

# North Dakota State University Graduate School

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**Title**

Bridging urban divides : The impact and implementation of bridge parks

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**MASTER OF LANDSCAPE ARCHITECTURE**

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BRIDGING URBAN DIVIDES: THE IMPACT AND IMPLEMENTATION OF BRIDGE  
PARKS

A Thesis  
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of the  
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## **ABSTRACT**

This study examines the role bridge parks have in the enhancement of community connectivity across fragmented neighborhoods. By conducting a comparative analysis of bridge parks in various urban settings, identifying the key factors that contribute to their success and the challenges encountered during their development. Using case studies such as The Highline in New York and Klyde Warren Park in Dallas. Diving into the social and economic impacts of bridge parks, the findings state that they foster community bonds and enhance social unity while addressing obstacles such as financial sustainability, ongoing maintenance, and integration with the surrounding area. This study contributes valuable perspective to urban design, highlighting the role of inclusive planning and offering a possible solution to future projects aiming to bridge divided urban spaces.

## **ACKNOWLEDGMENTS**

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## TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGMENTS .....	iv
LIST OF FIGURES .....	vii
1. INTRODUCTION .....	1
1.1. Problem statement .....	2
1.2. Objectives.....	2
1.3. History of Minneapolis.....	2
2. GEOGRAPHIC HISORY .....	3
3. RESEARCH METHODS .....	4
4. RESULTS .....	5
5. REASEARCH CONCLUSIONS AND APPLICATION.....	5
6. SITE .....	6
6.1. Site Context.....	6
7. PRE-DESIGN PROGRAMMING AND DESIGN PRECEDENTS .....	7
7.1. Programing.....	7
7.2. Design Precedents .....	8
8. SCHEMATIC DESIGN.....	9
9. DESIGN DEVELOPMENT .....	10
9.1. Conceptual framework.....	10
9.2. Evolution of Design .....	11
10. DESIGN CONCLUSION AND REFLECTION.....	14
REFERENCES .....	16

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
Table 1 : Case study matrix .....	4

## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
Figure 1 : Site.....	6
Figure 2 : existing section.....	6
Figure 3 : Site Context .....	7
Figure 4 : Conceptual programing .....	9
Figure 5 : Conceptual plan.....	9
Figure 6 : Concept - East lawn.....	10
Figure 7 : Concept courtyard .....	11
Figure 8 : Concept - Mini baseball field .....	11
Figure 9 : Master plan .....	12
Figure 10 : Planting detail.....	13
Figure 12 : Entrance perspective.....	15

## 1. INTRODUCTION

How can the implementation of Bridge Parks over major freeways foster connectivity, improve economic growth, and stability?

In the heart of downtown Minneapolis, Interstate 394 (I-394) stands as both a conduit and a barrier, influencing the dynamics of urban connectivity. This proposal seeks to address the challenges brought about by this divide and aims to foster connectivity by implementing a pedestrian bridge park and strategic project management principles. As cities evolve, the importance of creating integrated and accessible urban spaces becomes increasingly evident. The I-394 freeway, while serving as a vital transportation link, has unintentionally created physical and psychological divides within the urban setting. Through a comprehensive exploration of project management methodologies, this research aims to propose a transformative strategy that not only bridges the physical gap across the freeway but also reconnects the social and economic threads of downtown Minneapolis.

Like many urban centers, Minneapolis deals with the consequences of historical highway development, which inadvertently led to the division of neighborhoods and limited accessibility. The I-394 freeway, while important for regional mobility, has hindered the seamless flow of people, ideas, and community engagement. Recognizing the potential for change, this thesis proposal seeks to dive into the complexities of project management strategies and the innovative application of bridge parks to deal with the divide created by the freeway. This research aligns with contemporary urban planning programs that prioritize sustainability, community well-being, and green infrastructure, aiming to change the role of highways within the urban fabric while fostering a more interconnected and resilient urban environment in downtown Minneapolis.



