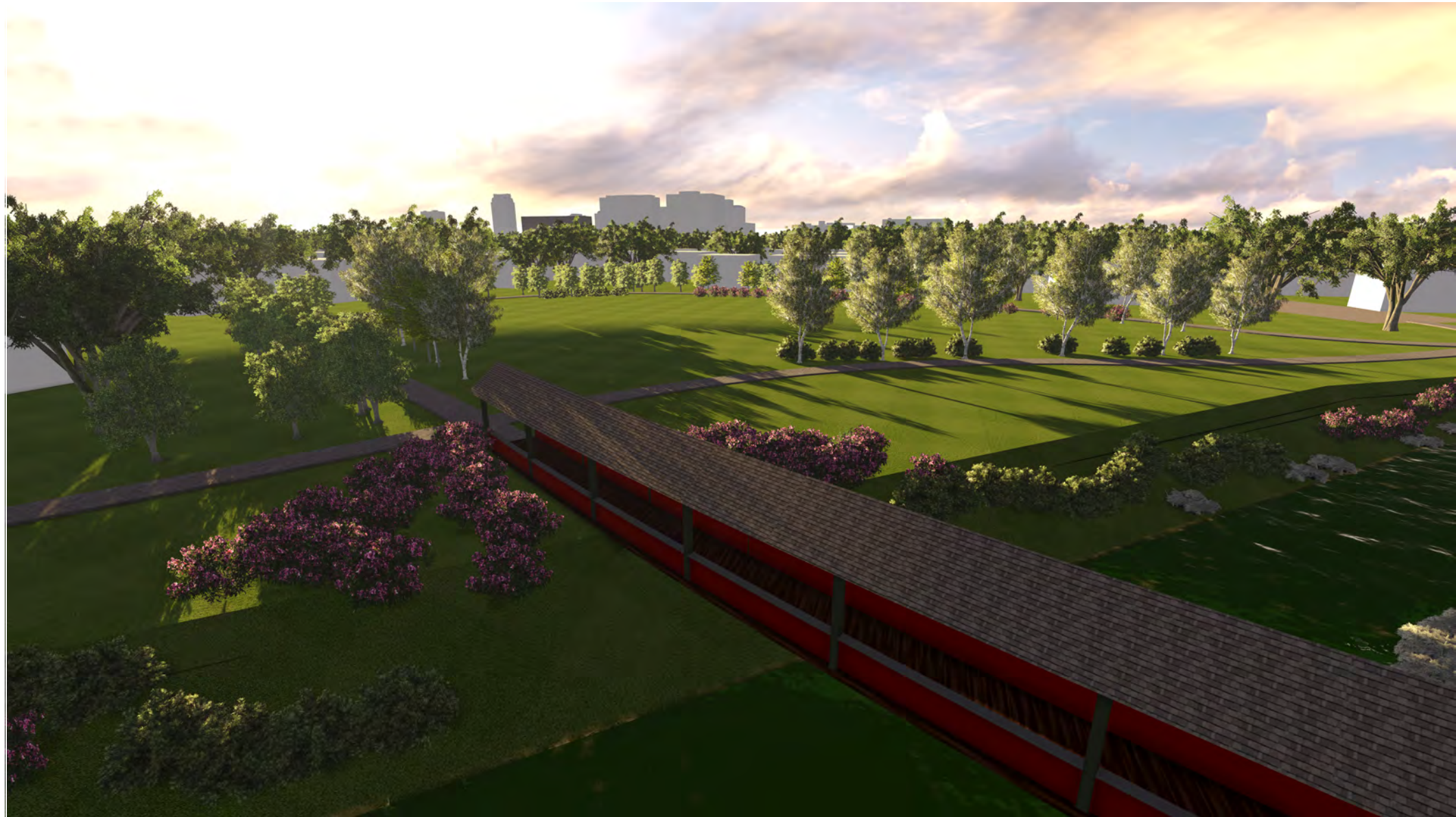


# Northrop Plains

What before were empty lots in the flood plain, Northrop Plains is now an entirely passive greenspace that serves as an entrance into Cascade Creek for Northrop Neighborhood, an open field for spontaneous pickup games, and a grassy rest area for people traveling through on the now interconnected city path system.

