

Urban Activation

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by
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Thesis Proposal

Abstract

010

There are many elements within a city that provide a significant impact on your quality of life. Quality of life is a subjective measure of the overall happiness of a person or a community usually measured within the categories of economic, environmental, and social. This thesis addresses the question, how can an urban campus improve the quality of life a city has to offer? I explore this question by taking an emancipatory approach involving multiple tactics such as personal interviews, literature, and case studies.

This urban campus strives to help improve the quality of life Duluth, MN has to offer. The master plan and building provides a new way of learning and collaboration for students, professionals, and the public. The building includes a business incubator, classrooms, affordable housing, retail, and green-space. The building encourages the public, students, and professionals to learn from each other. The mix of people promotes entrepreneurship and creativity which endorses higher quality of life. Quality views, natural light, social interaction, connectivity, context, and multi-functional design were the main design concepts used during the design process. This urban campus and master plan was designed to improve the quality of life for the citizens of Duluth.

Narrative

011

After attending North Dakota State University for nearly five years, specifically the urban campus I became aware of the effects that the urban campus has had on Fargo. The quality of life for Fargo's citizens increased due to the progression the urban campus produced for downtown Fargo. I have become extremely curious with the importance of quality of life and how my career path may effect it. I give a large credit to the University for my quality of life these past five years. As my curiosity increased I asked the question, "How can architecture and master planning impact the quality of life the given city can offer to its citizens, thus the overall success of a city?" This being such a broad question thus creating the question, "How can an urban campus improve the quality of life a city has to offer? This question lead me into the beginning of this thesis project.

Quality of life is a subjective measure of overall happiness usually including physical, emotional, social, and professional happiness. Quality of life tend to be measure through the job market, unemployment rate, income, life expectancy, living environment, natural environment, education opportunities, and so on. The city that a person lives in plays a huge role in the quality of happiness one receives.

Project Emphasis + Typology

012

The emphasis of this project is to express the importance that quality of life has on a person and how the city can effect it. An efficient and effective way to improve quality of life is through the use of natural features. Site design has a large impact on my project. Analyzing existing site conditions helped construe the most prominent features this site has to offer..

Another emphasis of this project is master planning. Master planning has a large influence of the success of a city which impacts the quality of life a city can offer. The main goal of this project is to improve the quality of life for Duluth citizens. A well implemented master plan will largely impact the success of this thesis project. I investigated existing master planning techniques and used these techniques in this thesis project.

The typology for this thesis project is classified as a higher education urban campus with a portion of master planning. Although there are other parts to this facility the largest portion of this building is allocated towards education. The typology for this project is higher education with a branch of master planning.

The precedent analysis was very beneficial and successful in influencing my design and master planning standards. I organized the precedents in three different categories, higher education, master planning, and business incubator design. Each case study helped with the design process along with providing beneficial evidence supporting my research question, how can an urban campus improve the quality of life a city has to offer?

1. Higher Education

- A. Tulane University - Barbara Greenbaum House
- B. University of Minnesota Duluth - Labovitz Business School
- C. University of Minnesota Duluth - Swenson Civil Engineering Building
- D. North Dakota State University - Barry Hall

2. Master Planning

- A. North Dakota State University - Downtown Campus
- B. Yale University

3. Business Incubator

- A. Halle Freyssinet Freight Station
- B. Greensburg Business Incubator

Higher Education Precedent Narrative - Barbara Greenbaum House

014

Building Location: New Orleans, LA

Typology: Academic - Higher Education and Residential, Tulane University

Market Sector: Public

Building Size: 80,000 square feet

Project Team:

1. Architecture Firms: Waggoner and Ball Architects & Architecture Research Office
2. Structural & Civil Engineering Firm: Schrenk, Endom & Flanagan
3. Mechanical Engineering Firm: Huseman & Associates
4. Acoustics Consultants: Threshold Acoustics, LLC
5. Landscape Architect: Towers Golde
6. Lighting Designer: Tillotson Design Associates

Take Aways

1. The design of this residential college was designed with the priority of public spaces that help produce a larger sense of community.
2. Interior and exterior spaces were designed to simplify circulation patterns while maintaining a dynamic spaces.
3. This new residential building was successfully integrated into the already existing campus and surroundings.



Figure 1



Figure 2



Figure 3

Higher Education Precedent Narrative - Labowitz Business School

015

Building Location: Duluth, MN

Typology: Academic - Higher Education, University of Minnesota, Duluth

Market Sector: Public

Building Size: 65,000 square feet

Building Cost: \$23.00 million

Project Team:

1. Firm: Perkins + Will
2. Structural Engineering Firm: Meyer Borgman Johnson
3. Mechanical Engineering Firm: Dunham Associates

Materials:

1. Locally produced wood
2. High performance concrete
3. High performance glass
4. Recyclable corten steel

Take Aways

1. This building is designed to maximize natural daylighting to penetrate the interior spaces. Due to the use of natural light this building is known for low energy consumption.
2. LEED Gold certified - efficient plumbing, windows, HVAC, and natural light.
3. Iconic Bridge creates a dramatic entrance to UMD.
4. Floor-plan mixes classrooms and offices produce collaborative and informal learning environment.



Figure 4

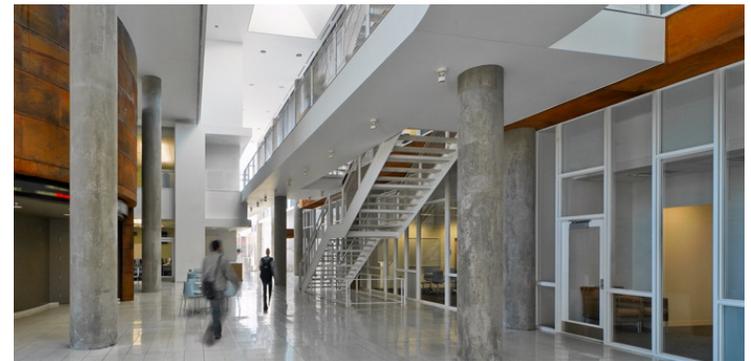


Figure 5

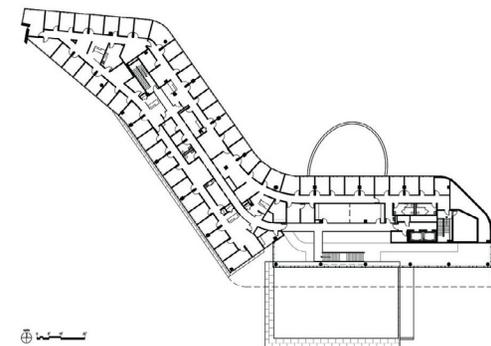


Figure 6

Higher Education Precedent Narrative - Barry Hall

016

Building Location: Fargo, ND

Typology: Academic - Higher Education, North Dakota State University

Market Sector: Public

Building Size: 135,000 square feet

Building Cost: \$15.0 million

Project Team:

1. Firm: Stroh Architects
2. Structural Engineering Firm: Meyer Borgman Johnson
3. Mechanical Engineering Firm: Dunham Associates
4. Civil Engineering Firm: MSA Professional Services
5. Landscape Architect: Oslund and Associates
6. Masonry Contractor: Eicholtz Masonry

Materials:

1. Limestone
2. Precast concrete
3. Interior marble walls and floors

Take Aways

1. This building was design to offer real life working environment.
2. This building was designed to create an environment specifically for the business school of NDSU, creating a strong sense of community.
3. Specific features added to this building automatically bring out the business environment, such as the electronic ticker you see when you enter the building.



Figure 7



Figure 8

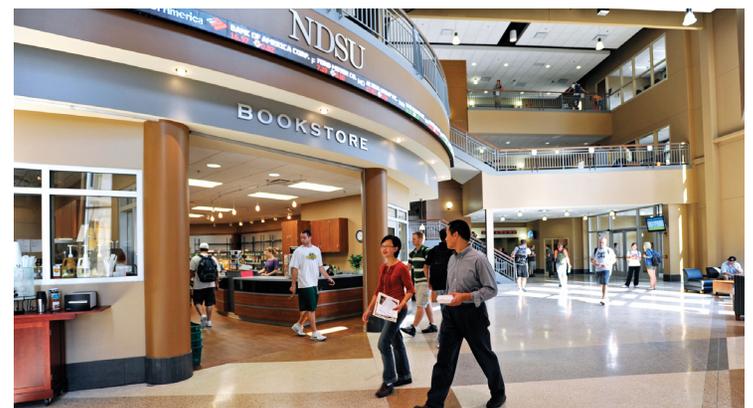


Figure 9

Master Planning Precedent Narrative - NDSU Master Plan

017

Location: Fargo, ND

Typology: Academic - Higher Education, North Dakota State University

Market Sector: Public

Building's: Renaissance Hall - Architecture & Arts

Klai Hall - Architecture & Landscape

Architecture

Barry Hall - Business

Take Aways

1. The movement of expanding NDSU's traditional campus into downtown campus encourage private buyers to purchase and start small businesses in the downtown region.
2. The downtown campus is also responsible for developing a transit system from main campus into the downtown.
3. Bringing certain schools into downtown Duluth provided developers with the backing to develop housing units, such as Cityscapes.
4. Downtown Fargo has benefited from NDSU's downtown campus economically and socially.



Figure 10



Figure 11



Figure 12

Master Planning Precedent Narrative - Yale University

018

Location: New Haven, CT

Typology: Academic - Higher Education

Market Sector: Public

Take Aways

1. Yale University has a more linear composition compared to most urban campuses, physically intertwined more with the city, producing a larger impact on the surroundings.
2. Different modes of transportation are taken into consideration and largely impact the master plan of Yale's campus design.
3. Parks and open space help define Yale's campus providing outdoor spaces for the public along with the students.



Figure 13



Figure 14



Figure 15

Business Incubator Precedent Narrative - Halle Freyssinet

019

Building Location: Paris, France

Typology: Business Incubator

Market Sector: Public/Private

Building Size: 365,972.95 square feet

Building Cost: \$220.00 million

Project Team:

1. Firm: Wilmotte Associates
2. Structural Engineer: Mizrahi
3. Facade Engineer: Arco Ra
4. Construction Management: Cicad
5. Acoustic Engineering: Lasa

Materials:

1. Pre-Stressed concrete
2. High performance glass

Take Aways

1. This is the worlds largest business incubator. It was designed to create an active entrepreneurial space for startups.
2. The building can be split into three parts. The heart of the building is specifically designed towards the community, creating a multi-functional space.
3. There is a restaurant included in this building that is open 24 hours a day. This portion of the building opens to the neighborhood, creating a stronger connection to the community.



Figure 16

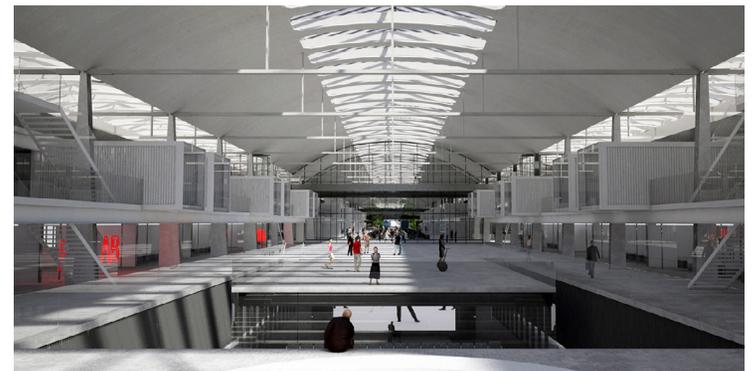


Figure 17



Figure 18

Business Incubator Precedent Narrative - Greensburg

020

Building Location: Greensburg, KS

Typology: Business Incubator

Market Sector: Public

Building Size: 9,300 square feet

Building Cost: \$220.00 million

Project Team:

1. Firm: MVP Architects
2. Mechanical, Electrical, & Plumbing:
Professional Engineering
3. Landscape Architects: BNIM

Take Aways

1. This design is retail focused and encourages the engagement of pedestrian interaction by the street edge design.
2. The design of the interior space also helps the citizens of Greensburg connect to the history and culture of the city.
3. The sustainable action of this building helps inform and educate the public about environmentally friendly and responsible design.



Figure 19

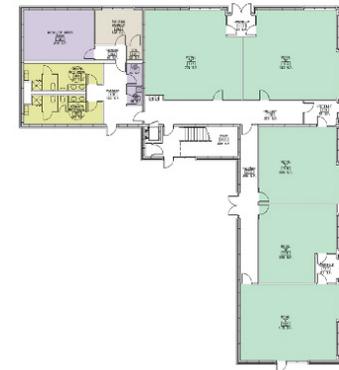


Figure 20

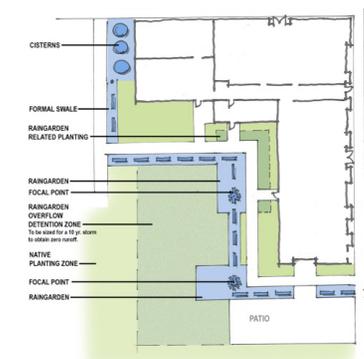


Figure 21

Business Incubator Precedent Narrative - Emerging Prairie

021

Building Location: Fargo, ND

Typology: Business Incubator

Market Sector: Public

Take Aways

1. This building provides spaces that create entrepreneurship easier such as conference room and co-working spaces.
2. These spaces provide an affordable alternative to an office, encouraging start ups.
3. The central location helps improve the objective of stimulate start ups throughout the community.
4. Emerging Prairie was developed to create a place where people throughout the community can come together in a comfortable healthy motivating environment.