### **1.1. Problem statement**

How can the implementation of bridge parks over major roads to create a more cohesive connection between neighborhoods. Specifically, neighborhoods within the city of Minneapolis.

### **1.2. Objectives**

In order to reach a successful project these key objectives will be carried through the research is to improve pedestrian connections over the I-394 Freeway, create a cultural and recreational hub, and provide a site that has adequate use throughout the seasons.

### **1.3. History of Minneapolis**

The city of Minneapolis grew from trade and export. Originally occupied by the Ojibwa and Souix native Americans, the name of Minneapolis derives from the Souix word for water Minne meaning “water” and the Greek word polis for “city”. The twin cities metro area grew from connections that were provided by the Mississippi and Minnesota river. The city is located at the rivers confluence this made Minneapolis a key location for exporting wheat and lumber during the early days of the United States.

Connectivity has carried the development of Minneapolis. Before the creation of the stone arch bridge in 1883 the first bridge to cross the mighty Mississippi was Hennepin Avenue bridge in 1855. This wooden suspended bridge would connect the west bank of the river to Nicollet Island.

During 1904 Theodore Wirth, a European florist acquired 3.500 acers for the Minneapolis Park system during his tenure as the superintendent of the Minneapolis Park board. He made a promise to have a park no further than 6 blocks away from city residents. With this initiative parks such as Lyndale park, Minnehaha falls, and multiple other parks. He also over saw the creation of the Minneapolis – St. Paul airport.

## **2. GEOGRAPHIC HISORY**

Minneapolis is the largest city in the state of Minnesota. The city is abundant in water with over twenty lakes and wetlands. It lies north of Minnesota rivers confluence with the Mississippi river. This has created many opportunities for the city of Minneapolis to grow economically and have a unique identity tied to water.

The climate of this city is continental, typical of the upper Midwest. Winters are dry and cold while summers can be milder but can be humid. Due to its northly location and lack of large bodies of water, Minneapolis is subject to artic air masses dropping temperatures extremely quickly. Due to this Minneapolis has a skyway system, climate controlled on the second floor of most buildings leading to varies points within the downtown area.

### 3. RESEARCH METHODS

Throughout this study Case studies were used to identify characteristics that translate across a variety of projects. In order to identify these characteristics a matrix was created to show these key elements that were necessary for a successful bridge park.










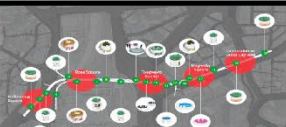

	Klyde Warren Park	Seoullo 7017	Presidio Tunnel Tops
Size / Location	5.2 Acres   Dallas, TX	2.3 Acres   1024 Meters Long Seoul, Korea	14 Acres   San Francisco, CA
Background Information	The largest suspended piece of infrastructure to hold a park in the United states it crosses 8 lanes of traffic across the Woodall Rodgers Freeway connecting Uptown and the Art District in the downtown Dallas Area.	A re-purposed train track with 17 pedestrian paths connecting 5 different neighborhoods to create strong pedestrian connections to major areas of the city such as malls, markets, parks, and transit centers within the downtown area of Seoul.	In 1989 the Doyle Dr. bridge was damaged by an earthquake. Landscape architect Micheal painter proposed a park to go in place of the bridge that would reinforce the tunnels and roads of the area connecting the youth campus and upper plaza.
Connectivity	 The park goes over 8 lanes of traffic while still providing plenty of opportunities for pedestrians to cross or stay and enjoy the park	 The park has 7 distinct areas that connect over a variety of different challenges such as rivers, majors roads, and transit lines.	 The previous bridge in the location focused on traffic connectivity but the focus was changed when the park was proposed.
Seasonal use	 All through Dallas does not experience snow or extreme cold the park is still used to hold holiday festivities	 Seoullo 7017's biggest attraction is its diverse plant pallet in the winter months those planters are used to set up lights to continue to create a unique experience for those that still use it	 Presidio Tunnel Tops is open year round but does not have season specific uses
Cultural Significance	 Klyde Warren Park has evolved from just a place to relax into a vibrant cultural center, it offers a variety of events that appeal to different interests.	 Seoullo 7017 was transformed from old infrastructure to create a rest area and tourist attraction for pedestrians. This symbolizes the city's efforts to move towards a human centric urban center.	 The site works as a conservatory educating kids about California's geography and nature while providing amazing views of their cities famous golden gate bridge.
Recreational activities	 The park has a variety of elements for different activities such as a water plaza, a great garden, dog park and so many other amenities.	 The Pedestrian walk way focuses on circulation but still focuses on user experience through native plantings and water features	 The park emphesies learning while playing. With 3 major landscape forms a flat landscape for lawns, Cliff walk for gathering spaces and views, and the outpost where the learning center is located