Paths connecting to the dead end roads create the entrance into Northrop Plains. A circular path populated with broadleaf trees fills up the once empty area and defines the new greenspace.

One of the many new covered bridges is located here in order to connect to the rest of the trail system while connecting Northrop and Washington Neighborhoods with pedestrian access.



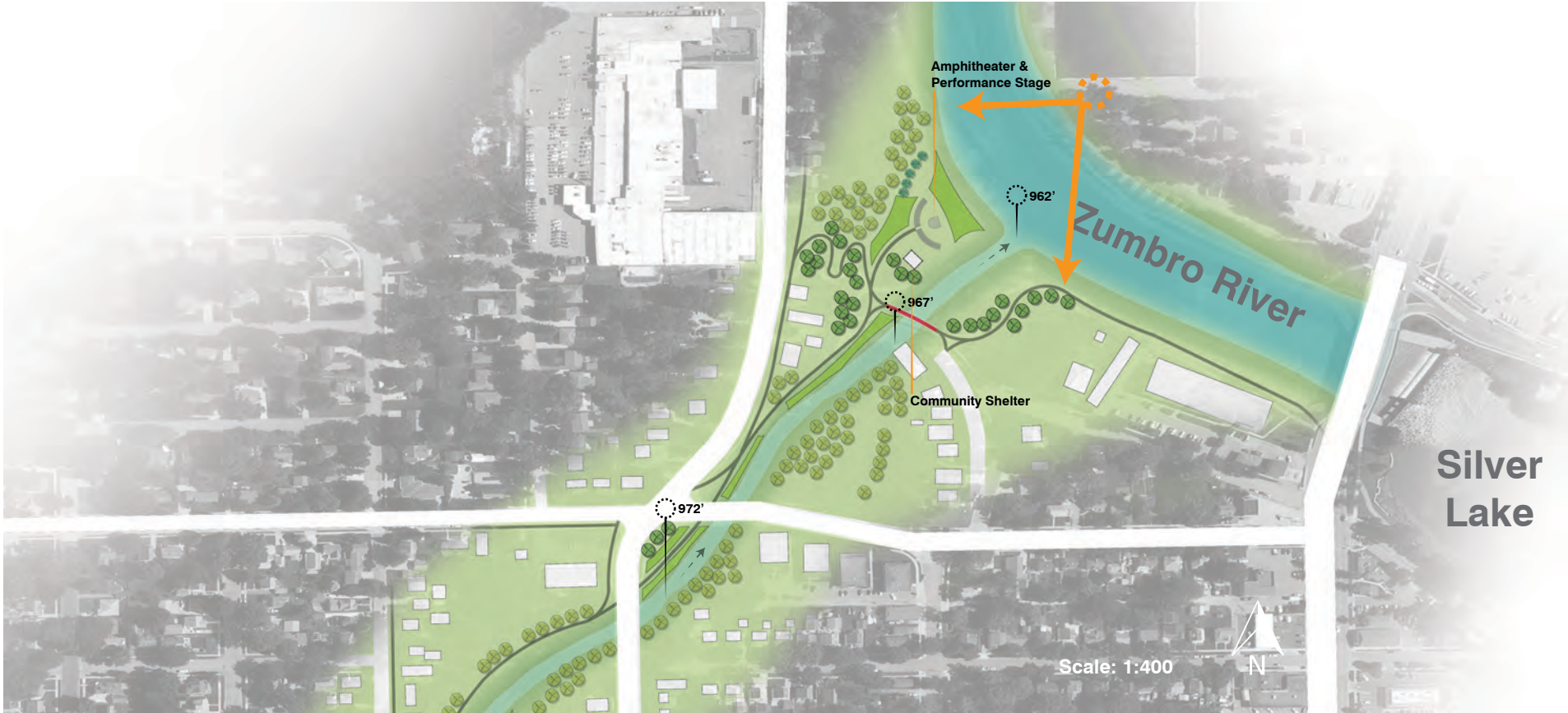
Above: View of Northrop Plains greenspace looking Southeast towards the Mayo Clinic.



# Thompson Mill Race Park

Located where Cascade Creek empties into the Zumbro River, Thompson Mill Race Park currently is a prime location for fishing and looking back on the Rochester skyline.