Figure 22



Figure 23



Figure 24

Major Project Elements

022

1. Higher Education Classrooms
2. Public “Hangout Spaces”
3. Co-working Space
4. Open Offices
5. Mixed Rate Housing
6. Connectivity/Site
7. Contextual Analysis
8. Master Planning

Residents

The variety of people that occupy these residential units on the top floors of this facility will vary due to the mix rate units. The residential units in this building will cater to providing beautiful views and functional spaces, maximizing the internal space the units have. Depending on the citizens that utilize these units storage will be a large consideration throughout the design. Each unit will include personal washer and dryer, this is an amenity that is extremely important to the client. Overall the residential units will help improve the process of everyday activity while being located in the heart of downtown., improving the quality of life.

Students

Students will be the primary user of this facility as the largest portion of the building is allocated towards higher education. Students have unique need for maximizing the ability to learn. The higher education portion of this building has a strong need for natural daylight spread through the majority of interior spaces. Natural daylight increases productivity, lowers electrical costs, and improves visibility.

Maintaining the culture of the traditional UMD campus is important to the client. The UMD traditional campus architecture and interior design will largely influence the classroom design for the future campus. Classrooms will be organized to enhance visibility and idea sharing. Classroom layout has a significant impact on the ability for students to learn and will be structured in a way that is the most conducive for learning and collaboration.

Traveling from room to room in a dense campus can cause circulation congestion. Students and staff that occupy the education portion will need easy circulation patterns that minimizes travel time from room to room.

Learning outside the classroom is another important aspect of this campus. This urban campus will include a public business incubator. This will allow professionals, students, staff, residents, and the public to interact and learn from each other creating a unique learning environment for Duluth.

User/Client Description

024

Professors

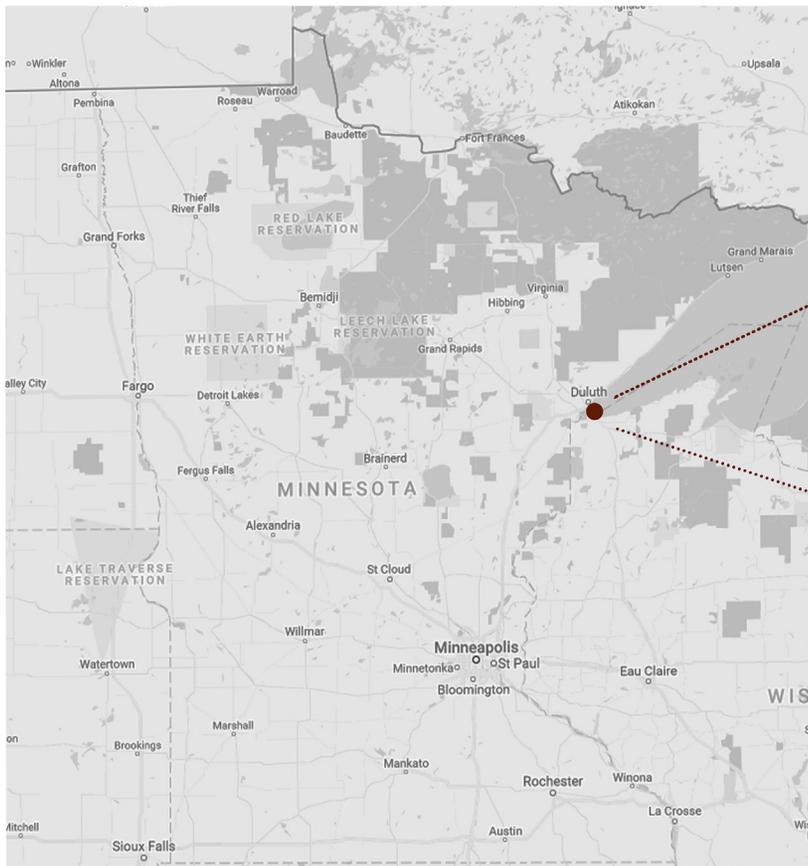
Professors also add an additional group of unique needs. They require spaces that maximize communication with students to help teach in the most efficient way. This also requires that all students can see them when teaching. The goal of the professor is to be able to teach the student. The design of the classrooms will maximize the ability to do this. Professors will utilize the creative space throughout this building instead of being allocated personal private offices. This encourages the idea of collaboration along with social interactions.

Professionals

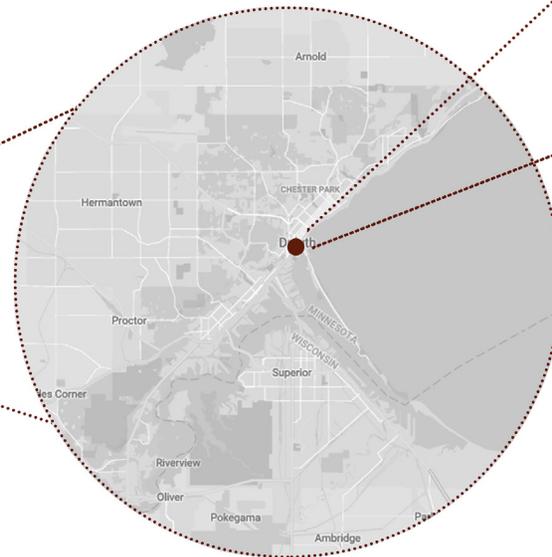
Professionals will be a large user of this building. They require a mix of multi-functional spaces. The spaces should vary from individual work spaces to co-working. A creative atmosphere is a must in this portion of the building. Natural light is a requirement in the co-working spaces to help maximize productivity.

Public

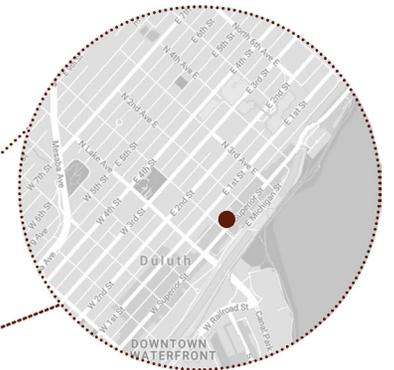
The public will also be utilizing this building. Easy access to good views and hangout spaces will be important in this design. The public will be welcome to use any space in this building. They will also be encouraged to utilize the building for the views, restrooms, and market events that take place in the building or on the site.



Minnesota



Duluth, MN



Downtown Duluth, MN

Figure 25

Project Emphasis

026

Quality of Life

The main emphasis of this project is to express the importance of quality of life and how a city can play a role. A city a person lives in plays an enormous role in the quality of life a person experiences. This thesis program was creating with improving the quality of life for Duluth citizens.

Higher Education

A large portion of this project is creating an urban campus in downtown Duluth, Creating this emphasis on education provides the citizens of Duluth a flexible and convenient education option. Education is a substantial factor in improving quality of life.

Master Planning

Another emphasis of this project is master planning. Master planning has a large influence of the success of a city which impacts the quality of life a city can offer. The main goal of this project is striving to improve the quality of life. A well implemented master plan will largely impact the success of this thesis project. I will investigate successful existing master planning techniques and use these techniques in this thesis project.

Business Incubator

Public co-working business incubator space is also a large emphasis of this project. Having a public space that mixes students, professionals, and the public encourages social interaction and creativity. Duluth is in need of vibrancy and public hangout spaces. Providing spaces such as this for Duluth citizens will help encourage entrepreneurship.

Thesis Goals

027

Overall this thesis project intends to provide the City of Duluth and UMD with a public mixed use urban campus that improves the quality of life for the citizens of Duluth. This building aims to provide Duluth's citizens with a public facility where everyone can learn, live, and play in an urban setting at an affordable cost.

Design goals of this thesis aim to create a strong connection from the downtown region to the lake-walk. The interior layout of this building aims to produce a creative multi-functional collaborative learning and entrepreneurial space that encourages social interaction. Another goal of this thesis is to produce a public building for Duluth citizens providing a sense of place and a stronger sense of community.

Creating a place for Duluth citizens that caters towards the culture of Duluth is a large portion of this project. Duluth's culture differs from big city culture and the design of this building needs to replicate its context.

The master plan portion of this thesis aims to infill empty or abandoned lots within downtown Duluth, which improves the sustainability of Duluth. This portion of the project also expects to help prevent parking congestion by providing surplus of parking options.

This thesis strives to improve the quality of life for Duluth citizens.

Thesis Goals

Academically

Academically speaking, I want to create a piece of architecture that improves the quality of life for people. This project intends to work as a solution for multiple cities around the world. I want the final project to provide more than just appealing boards and renderings. I will strive to create a project that has the proper amount of research to provide actual solutions to problems in the world. This project aims to improve the quality of life through well-defined research and design.

Professionally

Professionally I want to be able to use this thesis project to acquire a potential job opportunity. I aim to use this thesis project to demonstrate my strengths to possible employers. I intend to use this project as if this project was reality and I was dealing with actual clients, this will help me prepare me for my future as an architect.

Personally

From a personal position I would like to improve my weaknesses as a designer and expand my strengths. My main personal goal of this project is to create something that I can truly call my own and be proud of. I wish to design something that the City of Duluth and UMD would consider building in downtown Duluth. I want to create eye catching renderings that sell my project on their own and produce easy to read construction drawings all on eye pleasing presentation boards. Overall I desire to grow as an architect through the entirety of this project.

Definitions will need to be clearly defined before proceeding into the design portion of this project. Quality of life, urban campus, and master planning are the three main key words or factors of the entire thesis. These words could mean different things to different people. In order to proceed to more extensive research and design language will need to be clearly defined.

After the main factors of the project are clearly defined interviews will be conducted with citizens of Duluth, Research on the city of Duluth will need to be conducted in order to interview the most beneficial people for the project.

Literature review would be the next step in the research process for this project. Literature review will help improve this project. Understanding the factors of quality of life and how design can improve it will be very beneficial.,

Case studies would also be another useful research tool. Case studies will help direct my program. They will also improve master planning techniques used during this project.

The research that will guide this thesis project will be formed through a mix-method methodology by combining both qualitative and quantitative data. Research may include urban forms, sites, and quality of life psychological and impact research. A concurrent trans-formative strategy will be used to gather and assess the research findings. There will be a constant use of interpretation and analysis of research findings. The documentation of research findings include but not limited to graphically pleasing and written representation.

Design Methodology

030

The goal of this thesis is unique thus, so is the methodology. The plan to attain my goals is to go about setting up interviews with a variation of people in the city of Duluth. I plan on meeting with UMD employee, City of Duluth official, City Planner, and a group of Duluth Citizens. The interview I create will be a set of pictures which differ greatly. I will ask them a list of questions about which they would rather see in Duluth, all relating to the pictures I bring with. I will do this 3 times to help understand my client, all while documenting my results. At the end of the interview sets I will be able to design an urban campus that the clients would want in downtown Duluth.

This thesis is about improving the quality of life for the citizens of Duluth. By receiving their personal opinions I will design something that could become real, interviewing will help me reach this design goal.

Design Documentation Plan

031

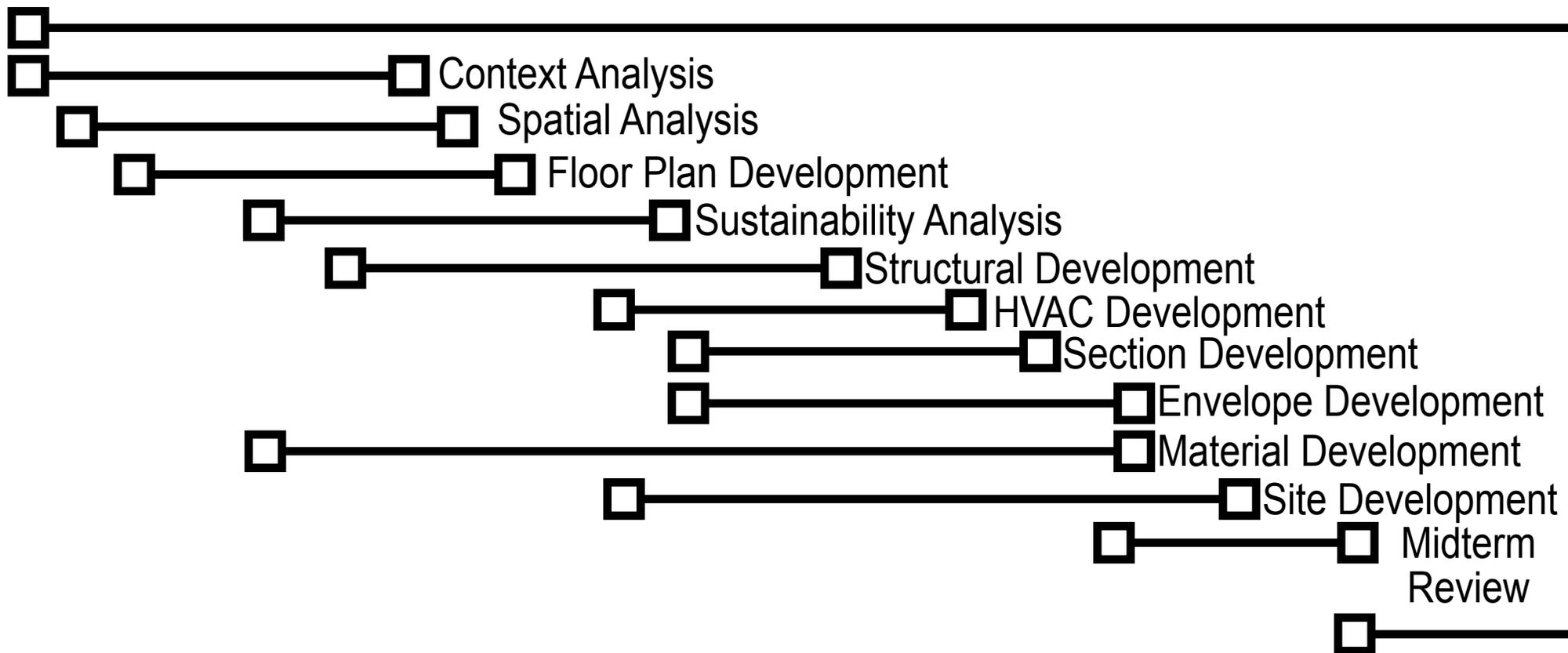
The design documentation process of this thesis project will be documented inside an InDesign document. The document will be recorded daily in a graphically pleasing way but organized to reflect the objectives of this thesis. Recordings will be dated at the beginning of each documentation to keep the process easy to understand. Research articles or book paragraphs that are relevant to this thesis project will be scanned or saved and brought into the InDesign file at the time in the design process that the article is relevant. The document should serve as a journal of the overall design process and help communicate the project justification and relevance. At the end of the documentation process the recordings will form a book that can be used to help explain the research findings, providing a clear form of communication of the design process.