Table 1 : Case study matrix

The site analysis consisted of a sun path analysis, circulation, and inventory of amenities and green spaces within a half a mile radius. The sun path discovered that even though the site is surrounded by tall buildings is gets adequate sunlight for vegetation to thrive. The circulation analysis brought up how people will take different way to get on to the site or event around it. People have to usually take the long way around in order to get to their destination. Within the inventory there were noticeable effects of the field opening up. 1 is that within 10 years of the field opening there have been multiple restaurants and breweries that have opened up. 2 there is not a park within this half mile radius this doesn't follow the 6-block promise that Theodore Wirth made all those years ago.

#### **4. RESULTS**

The result of my research is that the park will need to carry a lot of cultural references that connect it to the city and team this makes it easier to identify and bring up in conversation. Having water and native plants will be important to keep the landscape interesting and soften the hardscape of the plaza. The last piece will be that the design elements will need to be usable in the winter months to ensure a successful park.

#### **5. REASEARCH CONCLUSIONS AND APPLICATION**

The overall conclusion of the research highlighted key points I would need to apply in my initial design. 1. water makes for a successful site 2. Do not interfere with traffic circulation work above it at a safe distance is important 3. Vegetation will be crucial for the site, but trees will be limited and 4. Accessibility will be important no matter where the entrance is located.

## 6. SITE

The target plaza is located in Minneapolis Minnesota, between the north loop and downtown core above I – 394. It lies in front of Target field and is used as the main entrance to the ballpark making this area highly used in some cases or is neglected due to lack of event planning for the plaza and lack of recreational space due to a hole lying in the middle of the plaza.

### 6.1. Site Context

The site is a decked structure, using old and new structures to stay above the freeway. To the North is target field, opened in 2010 as the name implies it falls under the jurisdiction of target field. N 7<sup>th</sup> St is the only street to be at the same level as the site acting as the main road leading to the plaza. 2<sup>nd</sup> Ave N is the other road that is near the site it declines about 14 feet to meet the I – 394 and under the existing parking garage B. This creates a unique situation where the same road that leads to the site also goes under it.