An amphitheater, performance stage and community shelter allows for various performance arts with the Zumbro River set as the backdrop. During the Fourth of July, the amphitheater and park can be utilized for a direct view of the fireworks that are displayed over Silver Lake half a mile away.



Above: View of Thompson Mill Race Park from the opposing banks of the Zumbro River with the Mayo Clinic to the South.



# Community Development

## Unified Theme

In order to create a holistic design that connects the entire mile and a half of the Cascade Creek corridor, it is necessary to design thematic elements that are consistent throughout the entire area. A parts kit consisting of shelters, signage, planters, lighting, etc. ties the area together visually when traversing between parks. The same construction materials, colors and style are used among each element, keeping them within close resemblance of each other. These elements also are reflective of the architecture of the surrounding neighborhoods, which ranges from Cape Cod, Foursquare, and Colonial to modern split level and rambler houses.

## Involvement

As one of the four stages in the revitalization of Cascade Creek, a major aspect of the design is not in the physical changes and revitalization, rather it is focused on the 'physical' work and involvement of the community. The ultimate goal in revitalizing the Cascade Creek corridor is to create a self-sustaining park system for the region.

Volunteer days and events will involve community members. Setting up regular maintenance days and events will get community members involved and interested in the parks and creek. Community social events will reward those that have put time and equity into the park. In the end, this community action will help members foster personal connections to the park and to each other, strengthening the community as a whole.

# Parts Kit



Path Seating      Picnic Table      Planter      Waste Receptacle



Entry Gate      Park Sign      Bollard Light      Pedestrian Light



## References





## References

Buchholz, T., & Younos, T. (2007). Urban stream daylighting . Informally published manuscript, Virginia Polytechnic Institute and State University, Blacksburg, VA, Retrieved from <http://vwrrc.vt.edu/pdfs/specialreports/sr352007.pdf>

Coronado, M., Tuttle, L., & Zhang, W. (2013). Cultural functions and perceptions of waller creek among the university of texas at austin community. Unpublished manuscript, University of Texas at Austin, Austin, TX, Retrieved from [https://www.utexas.edu/sustainability/pssc/symposium/documents/2013\\_Coronado\\_Waller-CreekPerceptions.pdf](https://www.utexas.edu/sustainability/pssc/symposium/documents/2013_Coronado_Waller-CreekPerceptions.pdf)

Eastern broadleaf forest province. (2013). Retrieved from <http://www.dnr.state.mn.us/ecs/222/index.html>

First homes: Rochester area foundation. (2013). Retrieved from <http://www.firsthomes.org/>

Friends of five creeks. (2012). Retrieved from <http://www.fivecreeks.org/>

Hardin, G. (1968). Tragedy of the commons. *Science.*, 162, 1243–1248.

Kilen, S. (2006). Imagine kutzky. Retrieved from [http://kutzkypark.org/wp-content/uploads/legacy/html/imagine\\_kutzky.html](http://kutzkypark.org/wp-content/uploads/legacy/html/imagine_kutzky.html)

Kutzky and slatterly neighborhood sewer rehabilitation and capacity assurance program. (2009, April 6). Retrieved from [http://www.rochestermn.gov/departments/publicworks/hottopics/SanitaryIIStudy/09\\_04\\_06\\_Rochester\\_Council\\_v5.pdf](http://www.rochestermn.gov/departments/publicworks/hottopics/SanitaryIIStudy/09_04_06_Rochester_Council_v5.pdf)

Kutzky neighborhood sewer rehabilitation and capacity assurance program. (2008, January 23). Retrieved from <http://www.rochestermn.gov/departments/publicworks/hottopics/SanitaryIIStudy/Kutzky/Kutzky%20Park%20Question%20Answer%20January%2023,%202008.pdf>

Kutzky park neighborhood association. (2009). Retrieved from <http://kutzkypark.org/>

Kutzky park legacy. (n.d.). Retrieved from <http://kutzkypark.org/wp-content/uploads/legacy/Land%20Use%20Plan%20Introduction.pdf>

Malugani, M. (2013). Old houses, renewed appeal. *Rochester Magazine*, Retrieved from <http://www.rochestermagazine.com/old/houses/renewed/appeal/story-337.html>