The final exhibit will include attractive boards with final renderings and drawings to verbally communicate the final project. An eye catching context and final model will be included alongside the final boards to add an additional portion of communication. Process models will be included in the final exhibit to help communicate the process of design. The InDesign book will lay beside the process models to answer more questions on the process of the final thesis project.

JANUARY

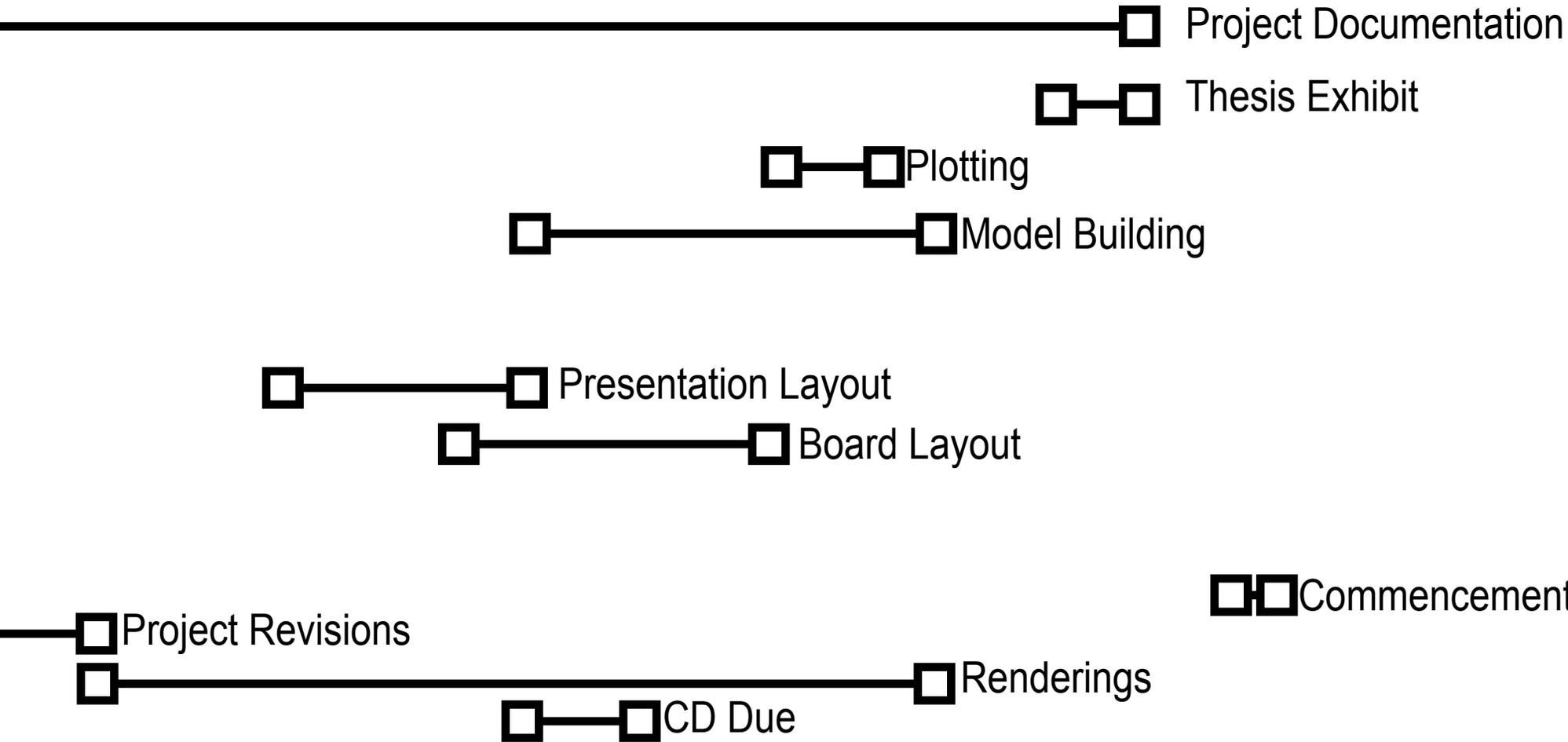
FEBRUARY

MARCH



APRIL

MAY



Thesis Research

There are many elements within a city that provide a significant impact on the success of a city's downtown region, such as businesses, transportation industries, and educational institutions. Duluth, MN is home to the University of Minnesota Duluth (UMD) campus which is located on the outskirts of Duluth, with a student enrollment of roughly 11,000 students and annually growing. However, UMD and the City of Duluth are unable to improve their economic, social, and sustainable actions without an urban campus in downtown Duluth. In what follows is a comprehensive plan for an urban campus along with the first designed academic urban building for UMD.

One of the largest impacts urban campuses provide for their communities is an improved economy. A study was conducted by Anderson Economic Group (AEG) and funded by America's Urban Campus Colleges and universities to perform a comprehensive analysis on a variety of topics related to institutions specifically in the Chicago, IL region. A primary goal of the study was to calculate the total economic footprint including; total spending, income, and employment produced from the seventeen urban institutions in the Chicago region.

The study confirmed that the urban campuses contributed large economic, social, and cultural contributions to the community. They produced a total of \$10.8 billion in spending within the city of Chicago. Out of the \$10.8 billion in spending \$3.3 billion was allocated for payroll, for Chicago residents.

A portion of the payroll will be reinvested within Chicago producing long term capital. The study also discovered that the urban campuses produced a total of 46,000 jobs, creating an additional \$4.6 billion in payroll, creating a larger amount of long term capital for the Chicago region (Anderson Economic Group LLC, 2013). Similar to the Chicago region, the economic footprint of Duluth will also increase with an urban campus.

Another economic benefit of building an urban campus is the opportunity for future permanent Duluth residents. Typically in small rural economies with colleges and Universities students will specifically move to that area to attend school and leave after graduation. This is known as rural area isolation economic problem (Steinacker, 2004).

The rural area isolation economic problem produces great short term economic improvements, due to the day to day purchasing of good and services, however, it does not produce any long term economic benefits. An increased population leads to the need for more dentists, insurance agents, and more banking employees. Thus a stronger drive for future students of UMD to stay in Duluth after graduation, creating additional long term capital for the community.

Developing added permanent residents to downtown Duluth is becoming easier due to the popularity of urban living. According to Smith Group, “62% of millennials polled said they would prefer to live in urban environments” (JJR, 2014). Millennials make up the majority of the current student population at UMD, thus creating an urban campus would be extremely successful. Having an urban campus would not only expose students to urban living but would also encourage students to continue to live downtown after graduation. In turn, this would produce additional long term economic benefits for Duluth.

Short term economic improvements also play an important role in a healthy and strong economy. Students who decide not to stay in Duluth will bring in “new dollars” while attending school and take them with after graduation (Steinacker, 2004). Steinacker an economist, conducted an experiment that took a deeper look at the student resident impact they had on their surrounding regions. The students were asked to estimate the frequency of purchases and typical cost of their goods purchases as well as their total monthly expenses. The average amount each student would spend a year was \$4,800. \$3,000 of the \$4,800 was solely for groceries. Due to the students spending, the city showed an increase of roughly 40 percent to their capital pool (Steinacker, 2004). Immediate spending is considered short term capital but a strong economy has both durable short term and long term capital. Urban campuses help create reliable short term and long term economic benefits.

One long term economic benefit of urban campuses is the effect on housing markets. Colleges and universities can have both positive and negative impacts on their surrounding communities' housing markets. They encourage citywide housing development partnerships, which produces a stronger housing market throughout the community and offer various options for low to moderate households. Urban campuses also are likely to make neighborhoods more desirable due to the increasing amount of diversity, culture, and neighborhood events. Unfortunately, as with almost anything, colleges and universities can have negative impacts on surrounding regions, such additional noise, and additional traffic congestion. Additionally, neighborhoods with a college or university, are more likely to have a greater amount of renters versus a non-college neighborhood (Rebuck, 2013). Having a well-developed master plan is the most effective way for a city to avoid these possible negative impacts. A master plan and urban campus will help create diverse housing options throughout Duluth's downtown.

Having a variety of units such as, low income housing, income based housing, student housing, and market rate units throughout the urban campus buildings will help create diversity of unit occupiers. Developing a master plan will help avoid the negative outcomes within the housing market throughout the city of Duluth.

An additional advantage of having an urban campus is its ability to grow with or without the real estate market, local businesses, and the city's culture (Anderson, 2012). Institutions are relatively unaffected by the common financial fluctuations that businesses produce, making urban campuses stable and reliable part of a downtown community (Steinacker, 2004). Urban campuses have the benefit of being able to stay financially stable even when other businesses are financially unstable which helps create the sense of stability in downtown regions.

Another great benefit to urban institutions is the amount of diversity they produce throughout a city. Due to the location of urban colleges they have to naturally be more dense, linked, and multi-dimensional, creating a more diverse city (JJR, 2014). We are currently in the middle of the largest progression of urban population ever. According to United Nations Population Fund, “In 2008, for the first time in history, more than half of the world population was living in towns and cities...(and) by 2030 this number will swell to almost 5 billion.” An increased amount of urban residents also increases the diversity of an area. Diverse communities produce higher levels of community engagement and tend to be a large source of economic revitalization, due to the boost in innovation (Stern, 2007).

Not only does diversity have a positive effect on the neighboring communities but also on the students inside the classroom. Having a diverse classroom has a huge impact in students’ personal success. It impacts their overall personality, learning styles, and productivity levels. Diversity also stimulates problem solving skills and people’s creativity.

There was a countrywide study of 25,000 undergraduate students at a total of 217 different four-year institutions. The study discovered diversity on campus had positive effects on the student’s intellectual development, happiness with the college experience, and management abilities (Fine, 2010). Creating diversity encourages economic growth and provides a positive impact on student’s overall success.

Sense of place is another benefit of urban campuses. Sense of place is known as a collection of characteristics varying from cultural, visual, and environmental. It is what makes one city original and different from another. It is also what makes citizens care about their surroundings (McMahon, 2012). As author Wallace Stegner once said, “If you don’t know where you are, you don’t know who you are.” Having a sense of place helps impact how successful you can become. Success rates of students have a high correlation with an emotional attachment they have to their colleges and communities. The love people have for their physical surroundings contributes tremendously to their emotional connection to their city (McMahon, 2012).

Sense of place within a campus has a direct connection with student persistence and satisfaction with the university (Kirk, 2016). The satisfaction students have within the university comes partially from the satisfaction they receive from their city surroundings. Having a community with a strong sense of place is an asset to the city (McMahon, 2012). Student success is directly impacted by their emotional connection caused by the sense of place within a city. Having students and citizens that care about their community is what improves culture throughout their city.

There was a study conducted by the Knight Foundation and Gallup pollsters that surveyed 43,000 people in 26 different cities. The survey was called, Soul of the Community survey. The survey was created to answer the questions: "What makes residents love where they live? What attracts people to a place and keeps them there?" (McMahon, 2012). The results of the study found that the most significant influence of the emotional connection people had to their cities wasn't the economy but rather the beauty of the city, the chance for socializing, and the feeling of being welcomed into the city.

The study also discovered that communities that had citizens with the highest levels of emotional attachment had the highest rates of gross domestic product development, the total value of product and good and had the most durable economies (McMahon, 2012). Urban colleges help implement sense of place throughout a community which has an extreme impact on the city's overall social and economic improvements.

One portion of this project is to successfully construct an urban campus within the empty regions of Duluth, MN's downtown. This will be successfully implemented by creating a comprehensive master plan. This master plan for UMD will include locations for future buildings, a planned out transit system, and the first fully designed educational building. The locations for the future buildings will be urban infill projects. Urban infill means that any new construction will fill in a gap within an existing location. Urban infill can be an economic driver specifically when the construction has multiple uses such as, retail and residential (Milhaus, 2015). Building on infill sites has many positive impacts on a city's economic progression and improves sustainability (McHenry, 2016). A sustainable city is a place of ongoing value (McMahon, 2012).

Urban infill reduces the distance between different locations, which reduces pollution and greenhouse gas emissions, thus improving overall air quality. Urban infill also decreases the amount of land built on, improving the existing untouched habitat. With urban infill there is no need to build new infrastructure. Infrastructure is extremely expensive to build and expand on, being able to utilize already existing infrastructure is an extreme cost saver (California, 2010). An urban campus for Duluth is a great opportunity for urban infill projects which improve the sustainability and economy of a city.