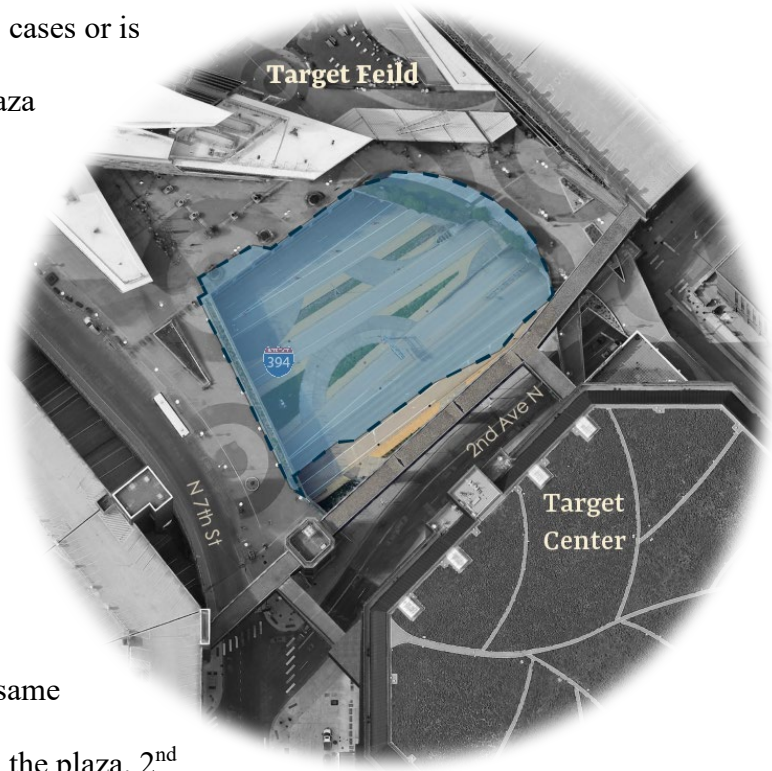


Figure 1 : Site

Within the immediate vicinity of the site target field lies to the north and target center to the south. To the west and east are existing parking lots that hold the traffic for both target event

centers. Within a 1-mile radius multiple restaurants, stores, and venues



Figure 2 : existing section

have opened up within the 10 years of the opening of target field showing growth in the area.

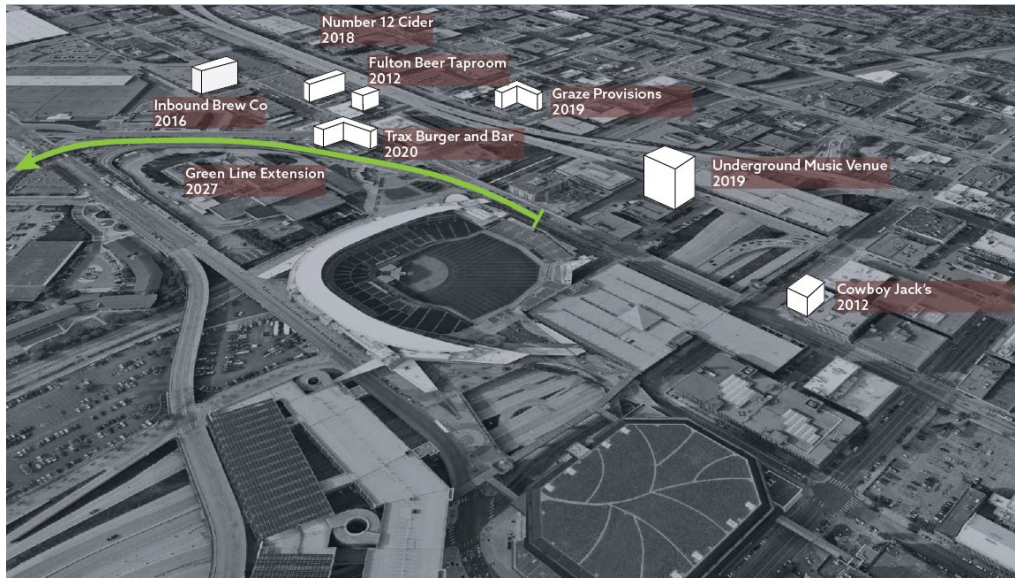


Figure 3 : Site Context

## 7. PRE-DESIGN PROGRAMMING AND DESIGN PRECEDENTS

Through a careful analysis of pedestrian circulation, attractions within the vicinity, and a historical analysis of the site starting from the opening of target field, some pre-design programming will include water features to tie into the city's rich history of water, baseball references to continue the existing theme of the plaza, direct paths to and through the plaza for better circulation and some sort of winter interest/ activities to better ensure equitable site use.