Monthly averages for rochester, mn. (2012). Retrieved from <http://www.weather.com/weather/wxclimatology/monthly/graph/USMN0632>

Overview of new zoning. (2009). Retrieved from [http://kutzkypark.org/wp-content/uploads/2009/10/Neighborhood\\_Residential\\_NR\\_Zoning.pdf](http://kutzkypark.org/wp-content/uploads/2009/10/Neighborhood_Residential_NR_Zoning.pdf)

Peak flow reduction opportunities in the cascade creek tributaries . (2008, November). Retrieved from <http://www.co.olmsted.mn.us/pw/oswcd/Documents/cascadecreektributariesfinalreport.pdf>

Pieters, J. (2009, April 23). A new house in an old neighborhood. *The Post Bulletin*. Retrieved from [http://www.postbulletin.com/a-new-house-in-an-old-neighborhood/article\\_44e61357-4c90-5957-a883-a6ea-2c3abab3.html](http://www.postbulletin.com/a-new-house-in-an-old-neighborhood/article_44e61357-4c90-5957-a883-a6ea-2c3abab3.html)

Pinkham, R. (2000). Daylighting: New life for buried streams. Informally published manuscript, Rocky Mountain Institute, Old Snowmass, Colorado, Retrieved from [http://www.rmi.org/Knowledge-Center/Library/W00-32\\_DaylightingNewLifeBuriedStreams](http://www.rmi.org/Knowledge-Center/Library/W00-32_DaylightingNewLifeBuriedStreams)

Potteiger, M., & Purinton, J. (1998). *Landscape narratives*. New York: John Wiley & Sons, Inc.

Potteiger, M., & Purinton, J. (2002). *Landscape narratives*. In S. Saffield (Ed.), *Theory in Landscape Architecture* Philadelphia: University of Pennsylvania Press.

Rneighbors. (2012). Retrieved from <http://www.rneighbors.org/>

Rochester, minnesota city data. (2013). Retrieved from <http://www.city-data.com/city/Rochester-Minnesota.html>

Russell, M. (2008, October 6). A new look for kutzky. *The Post Bulletin*. Retrieved from [http://www.postbulletin.com/a-new-look-for-kutzky/article\\_44b63ce3-edb9-501b-a1ed-c3fb8adc71d7.html](http://www.postbulletin.com/a-new-look-for-kutzky/article_44b63ce3-edb9-501b-a1ed-c3fb8adc71d7.html)



Shearer, A. (2013). Designing waller creek. Unpublished manuscript, University of Texas at Austin, Austin, TX, Retrieved from [https://www.utexas.edu/sustainability/pssc/symposium/documents/2013\\_Shearer\\_DesigningWallerCreek.pdf](https://www.utexas.edu/sustainability/pssc/symposium/documents/2013_Shearer_DesigningWallerCreek.pdf)

Uc berkeley strawberry creek. (2006). Retrieved from <http://strawberrycreek.berkeley.edu/index.html>

Waller creek. (2013). Retrieved from <http://www.mvvainc.com/index.php>

Waller creek conservancy. (2013). Retrieved from <http://wallercreek.org/>

Zumbro river watershed. (2013, June 26). Retrieved from <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/watersheds/zumbro-river.html>



## Annotated References

Buchholz, T., & Younos, T. (2007). Urban stream daylighting . Informally published manuscript, Virginia Polytechnic Institute and State University, Blacksburg, VA, Retrieved from <http://vwrrc.vt.edu/pdfs/specialreports/sr352007.pdf>

This article is a compilation of case studies of daylighting throughout the U.S. The object of the paper was to compare and contrast the case studies to draw a conclusions about the popularity and effectiveness of daylighting.

Coronado, M., Tuttle, L., & Zhang, W. (2013). Cultural functions and perceptions of waller creek among the university of texas at austin community. Unpublished manuscript, University of Texas at Austin, Austin, TX, Retrieved from [https://www.utexas.edu/sustainability/pssc/symposium/documents/2013\\_Coronado\\_WallerCreekPerceptions.pdf](https://www.utexas.edu/sustainability/pssc/symposium/documents/2013_Coronado_WallerCreekPerceptions.pdf)

This paper, written by three graduate students at the University of Texas at Austin is an in depth study and inventory of Waller Creek. The research looks at the correlation between the creek, the college, and the town and how they are going to move into the future together.