Duluth's urban planners express the importance that urban infill has on a city; urban infill is extremely important in strengthening Duluth as a whole. It will help produce a stronger connection throughout downtown and the waterfront portion of Duluth (Duluth's East Downtown, Hillside and Waterfront Charrette Report and Plan, 2008). The waterfront portion of Duluth is roughly 90 blocks of places to shop, eat, stay, and play all on the coast of Lake Superior. This area is mostly known for tourism. The connection of the waterfront district and downtown district is vital in the improvement of downtown Duluth.

An urban campus is a perfect way to strengthen this connection of downtown and the waterfront by building on these urban infill sites throughout downtown (Council, G.D, 2015).

A portion of the master plan is to generalize an addition to the transit system for Duluth. An urban campus will create a higher population which stimulates more pollution and higher congestion. The transit system will be design to help avoid these negative implications of an increased population. Duluth currently has a dynamic transit system but with the purposed urban campus, improvements are needed due to the increased population. The transit system will include specific UMD buses that will transport students from the downtown campus to the main campus directly. This will provide an easy form of transportation from campus to campus, encouraging students not to drive. Having this direct UMD bus will also allow students to live downtown or near the main campus and not require a personal vehicle.

Not only will a transportation system improve the connectivity around the city and advance sustainability with in Duluth but, it will also create long term economic improvements for Duluth by creating more jobs. Public transportation is a 61 billion dollar industry and employs more than 400,000 people throughout the US (APTA, 2016). Creating this addition to the current transit system will help improve connectivity, sustainability, and the economy throughout Duluth.

The first designed urban campus building will be designed as mixed-use, having multiple typologies inside one structure. The site of this building is located in the heart of Duluth's downtown district. The site is currently an empty parking lot and up for sale with the dimensions of 104 by 112 feet. The North side of the site is Michigan Street and the South side of the site is Superior Street. The East and West sides currently have existing structures. This mixed-use building will expand UMD's campus, offer housing options for students/residents, provide low-income child care services, encourage startup businesses, and prevent parking congestion downtown. The educational portion of this building will comprise of classrooms, study areas, and departmental offices.

The housing portion will include a variety of housing types such as student housing, income based, and market rate units. UMD will provide income based child care services within the building as well. Having income based child-care located in downtown will encourage families to live and work in the downtown area. Providing income based childcare services is proven to create diversity and a stronger sense of community. It is also a critical piece of a livable community for many families when living in urban regions (APA, 2010). By providing affordable child care the average family living in downtown Duluth will not require a personal vehicle. The child care center will provide a safe and affordable option for families and will be managed and owned by UMD. This will also allow the students with childcare majors to work and earn experience while providing a worthy service for the city. Small businesses will occupy the retail space located on the ground floor for easy pedestrian access.

Small businesses will occupy the retail space located on the ground floor for easy pedestrian access. Small businesses offer a stronger sense of community and provide more diversity in retail options. Parking will be provided underneath the building. Currently, parking is a large inconvenience in Duluth for people commuting into the downtown area. Constructing a parking lot will help prevent the parking congestion currently experienced in Duluth.

If we take North Dakota State University in Fargo, North Dakota as a case study of redevelopment of underdeveloped downtown regions. UMD would benefit from expanding their campus to downtown similar to North Dakota State University (NDSU). NDSU took the progressive step in 2004 with the purchase and restoration of the previous North School Supply building, currently known as Renaissance Hall, housing the architecture and art students. Immediately after moving students downtown urban progression rose in downtown Fargo.

The move downtown was extremely successful and shortly after the renovation of Renaissance Hall, NDSU purchased the Pioneer Mutual Life Insurance Building, Lincoln Mutual Life, and Casualty Insurance Building, all located in Fargo's downtown community to build an additional educational buildings. NDSU continued to keep sending students to Fargo's downtown district. After restoration of these buildings NDSU built what is known today as, Barry and Klai Hall. These buildings are home to the business, architecture, and landscape architecture students. These progressive steps NDSU took encouraged private buyers to purchase and start small businesses in the downtown region. Developers bought in and started new construction. Downtown Fargo residential population has tremendously increased since the institution progressed downtown, (NDSU Downtown Impact, 2014). NDSU is also responsible for developing a transit system from main campus to the downtown campus buildings. It became easy for the students to get from main campus to the downtown campus without a personal vehicle. The actions NDSU implemented are similar to what UMD should construct in downtown Duluth.

University Laval moved out of downtown in Quebec City and into the suburbs. The outcome the city had on this move was extremely significant. Mario Polese who is the Canada Research Chair in regional studies at University Laval was able to experience firsthand the impact on the city when the university moved into the suburbs. "The impact on the downtown was incredible. The whole place collapsed," says Dr. Polese. The university shortly moved back to the urban setting and continued to spread across Quebec City. University Laval planners understood the benefits of providing an urban campus for their students and for the city. The university has been located in Quebec City since 1965 and is still continually thriving (Schmid, 2016).

As the student population of UMD continues to grow the need for an urban campus increases. There are many economic, social, and sustainable benefits for both the city of Duluth and for UMD. Creating an urban campus will improve the overall experience for UMD students and Duluth residents. Other institutions have committed to this progressive movement of urban campuses and had positive outcomes. The future of UMD and Duluth will be affected by the future decisions of development.

Project Justification

044

There are multiple portions of this project that yield importance on our society. People tend to aim for a higher quality of life and base where they live off what the city can offer for them. The more a city can offer its citizens the higher quality of life it can provide, improving the success of city. The quality of life is extremely important for people and their overall happiness and satisfaction with life. Creating a facility that can improve the quality of life for people and impact the success of the city justifies this project as it helps in an endless amount of ways.

This project has multiple dimensions creating a plausible thesis project. This project produces thoughtful research that will be applied to justified design.

Problem Statement

045

Function

The City of Duluth and the University of Minnesota, Duluth take pride in their culture and the sense of place within Duluth therefore, the master plan and the architectural style of the future UMD urban campus will convey these characteristics.

A programmatic need of the building is to provide safe and easy pedestrian access to all future UMD buildings, the design must react to these needs.

Due to the varying types of people occupying this building such as, students, employees, residents, and children the design should define clear circulation patterns.

The site is located at a perfect connection point for the Lake Superior Lake walk, thus the design will influence a strong connection.

Economy

This is the first UMD building in downtown Duluth the price should provide quality design and materials that convey Duluth's sense of place.

Form

There are multiple typologies within this building, the design should cater towards this multi-functional need.

Due to the natural features and climates of Duluth, MN, the design and form of the building should respond to these natural features of the region.

Duluth, MN has a very specific climate the design of the building should respond to the specific environment to maximize sustainable concepts. Academic classrooms constantly change with inventions of new technology thus the design must respond to these changes.

Time

The master plan will continuously be added to, the plan should cater to present and future needs while maintaining the sense of place Duluth is known for.

Academic spaces are multi-functional and flexible the building design must accommodate this process.

Site Analysis

Through research and exploration of cities throughout the Midwest I came to conclusion that Duluth, MN is the perfect applicant for an urban campus. They currently have a large established University, University of Minnesota, Duluth (UMD) located in the North East portion of the city. UMD is annually growing and have plans to expand, so why not in the downtown region?

As soon as I decided on Duluth as the city for this project I started to explore site options in the downtown region. Although there were many sites that could have been applicable for this urban campus I selected this site specifically because it provides a possibility for an extremely powerful connection to the Lake Superior waterfront that no other site offers, giving this campus the power to bring the natural features that Duluth has to offer into the downtown region. Lake Superior is the most defining feature Duluth has to offer and I believe it will help create a successful campus. Not only will these features benefit a campus setting they will also help improve the sense of place and increase the quality of life Duluth has to offer for all citizens.

The site is located in the mixed-use waterfront district. The Lake Walk connection is located on the East portion of the site. Existing structures are located on the North and South side. The South structure is currently vacant and under reconstruction. Superior Street is located on the West portion of the site. Having Superior Street next to the site offers great opportunity for pedestrian interaction. The East and West portion of the future campus will become large connection and circulation points for pedestrian activity in downtown Duluth.

Overall this site has an abundance of benefits for an urban campus and an overall thesis project. Lake Walk connection, exemplifying natural features, and providing strong human interaction are the main reasons why the quality of life will improve for the citizens of Duluth and is the reason why this site is justified for this thesis project.

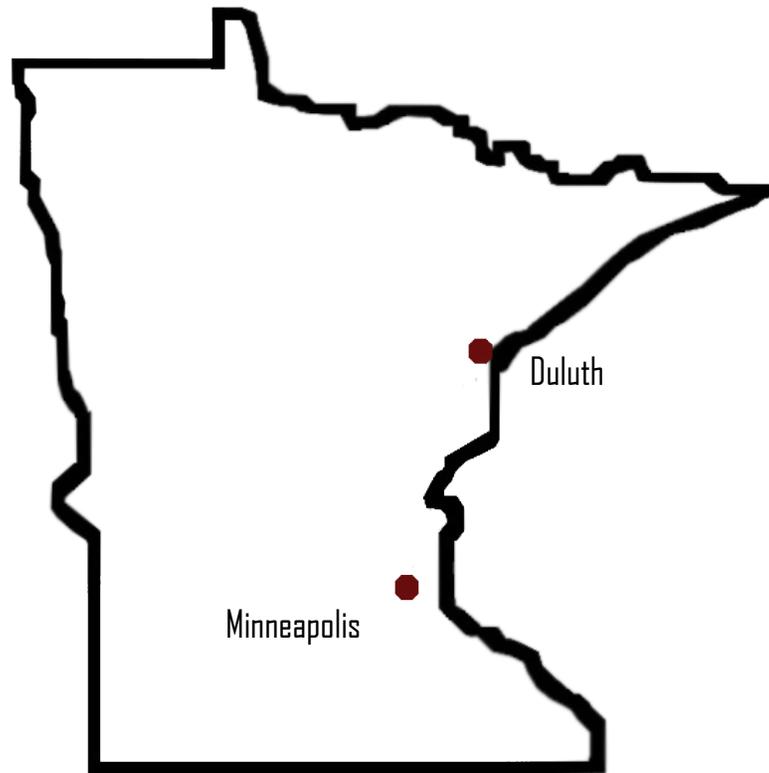


Figure 26

Duluth: is the located on the north shore of Lake Superior and is the second largest city located on Lake Superior with a population of 86,265. It is roughly 2.5 hour drive to the twin cities.

Superior: is located in WI and is the neighboring city of Duluth with a population of 27,244. Together they create the Great Lakes largest port.

Lake superior: is the largest freshwater lake in the world and produces a lot of tourism for both Duluth and Superior. It holds 10% of all the worlds fresh water.

Site address: 112 East Superior Street, Duluth, MN.

Site: the site is located in downtown Duluth and is currently a parking lot. It is located between the lake place building and the local Chinese restaurant, Chinese Dragon on Superior St.