### 7.1. Programing

The water feature will have to have to reference movement or a place of relaxation. Similar to the lakes within Minneapolis it can create a gathering space for families to come and watch the water or like the rivers create a sense of movement through the site. Either design choice will still have to have a winter option. A pad could be frozen over and turned into a ice rink. A water feature that reflects a river would rely on the landscape around it to create a scene and would likely not be able to hold water during the winter months.

The site currently is a hole in an already existing plaza in order to integrate it to what is already there continuing the theme and using bordering structures will be important for this. On site there are many statues and signs referencing different baseball stars from the Minnesota Twins history. To try and change that will cause confusion and create hard boundaries between the old and new. Having different elements of baseball and the culture surrounding the team and city are all crucial to the success of the project.

Focusing on the climate in Minnesota, it has a continental climate with cold and dry winters. This creates a situation where the plaza will be closed or can host wintertime events like their north lawn counterpart. Considering popular winter activities such as ice skating, snow sculpture gardens, holiday markets, etc. The space should adapt to host wintertime events giving the downtown and north loop neighborhoods a link through the bridge park.

## **7.2. Design Precedents**

The design will need to accomplish three objectives have a water element to live up to the Minneapolis name. A continuation of the existing theme will need to be a part of all elements designed in the plaza that would be baseball and the history of the Twins or Minneapolis. To make the site as successful as possible it will need to adapt to the winters and the programming elements will need to have seasonal use.



## 8. SCHEMATIC DESIGN

At the beginning of the conceptual design phase identifying the different paths that one could take to get across the plaza. The plaza will be very circulation dominant and there will be areas of rest in between the pedestrian paths. There will need to be dynamic areas and static areas to address the lacking amenities on the existing site. Seating, greenery, activity areas, gathering spaces, additional access points to the site, and cultural references of the city.

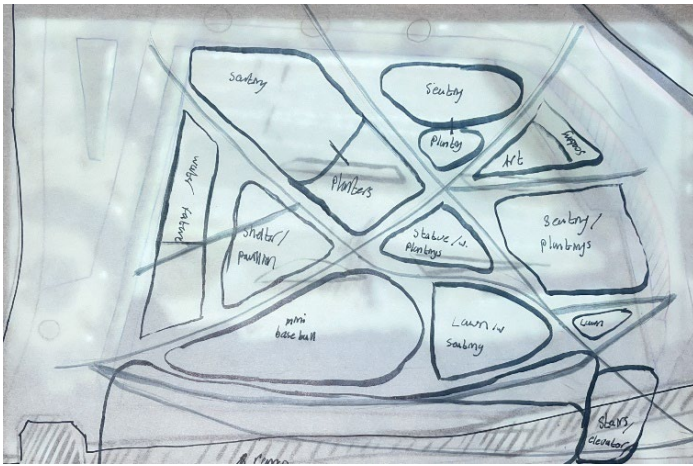


Figure 4 : Conceptual programming

The main

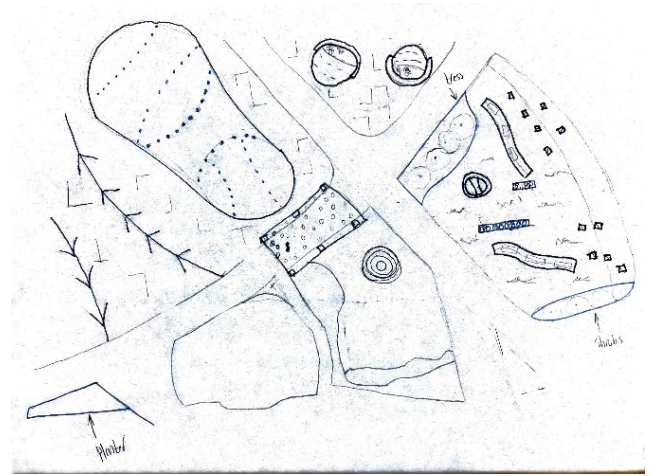


Figure 5 : Conceptual plan

components of the beginning design will be lawns or courtyards for rest, paver walkways to make them clear to identify. The water feature will have to be big enough to be turned into an ice rink in the wintertime, other active areas could include a small playground or baseball field. The last objective of adding additional access points will need to be accomplished with ADA accessibility in mind. A major constraint of the site is being on an elevated surface with freeway traffic under it soil depth will be a challenge for the vegetation, trees will be limited planters will be favorable or even shallow root plants.