Eastern broadleaf forest province. (2013). Retrieved from <http://www.dnr.state.mn.us/ecs/222/index.html>

The Minnesota Department of Natural Resources website on the different ecological provinces located within Minnesota and information on each ecosystem.

First homes: Rochester area foundation. (2013). Retrieved from <http://www.firsthomes.org/>

The official website for the Rochester Area Foundation of First Homes. The website provides basic information about First Homes, their goals and current achievements.

Friends of five creeks. (2012). Retrieved from <http://www.fivecreeks.org/>

This website is run by the group that currently manages and promotes the daylighting of creeks in the Berkeley Hills area in California. They have information about the creek and post updates and newsletters.

Hardin, G. (1968). Tragedy of the commons. *Science.*, 162, 1243–1248.

Hardin's essay on population growth and how technological science can only go so far in dealing with natural sciences and specifically the realm of population growth and expansion.

Kilen, S. (2006). Imagine kutzky. Retrieved from [http://kutzkypark.org/wp-content/uploads/legacy/html/imagine\\_kutzky.html](http://kutzkypark.org/wp-content/uploads/legacy/html/imagine_kutzky.html)

The website for the organization Imagine Kutzky helps with the redevelopment goals of the neighborhood along with creating and implementing a new set of codes for the association bylaws.

Kutzky and slatterly neighborhood sewer rehabilitation and capacity assurance program. (2009, April 6). Retrieved from [http://www.rochestermn.gov/departments/publicworks/hottopics/SanitaryIIStudy/09\\_04\\_06\\_Rochester\\_Council\\_v5.pdf](http://www.rochestermn.gov/departments/publicworks/hottopics/SanitaryIIStudy/09_04_06_Rochester_Council_v5.pdf)

This is the final report on the condition of the sewer system in Kutzky Neighborhood. The report investigates where the existing infrastructure issues are and how they can be potentially resolved.

Kutzky neighborhood sewer rehabilitation and capacity assurance program. (2008, January 23). Retrieved from <http://www.rochestermn.gov/departments/publicworks/hottopics/SanitaryIIStudy/Kutzky/Kutzky%20Park%20Question%20Answer%20January%2023,%202008.pdf>

This is the initial report addressing sewer backups in Kutzky Neighborhood during heavy rainfalls and the city of Rochester's plan to begin testing in the neighborhood.

Kutzky park neighborhood association. (2009). Retrieved from <http://kutzkypark.org/>

This is the official website for the Kutzky Park Neighborhood Association. Located on the website are all of the meeting minute since the formation of the association along with a brief history, links to projects in the area, and contact information of the current association cabinet.

Kutzky park legacy. (n.d.). Retrieved from <http://kutzkypark.org/wp-content/uploads/legacy/Land%20Use%20Plan%20Introduction.pdf>

This is the report on the demographics of the area surrounding Cascade Creek and the initial formation of the Imagine Kutzky group that pushes for changes in redevelopment and bylaws of the neighborhood.



Malugani, M. (2013). Old houses, renewed appeal. Rochester Magazine, Retrieved from <http://www.rochestermagazine.com/old/houses/renewed/appeal/story-337.html>

This article from Rochester Magazine is about the existing reformation of Kutzky Neighborhood and include interviews from people who have lived in the neighborhood their whole lives, people who have moved into the neighborhood during its worst period, and people who have just become residents after seeing the transformations that have taken place.

Monthly averages for rochester, mn. (2012). Retrieved from <http://www.weather.com/weather/wxclimatology/monthly/graph/USMN0632>

This website has the general weather and climate averages on monthly and yearly periods for Rochester, Minnesota.

Overview of new zoning. (2009). Retrieved from [http://kutzkypark.org/wp-content/uploads/2009/10/Neighborhood\\_Residential\\_NR\\_Zoning.pdf](http://kutzkypark.org/wp-content/uploads/2009/10/Neighborhood_Residential_NR_Zoning.pdf)

This document is the proposed zoning changes by the Imagine Kutzky Group.