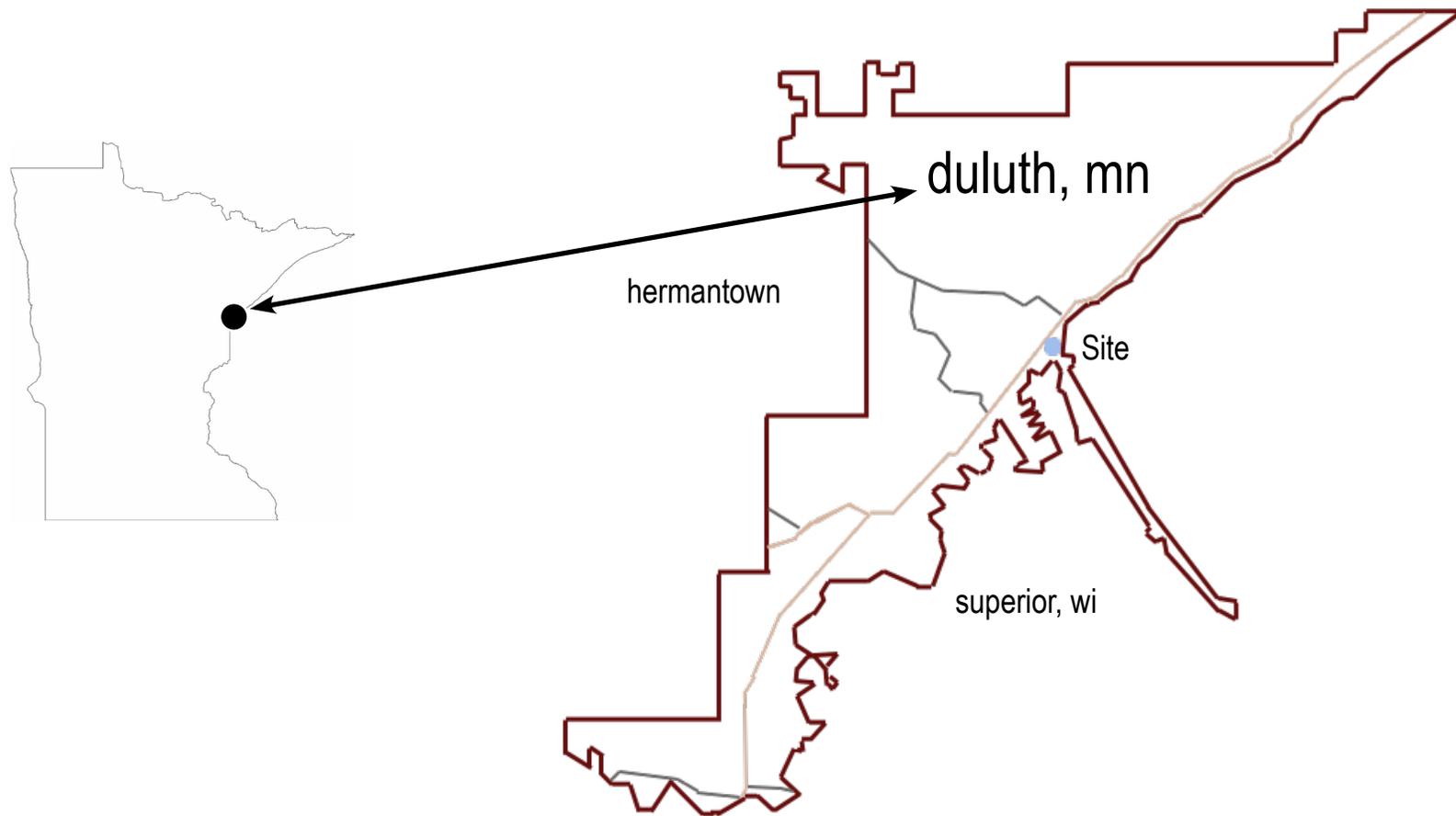


Figure 27



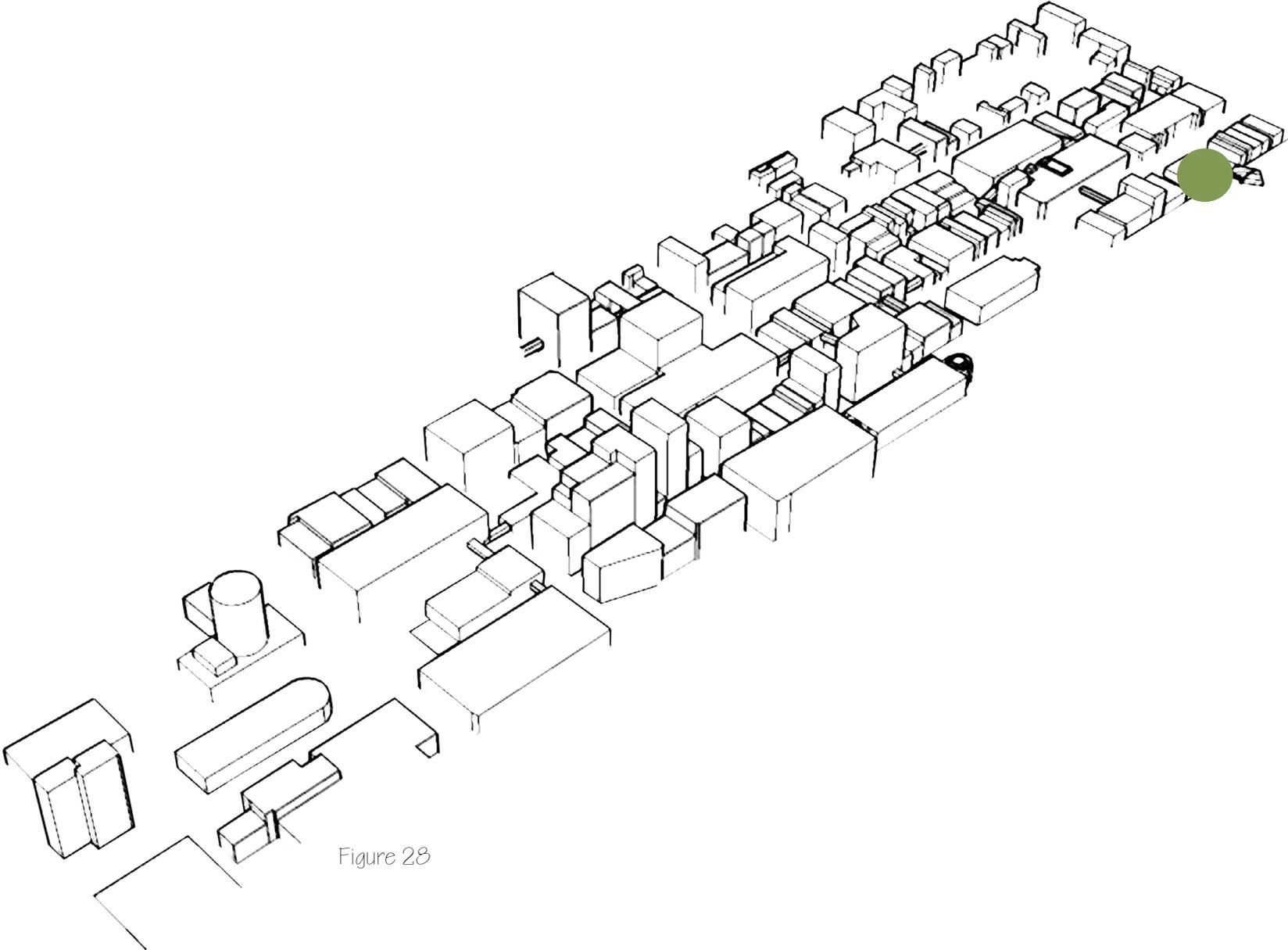


Figure 28



Figure 29



Figure 30

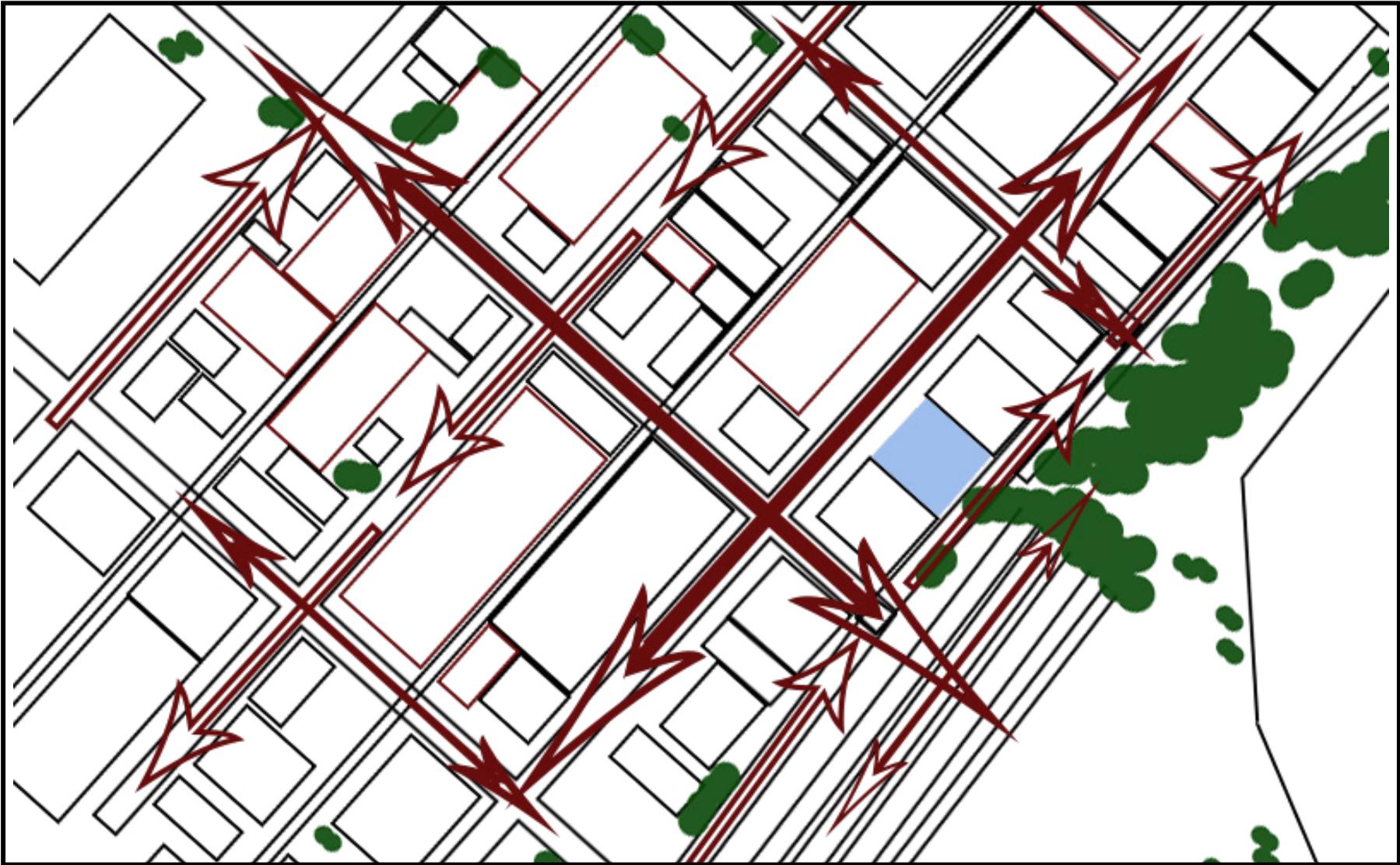


Figure 31

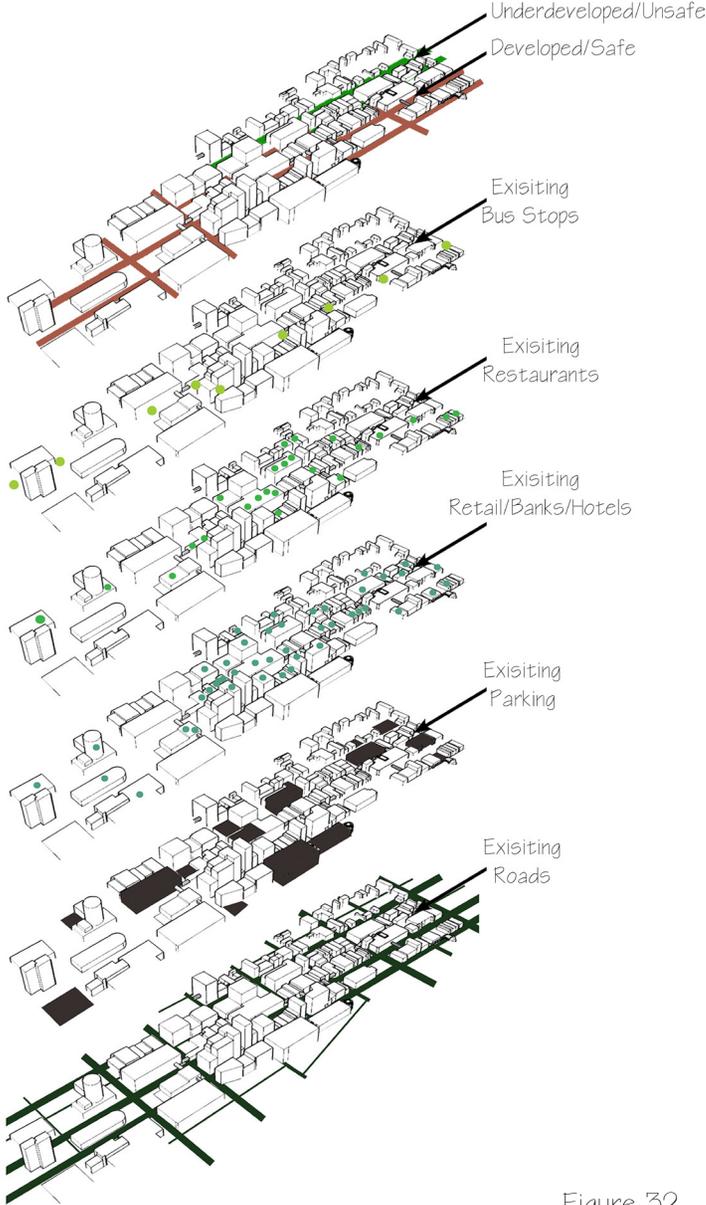


Figure 32

Average Precipitation + Temperature

055

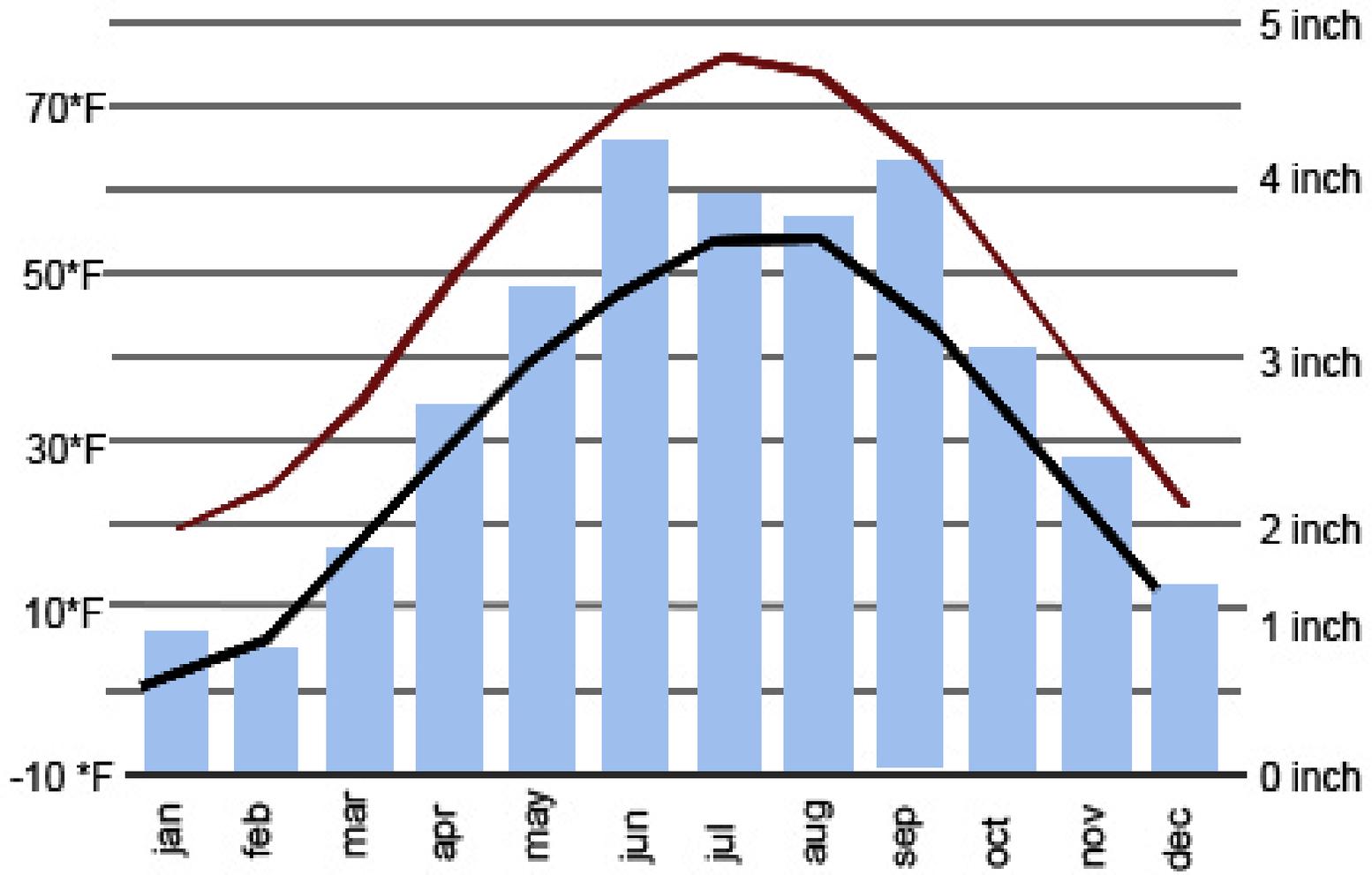


Figure 33

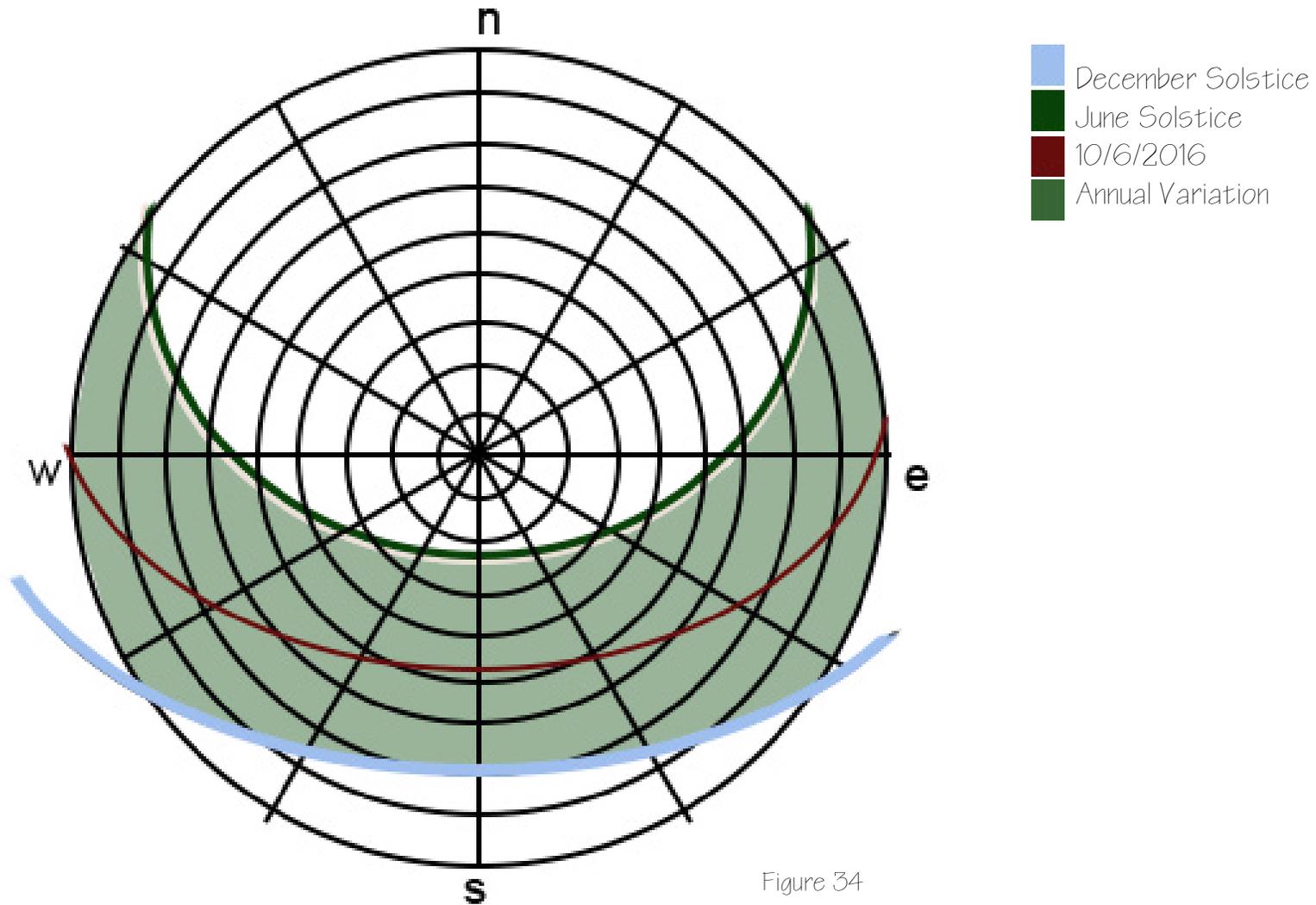


Figure 34

Duluth Wind Direction

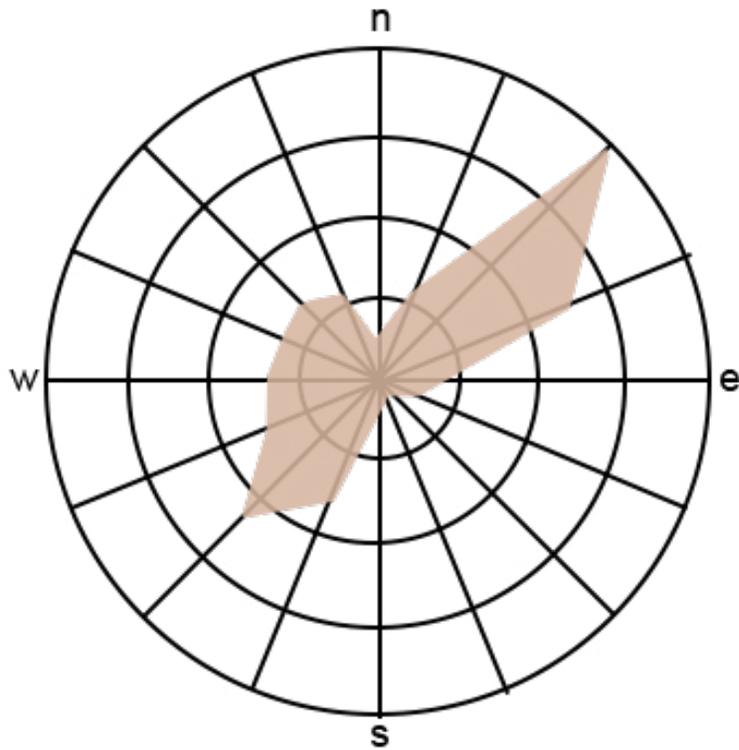


Figure 35

Duluth Wind Speed

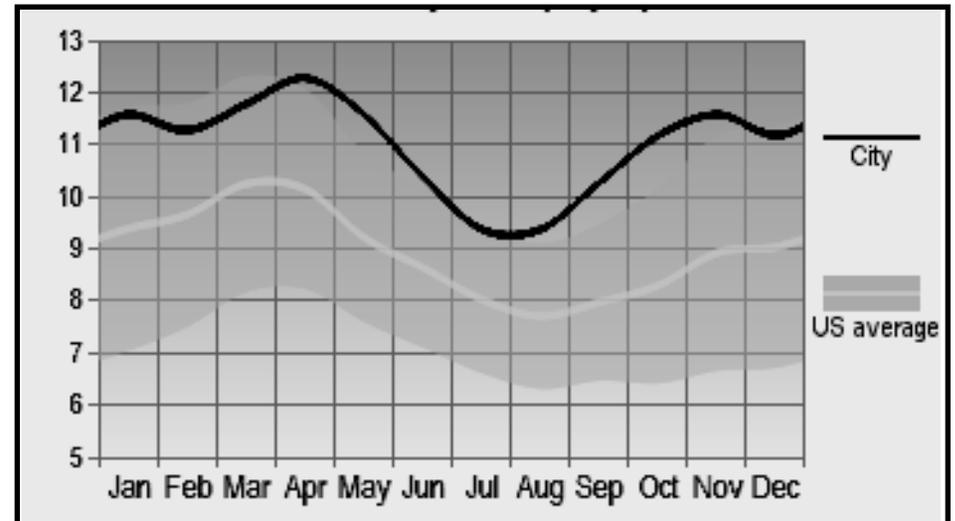


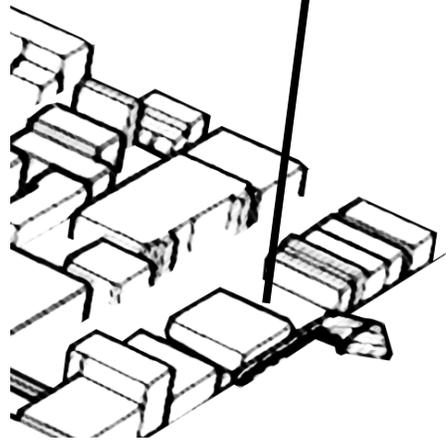
Figure 36



The majority of surrounding buildings are full of distress and patina. Some buildings are left vacant with plans for renovation. Texturally, the buildings surrounding the site are unique and help create a lot of character and provide a strong sense of place in Duluth. The character of a town can influence the material choices in a design, implementing cohesiveness.

Figure 37

Site Photographs



Figures 38-45

Key Site Judgments

Highway Systems

Knowing the main highway and road systems plays a huge part in design, it will affect my parking plans as well as where I locate my building to maximize easy accessibility.

Surrounding Typologies

Understanding what typologies surround your site has a huge impact on your design. Is your design going to help other business or block potential clients? It plays a huge role in what typology you choose for your design.

Topography

The topography of a site has one of the largest impacts on a design. It is what supports the entire building. The slope of the land can also affect how you program your building as well as the type of construction you choose.

Noise Patterns

The noise that surrounds a site can play a huge role in the way the building is organized such as, the side of the building that has a lot of noise approaching may want to be the service side of the building where noise doesn't play an affect in the function of the space.

Traffic Patterns

Traffic patterns of automobiles, pedestrians, trains, etc. help influence the way the designer may want to place entrances of the building along with window placement.

Existing Public Transportation

Bus routes have a huge impact to where you choose to locate your site. Having a bus route near your site promotes walk-ability and sustainability to your building,

Average Precipitation and Temperature

Temperature and the amount of precipitation a city produces can affect the type of construction you apply to your design along with what sustainable actions your design can implement.

Sun Patterns

The sun is a natural aspect that can transform your design. Sun can help a designer decide the orientation of the building and window placement to help maximize nature light and ventilation. The sun is one of the most important tools in design.

Wind Patterns

Wind impacts the orientation of a building to maximize the amount of natural ventilation in a design.