## 9. DESIGN DEVELOPMENT

The Purpose of the design is to create a connection across the I-394 freeway through the use of a bridge park. In order to achieve that goal clear pedestrian paths had to be created, additional access points will need to be added, attractions and vegetation will need to be added and cultural references. In order to have a consistent flow of people recreational activities will need to be added.

### 9.1. Conceptual framework

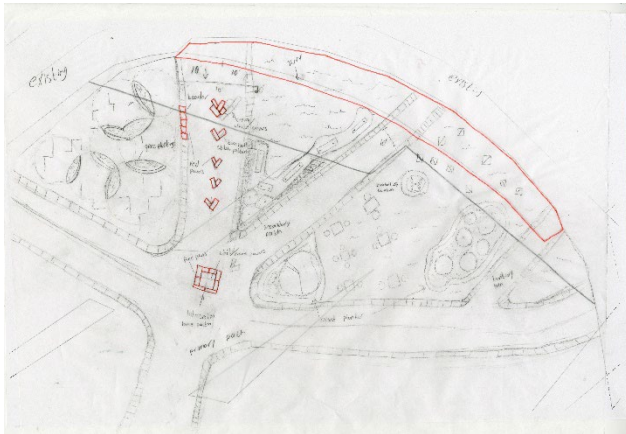


Figure 6 : Concept - East lawn

During the first concepts the site was dominated by multiple paths fragmenting the site into different areas. The North side of the site closest to the target field would hold a majority of the seating as well as the water feature. To the east using the existing pavilion a great lawn would be implemented

to better incorporate the new and old parts of the plaza. The southern part of the plaza would be the active side with a baseball field, outdoor screens on the back of the field for the gathering space behind it.

Some major influences on the initial design was the Citizens Bank Park in Philadelphia, Klyde warren park in Dallas, the magnificent mile in Chicago, and the activities done in the winter throughout Minnesota. The citizens bank park has a scaled down version of their MLB field this creates a close tie to the ballpark. Klyde warren park has a unique way of dealing with soil depth in the park, they use a box beam system to support the structure and when there are trees, they use a drop slab insert to take full advantage of the limited soil depth. During different parts of the year Michigan Ave in Chicago has a rotation of plants throughout the year, this keeps the landscape interesting with an assortment of textures and colors for each season.

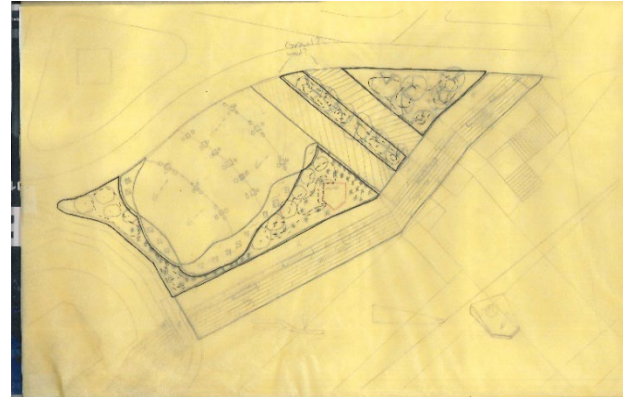


Figure 7 : Concept courtyard

## 9.2. Evolution of Design

Throughout the conceptual process these elements needed to the designed to fit the theme. These include the seating for the plaza the end result was seating with planters on the back side for privacy. These seats would represent the stitching on a baseball. Fragmentation was a problem, keeping direct paths and allowing for movement through the different sections was important to allow for an open feel and structured movement.