Peak flow reduction opportunities in the cascade creek tributaries . (2008, November). Retrieved from <http://www.co.olmsted.mn.us/pw/oswcd/Documents/cascadecreektributariesfinalreport.pdf>

This article is a written report on the peak flow rates of Cascade Creek and how they can be reduced upstream to stop flooding during heavy rainfall. The document was produced by a subcontractor of Olmsted County.

Pieters, J. (2009, April 23). A new house in an old neighborhood. The Post Bulletin. Retrieved from [http://www.postbulletin.com/a-new-house-in-an-old-neighborhood/article\\_44e61357-4c90-5957-a883-a6ea2c3abab3.html](http://www.postbulletin.com/a-new-house-in-an-old-neighborhood/article_44e61357-4c90-5957-a883-a6ea2c3abab3.html)

This article is about the first home to be built in over forty years in Kutzky Neighborhood and the impact that it is going to have on the neighborhood upon completion.

Pinkham, R. (2000). Daylighting: New life for buried streams. Informally published manuscript, Rocky Mountain Institute, Old Snowmass, Colorado, Retrieved from [http://www.rmi.org/Knowledge-Center/Library/W00-32\\_DaylightingNewLifeBuriedStreams](http://www.rmi.org/Knowledge-Center/Library/W00-32_DaylightingNewLifeBuriedStreams)

This article is about the process of daylighting and the effects that it has on the environment along with a brief history of daylighting.

Potteiger, M., & Purinton, J. (1998). Landscape narratives. New York: John Wiley & Sons, Inc.

This book covers the concept of narrative in landscape. The main relevance to this thesis was the information on revealing and concealing landscapes in Part II of the book.

Potteiger, M., & Purinton, J. (2002). Landscape narratives. In S. Saffield (Ed.), Theory in Landscape Architecture Philadelphia: University of Pennsylvania Press.

This book is a brief introduction into the look of landscape narratives and their importance on culture and society.

Rneighbors. (2012). Retrieved from <http://www.rneighbors.org/>

This is the website run by the Rochester, MN neighborhood associations to post updates, news, bulletins and gather all of the neighborhood data on the website.

Rochester, minnesota city data. (2013). Retrieved from <http://www.city-data.com/city/Rochester-Minnesota.html>

This website compiles all of the latest census data on the city of Rochester and breaks down the provided statistics by neighborhood

Russell, M. (2008, October 6). A new look for kutzky. The Post Bulletin. Retrieved from [http://www.postbulletin.com/a-new-look-for-kutzky/article\\_44b63ce3-edb9-501b-a1ed-c3fb8adc71d7.html](http://www.postbulletin.com/a-new-look-for-kutzky/article_44b63ce3-edb9-501b-a1ed-c3fb8adc71d7.html)

This article is about the demolition of almost a dozen homes in the Kutzky Neighborhood and the construction of a new multiuse complex in place of the homes.



Shearer, A. (2013). Designing waller creek. Unpublished manuscript, University of Texas at Austin, Austin, TX, Retrieved from [https://www.utexas.edu/sustainability/pssc/symposium/documents/2013\\_Shearer\\_DesigningWallerCreek.pdf](https://www.utexas.edu/sustainability/pssc/symposium/documents/2013_Shearer_DesigningWallerCreek.pdf)

This paper is by an Associate Professor at the University of Texas at Austin and is an introduction into Waller Creek, with some design solutions that have been proposed over the years.

Uc berkeley strawberry creek. (2006). Retrieved from <http://strawberrycreek.berkeley.edu/index.html>

This website is the University of California, Berkeley's page that contains information about the well-being of the creek along with the history of Strawberry Creek and the issues and troubles that have been faced in daylighting it.

Waller creek. (2013). Retrieved from <http://www.mvvainc.com/index.php>

This website is the design information for the proposal by Van Valkenburgh's design team, their renderings and basic information.

Waller creek conservancy. (2013). Retrieved from <http://wallercreek.org/>

This is the website hosted by the Waller Creek Conservancy, all the design competition information was posted on this website. They also post bulletins and news updates for the community.

Zumbro river watershed. (2013, June 26). Retrieved from <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/watersheds/zumbro-river.html>

This website is maintained by the state of Minnesota and is about the Zumbro River watershed, which Cascade Creek is a major tributary of. The website discusses issues with the water quality in the area, what has been done as a response, what is being done and what is going to be done about the water quality issues.