Function	Net Area
Classrooms	18,916 sq.ft
Creative Space	33,593 sq.ft
Breakout Spaces	400 sq.ft
Offices	4,620 sq.ft
Restrooms	6,024 sq.ft
Circulation/Utilities	15,454 sq.ft
Studios	7,500 sq.ft
One Bedrooms	1,600 sq.ft
Two Bedrooms	4,620 sq.ft

Total - 92,727 sq.ft

Table 1

Performance Criteria - Design Matrix

Quality of Life

Higher Education

	Economical	Environmental	Social
Classrooms	Mixed facilitators, professional & students	Natural light, movable furniture, technology equipped, forced air, max sight	Public, encouraged interaction, multi-functional, ADA, educational, diversity
Offices	Mixed facilitators, rent-able	Natural light, good views	Multi-functional, diversity, ADA
Study Areas/ Private Working Spaces	Mixed facilitators, professionals, students, staff, public	Natural light, quiet, good views, movable furniture, easy access, technology equipped	Public, encouraged interaction, ADA, educational, diversity
Breakout Spaces	Mixed facilitators, professionals, students, staff, public, rent-able, entrepreneurial	Natural light, good views, movable furniture, easy access, technology equipped	Multi-functional, encouraged interaction, ADA, educational, drive, diversity
Lecture Hall/ Presentation Space	Mixed facilitators, professionals, students, staff, public, rent-able, entrepreneurial	Natural light, publicly located, good views, forced air, technology equipped	Multi-functional, public, encouraged interaction, ADA, educational, diversity
Creative Space	Mixed facilitators, professionals, students, staff, public, rent-able, entrepreneurial	Natural light, movable furniture, technology equipped, publicly located, easy access, good views	Multi-functional, public, encouraged interaction, educational, diversity
Restrooms	Public	Easy access	Public
Circulation	Public, efficient	Natural light	Public, encouraged interaction
Utilities	Sustainable	Sustainable	Sustainable, educational
Residential	Mixed income/rate housing	Lake views, natural ventilation, natural light, safe	Diversity, encouraged interaction

Table 2

Design Solution

Research Question	System of Inquiry	Strategies	Tactics	Role of Design
How can an urban campus improve the quality of life a city has to offer?	Emancipatory -cultural -social -people oriented -historical	1. Interpretive 2. Qualitative 3. Correlational	1. Personal Interviews 2. Literature Reviews 3. Case Studies	1. Emancipatory -cultural -social -people oriented -historical 2. Responsive 3. Representative

Table 3

Tactic One
Personal Interviews

Personal Interview Questions

066

1. How long have you been working for the city of Duluth (or UMD, etc.)?
2. What are your main roles for the city of Duluth as a (List job title)?
3. What problems do you see arising if an urban campus is developed in downtown Duluth?
4. What words would you use to describe downtown Duluth and why?
5. What words would you use to describe the City of Duluth and why?
6. What part or areas of downtown Duluth would you like to see redeveloped? Adaptive Reuse?
7. What type of retail do you see being the most successful, economically and socially in downtown Duluth?
8. What other type of development is needed if an urban campus is developed in downtown Duluth?
9. Economically, what impact do you think an urban campus would have on Duluth?
10. What types of issues will arise with parking and traffic?
11. What do you think would be the most successful major(s)/colleges (engineering, business, etc.) to bring downtown? Why?
12. What sustainable actions are you aware of that Duluth has implemented?
13. What sustainable actions do you wish to see in Duluth?
14. What is your favorite part of Duluth?
15. Do you think anything is missing from Duluth that would improve your quality of life?
16. Socially what impact do you think an urban campus would have on Duluth?
17. How would you describe the culture in Duluth?
18. What building typology would you like to see developed in downtown Duluth?
19. What is your favorite building in Duluth, why?
20. What are your dreams for the future of Duluth?
21. What kinds of ideas or opportunities might you have if you could design a downtown campus for Duluth?



Figure 46

Emily Larson - Mayor of Duluth
“An Urban Campus would be awesome and help activate downtown. It would help activate downtown and provide a constant presence of people downtown all the time. Socially it will create interaction between people and spur some creativity, more entrepreneurs.”

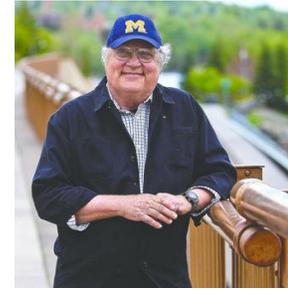


Figure 49

Kent Worley - Landscape Architect
“The mixing of ages, interests, new and old seems excellent.”



Figure 47

Heather Rand - Director of Business and Workforce Development
“Urban Campuses make sense because you are offering real life being in an urban setting versus isolated campus.”



Figure 50

Tim Meyer - Local Architect
“An Urban Campus will help raise surrounding property value to a point where it makes it worth while to come in and invest money, it also has a big impact on return on investment.”



Figure 48

Keith Hamre - Director, Planning and Construction Services
“An Urban Campus would have positive impact, it would bring people into the downtown and revitalize it. It would bring in more service industry, more vibrancy into the downtown and create better usage of our transit system.”



Figure 51

John Kratz - Economic Professor, UMD
“An Urban Campus would have a positive impact on development.”

1. Urban Planning
2. Quality of Life
3. Sustainability
4. Higher Education
5. Design
6. Problems

Urban Planning Key Take Aways

1. In need of redevelopment of 200 East block.
2. In need of redevelopment of abandoned buildings and surface parking lots throughout entire downtown.
3. Downtown needs a minimum of 200 more permanent residents to truly impact Duluth's economy.
4. Streetscape design needs to be reevaluated to cater towards biker needs and pedestrian safety.



200 East Block

Figures 52-54



Current Streetscapes

Figures 55-56

Quality of Life Key Take Aways

070

1. Positive impact economically.
 - a. Produce more property tax for the city of Duluth.
 - b. Spur greater financial investment surrounding downtown.
 - c. Additional service businesses would pop up to serve the market generating an inspirational city.
2. Positive impact socially.
 - a. Urban campus would activate downtown, provide constant presence of people downtown, bringing more businesses.
 - b. Vibrancy and social activity help spur creativity.
 - c. Help create a better connection of community to the university.
3. The lake is the largest reason why people love Duluth.
4. The mixing of ages and interests would have a positive impact.
5. Duluth is in need of more “hangout” spaces.
6. Duluth is a very outdoor rich community, offering a lot of recreation throughout Duluth and through the neighboring communities.

Sustainability + Higher Education Key Take Aways

071

Sustainability

1. Biking is becoming a larger more common way of transportation in Duluth, streetscape design needs to be redevelopment to help improve safety.
2. Lower energy costs.



Figure 57

Higher Education

1. Business School would be the most successful in Downtown Duluth.
2. Engineering School would also be successful in Downtown Duluth.
3. Continuing Education classes would be very successful and cater toward the non-traditional students.



Figure 58

Design + Problem Key Take Aways

072

Design

1. "People live up to the expectations of the space that you inhabit and so for people who are for instance people that are low income and living in substandard housing...you live up to the expectations of that space. Kids that are raised in those spaces live up to those expectations. To me I would be less interested in high end but a comfortable and accessible (not wheel chair accessible more like) its not pristine, its Duluth, its public, not to fancy" Mayor Emily Larson
2. In need of a strong connection to lake walk.
3. Lake views.

Problems

1. Parking - only problem stated in each interview.

Tactic Two
Literature Reviews

1. Urban Planning
2. Quality of Life
3. Higher Education/Business Incubator Design



Figure 59

America's Urban Campus - Anderson Economic Group

About economic, social, and cultural benefits of Chicago's Colleges and Universities.



Figure 60

The Journal of Higher Education - Ohio State University

About the sense of place of a college campus and its importance. It also expresses the importance and benefits it has on student's culture and productivity.

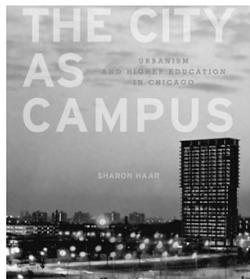


Figure 61

The City As Campus- Sharon Haar

About how cities are now acknowledged to be unique and beneficial environment for higher education. This book goes into detail the benefits of urban campuses, providing good case studies.



Figure 62

Planning for Urban Universities and Colleges - SmithGroup, JJR.

Article was a case study of Cleveland State University.

Guidelines For Developing A Campus Master Plan - Brady Allen Jamison, PhD

Dissertation mapping out guideline when master planning a campus.



Figure 63

The Economic Effect of Urban Colleges on their Surrounding Communities. **Urban Studies, 42. - Annette Steinacker**

About economic, social, and cultural benefits of Chicago's Colleges and Universities.



Figure 64

The Distinctive City - Edward T. McMahon

This article was explaining why sense of place and quality of life is important. Listed benefits proven by studies that sense of place help improve productivity. People care more about how beautiful a city is than the city's economic standing.



Figure 65

Representing the City: Arts, Culture, and Diversity in Philadelphia - Micheal Stern, PhD, U Penn Social Impact

This journal summarized the social impact of diversity on students and the community specifically in an urban setting.



Figure 66

Quality of Life: Everyone Wants It, but What is it? - Forbes

This article defines quality of life and how it is measured.



Figure 67

How to Design a Business Incubator - M+A Architects

Explains the purpose of a business incubator and what it is. This article also goes into detail about how to design a successful business incubator.



Figure 68

Innovative Design Quarterly - Barbara Greenbaum House - Adam Yarinsky, AIA

This article summarized the “residential college model”.

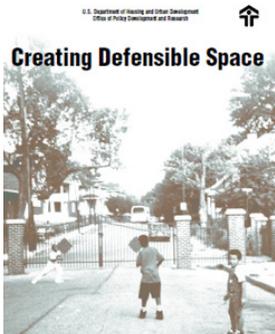


Figure 69

Creating Defensible Space - Oscar Newman

This book explains what defensible space is and how architecture can play a role in the safety of people and cities. The book includes case studies to help design architecture and cities for greater safety.

Tactic Three
Case Studies

* Refer to case studies listed on pages 14-21



Figure 70



Figure 71



Figure 72

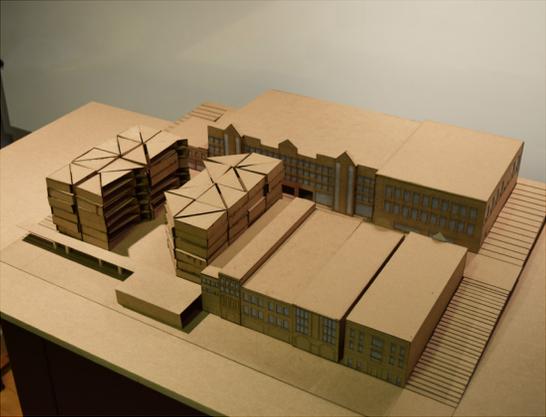


Figure 73

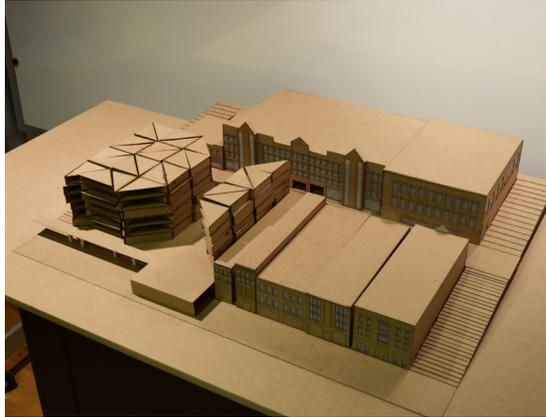


Figure 74

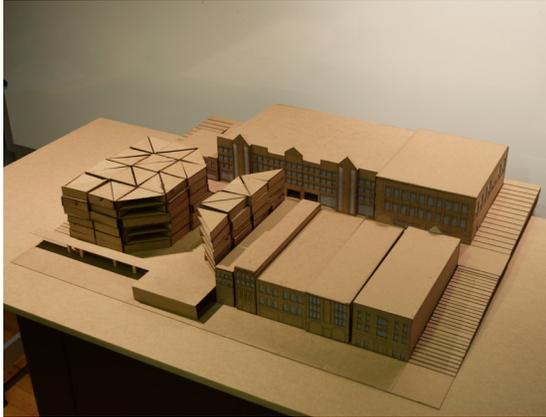


Figure 75



Figure 71

1. Lake views
2. Natural light
3. Biking connection
4. Lake walk connection
5. Produce more property tax
6. Spur greater financial investment surrounding downtown
7. Diversity
8. Social Interaction
9. Education
10. Equity