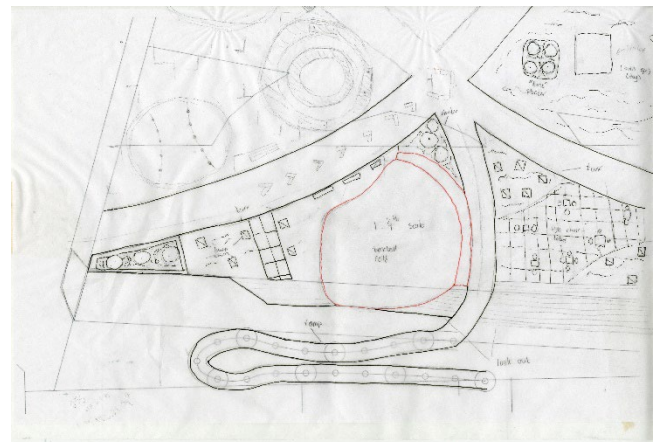


Figure 8 : Concept - Mini baseball field

## Master Plan



Figure 9 : Master plan

Trees were not part of the first designs as

more research was done, I learned about the drop slab system this led to the incorporation of trees on site for aesthetic and noise reasons.

Coming up with a plant pallet that

shifts with the seasons of Minnesota, these plants

would consist of native and nativar plants to ensure

they can survive the weather shifts of the region. For a spring tulips would cover most of the

landscape with the exception of the shrubs and trees on site. The summer mi would have

Virginia blue, bells blanket flowers, and milkweed these plants bloom within the summer months

with pinks and purples and plenty of pollinators to keep the landscape lively. The fall months

will have a garden approach, this pallet will have mums, ornamental kale, red cabbage, and

blackeye Susan, these plants are darker in color and had texture to the site. Ornamental kale and

red cabbage are not normal plants for a designed landscape, but their color and foliage will

contribute to the gloomy fall months.

As the initial design continued having permanent plants on site made sense for the larger

areas. Grasses, shrubs, and trees were chosen for this. The grass would need to fill small areas

and create barriers between pedestrian walkways and areas of rest. Blue fescue and blue oat grass

were chosen, the fescue would fill the smaller areas while the blue oat grass would create those

barriers as it grows taller and is more noticeable. For Shrubs color would be important, red wood

dogwood would offer great foliage in the summer and winter color with its red twigs. Verbena

‘Hot Pink’ is a small shrub that has pink flowers when they bloom in the late spring but become

red as the flowers mature. For a tree option were limited being in a hard-to-reach area for maintenance the tree would have to meet a set criteria, low maintained, small crown, must have fall color, and must fit Minneapolis tree list. The striped maple fits this very well as a smaller maple. It is trainable to stay within 15-25 feet it also offers fall color and is listed in Minneapolis' official tree planting list.

The biggest challenge when designing the site was finding the correct programing to keep people around a simple lawn was not going to cut it, having to active of an area could create the wrong atmosphere for the site. Bench swings were a initial thought they proved seating and shade as well as is a traction of set up correctly. Building a cotes steel structure to support the swings made the most sense. The steel would rust and create a unique look while being resilient enough to stand against the harsh Minnesota winters.

## Planting Detail

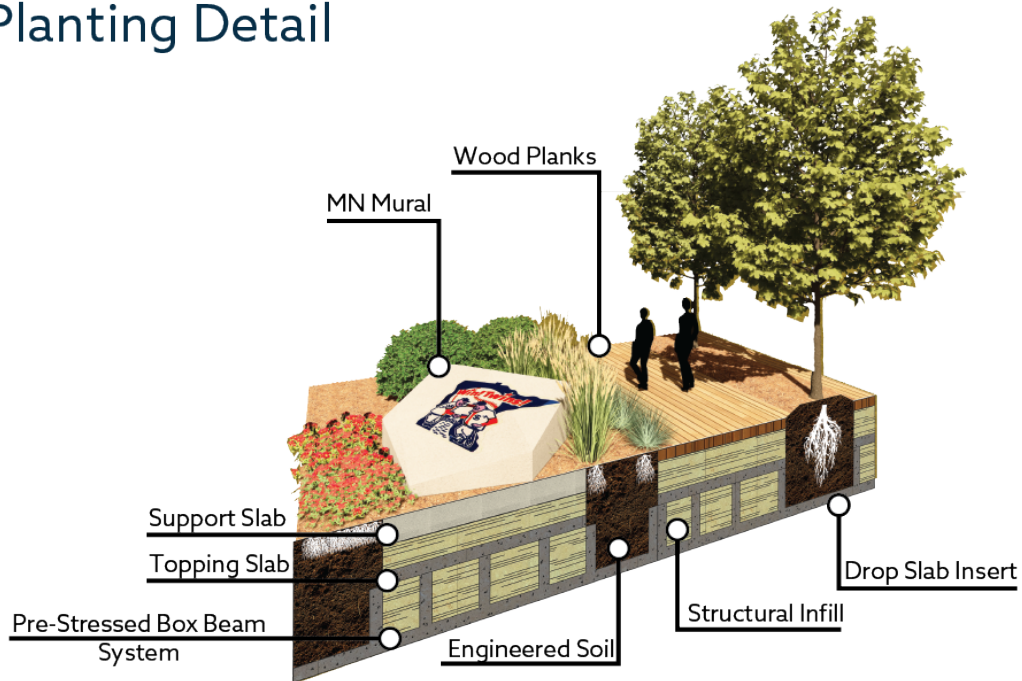


Figure 10 : Planting detail



## 10. DESIGN CONCLUSION AND REFLECTION

The final design came in the form of a plaza with 4 distinct sections. The first is the water feature plaza, with a large area it can be frozen over and used as an ice rink. It will have room for 6 inches of water and ice to ensure the fountain tips won't be damaged. The seating of the water plaza will be inspired by the stitching of a baseball and will have vegetation along its backing in efforts to add vegetation to the site and additional seating. In order to promote movement, the spacing between the different programming elements will be about 10-8 feet to allow for medium size groups to walk through without interfering with people sitting.

The East lawn was designed with the existing pavilion in mind. The pavilion is used for shade and to get rid of it would make it harder to see the site as an extension of what is already there. Lawn chairs were set under the pavilion for flexible seating throughout the lawn. The bench swings are another form of seating that will be offered, this will continue the lawn theme as if it was a front lawn of a home. Perennials and trees will be planted along the edges to attract people.



Figure 11 : Winter / Summer perspective

The Dynamic part of the site will be the south. This area will include the baseball field, a courtyard with high tables and a terrace, and will serve as the entrance for the additional access points. The back of the field will have screens to broadcast live games and other graphics to better appeal to the courtyard, this way it brings the energy from the stadium to the plaza. The terrace in the courtyard will be for kids to climb on with a height of only 3 feet, it offers a different type of seating for those that don't want to sit on a hard surface. With there now being an additional entrance to the site there will have to be some interest to bring people into the site, wooden texture ground materials, trees, and a twin's mural are a part of that factor to bring people into the site.

The last part of the site is the ramp and stairs that have been added to 2<sup>nd</sup> Ave N. These entrances were proposed to allow for a quicker arrival to the site. The ramp is to allow for those with disabilities and limitations to take. This 5-foot ramp will go over a curb on the freeway limiting the interference of pedestrians and traffic. The stairs will go over a similar spot but will need to go up to 14' from the bottom to the top of the site. The overall design works for the site things I would address if given more time is more in-depth research on materials to better make the site flow. Overall, the design addressed the issues that were present through well thought out programming elements.



Figure 12 : Entrance perspective

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