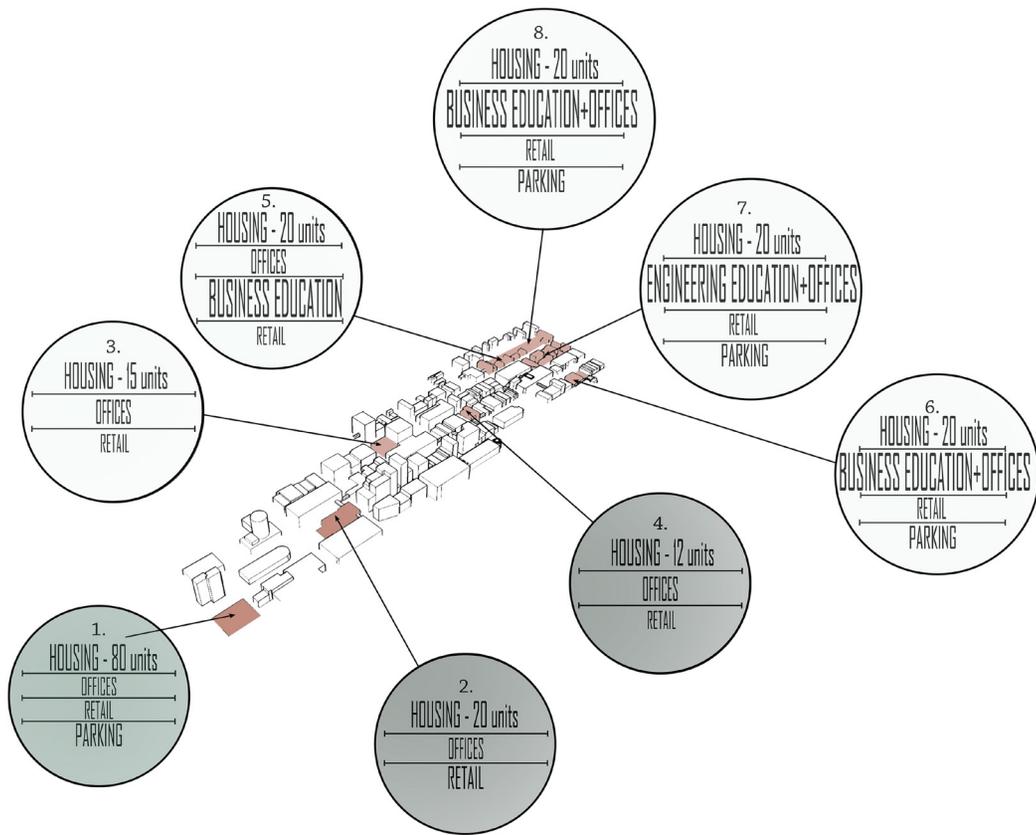


Figure 76

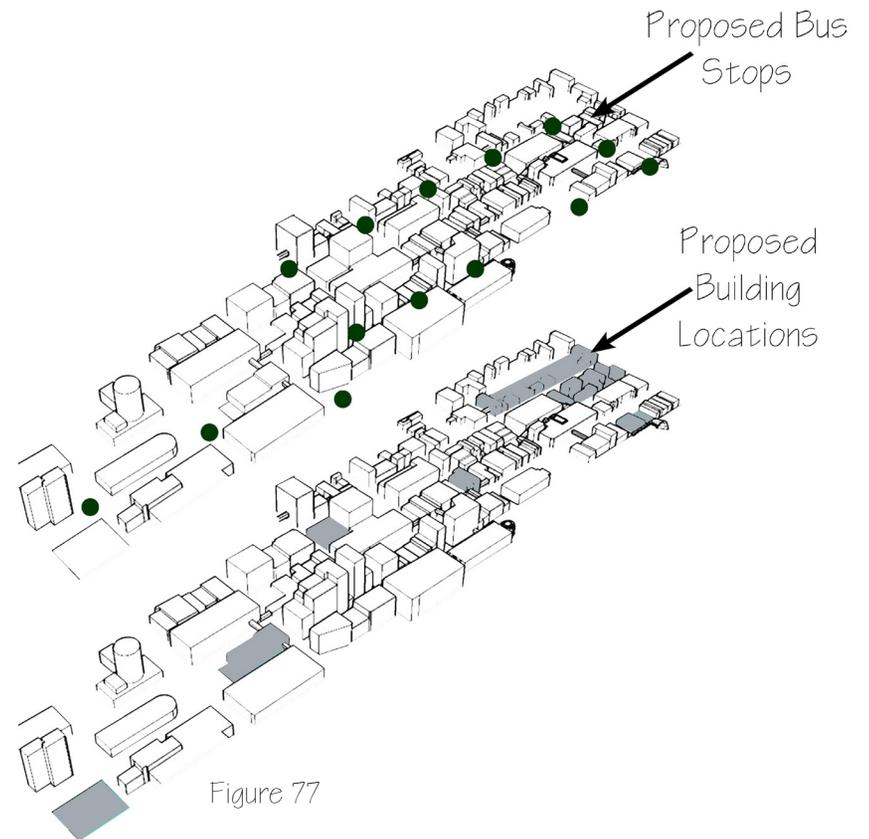


Figure 77

Proposed Streetscape Impressions



1st St.
Figure 78



Superior St.
Figure 79



Michigan St.
Figure 80

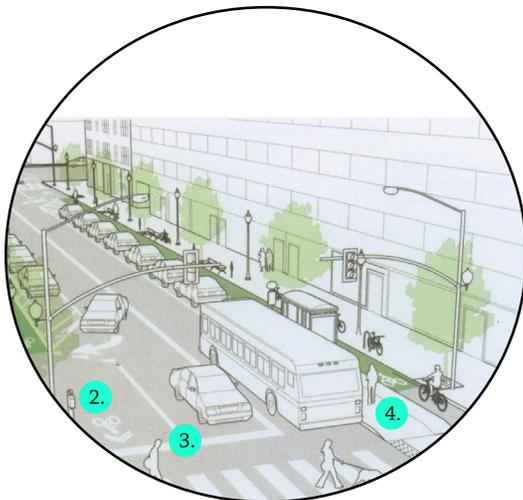


Figure 81



Figure 82



Figure 83

“Improved quality of life”



Figure 84



Figure 85



Figure 86

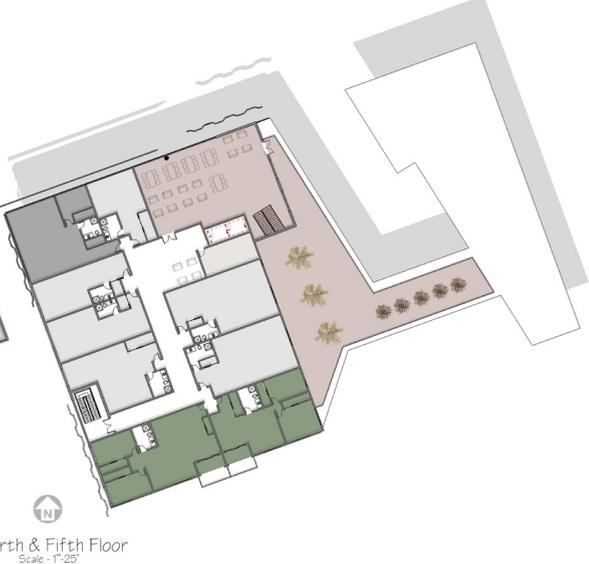
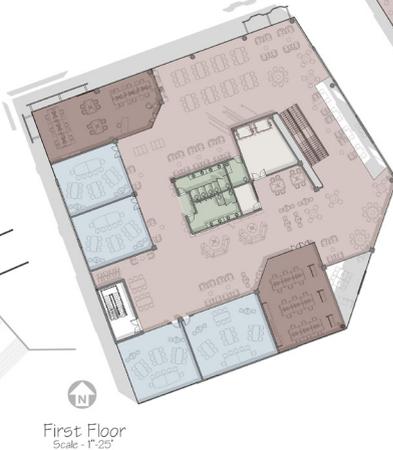
- Enhanced
- Transit
- Streetscape
- Bike-ability
- Walk-ability
- Sustainability
- Economy
- Culture
- Community
- Additional Parking

207 additional permanent downtown residents



Figure 87

- Creative Space
- Education
- Offices
- Restrooms
- Mechanical & Storage
- Studio
- One Bedroom
- Two Bedroom



Wall Detail + West Elevation

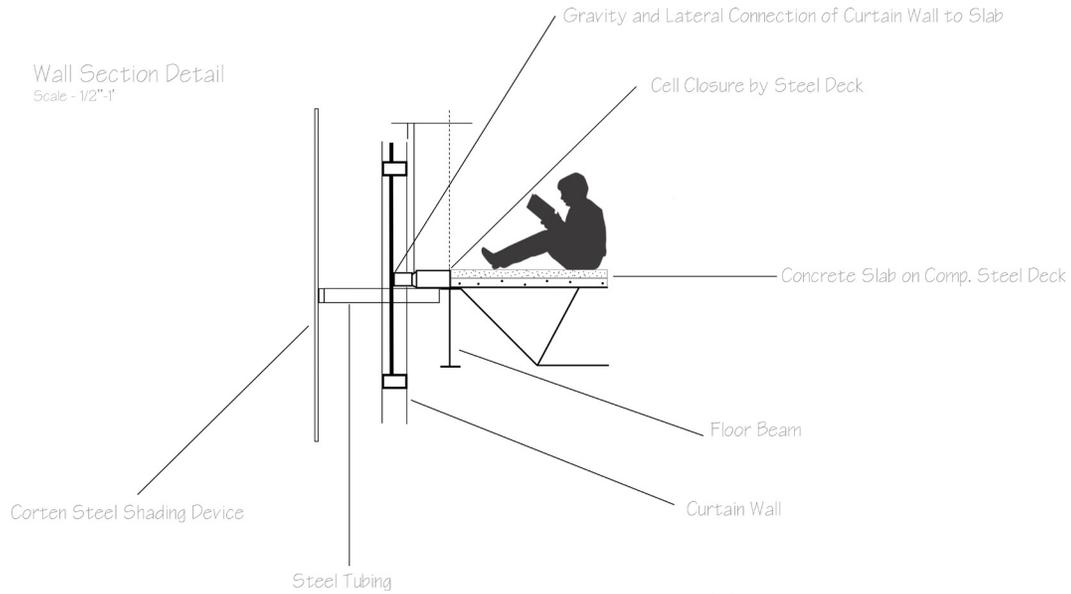


Figure 88



Figure 89

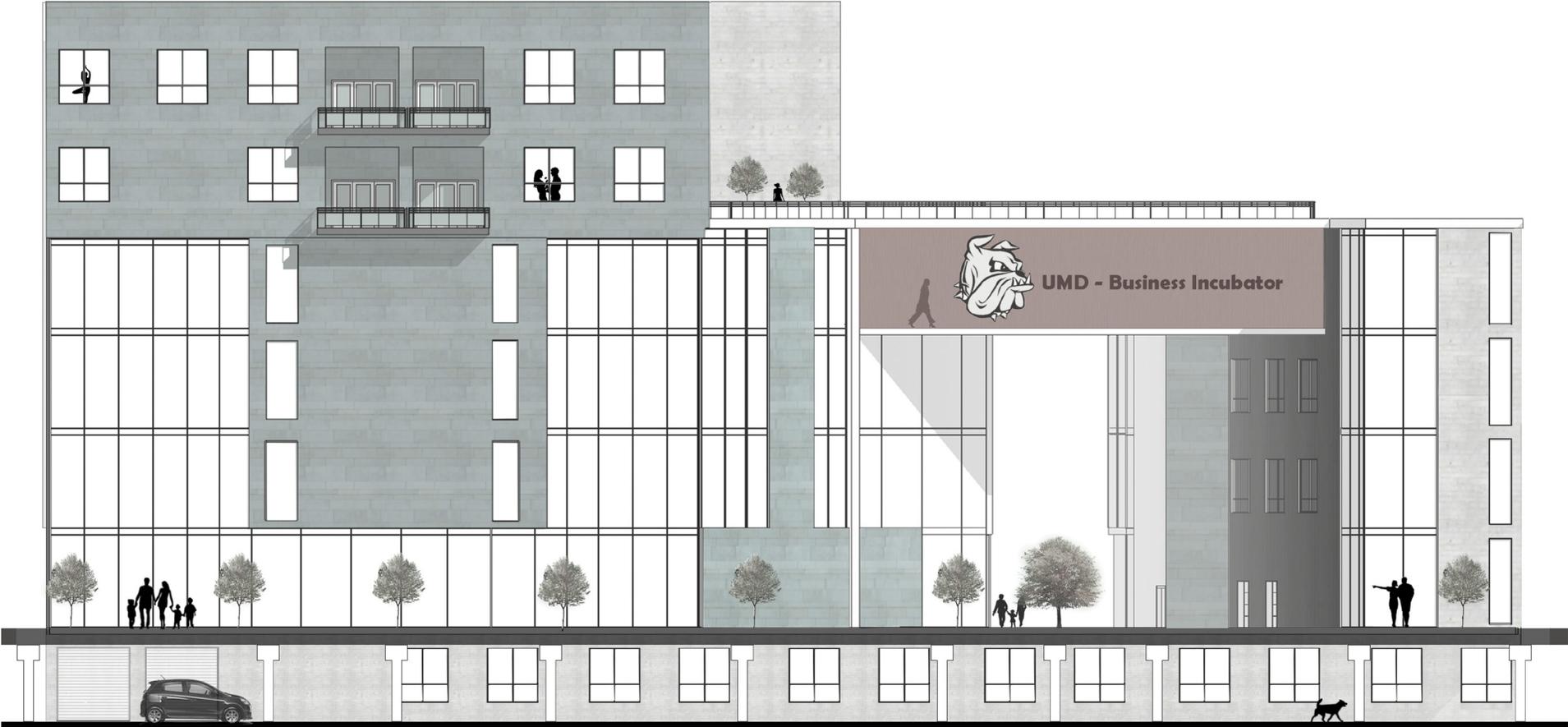


Figure 90

Section Cut A

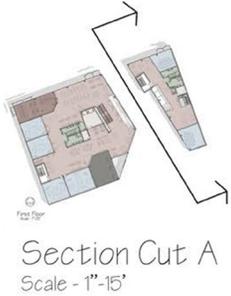


Figure 91



Multifunctional – This space has an open floor plan to maximize the use of multifunctional furniture. Thus, creating an interior space that can be used for any occasion such as a classroom, business meeting, or community events. Having community spaces such as this one creates an easy venue option for the community to host various functions, improving quality of life.



Educational - One of the main functions of this building is providing educational opportunities to the citizens of Duluth along with the current students of the University of Minnesota, Duluth. This interior space promotes the low key learning environment UMD's known for. This space offers quality views that help promote creativity and ability to learn, improving the quality of life.

Figure 93



Connectivity - A huge take away received from Duluth Citizens and officials is the need for a connection from Lake Superior into the downtown region. This building offers a strong easy connection from the end of the lake walk right into the downtown. Offering this easy connection for Duluth's citizens creates the perfect opportunity for citizens to enjoy the beautiful lake and park, improving quality of life.

Figure 94



Social Interaction - This building is hosting the public, professionals, students, and staff, having this mix of people encourages random social interactions. These interactions will promote creativity and the opportunity to learn from each other. Social interactions promote endless opportunities for citizens, improving quality of life.



Figure 97

Appendix

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Previous Design Studio Experience

099

Second Year Studio

Fall Semester - Cindy Urness

-Tea House, Fargo, ND

Spring Semester - Daryl Booker

-Bird House, Fargo, ND

-Dance Studio, Minneapolis, MN

-Dwelling, Fargo, ND

Third Year Studio

Fall Semester - Ronald Ramsay

-Shaker Barn, Historical Preservation, Iowa

Spring Semester - Malini Srivastava

-E-Fargo, Fargo, ND

Fourth Year Studio

Fall Semester - Don Faulkner

-High Rise Capstone, San Fransisco, CA

Spring Semester - Don Faulkner

-Marvin Window's Competition, Fargo, ND

-City Planning, Florida

Fifth Year Studio

Fall Semester - Ronald Ramsay

- Golf Club House, Chicago, IL

Spring Semester - David Crutchfield

-Thesis - Higher Education, Duluth, MN



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Hometown - Bloomington, MN

Email - ashleyccrow@gmail.com

"Whatever good things we build end up building us." - Jim Rohn