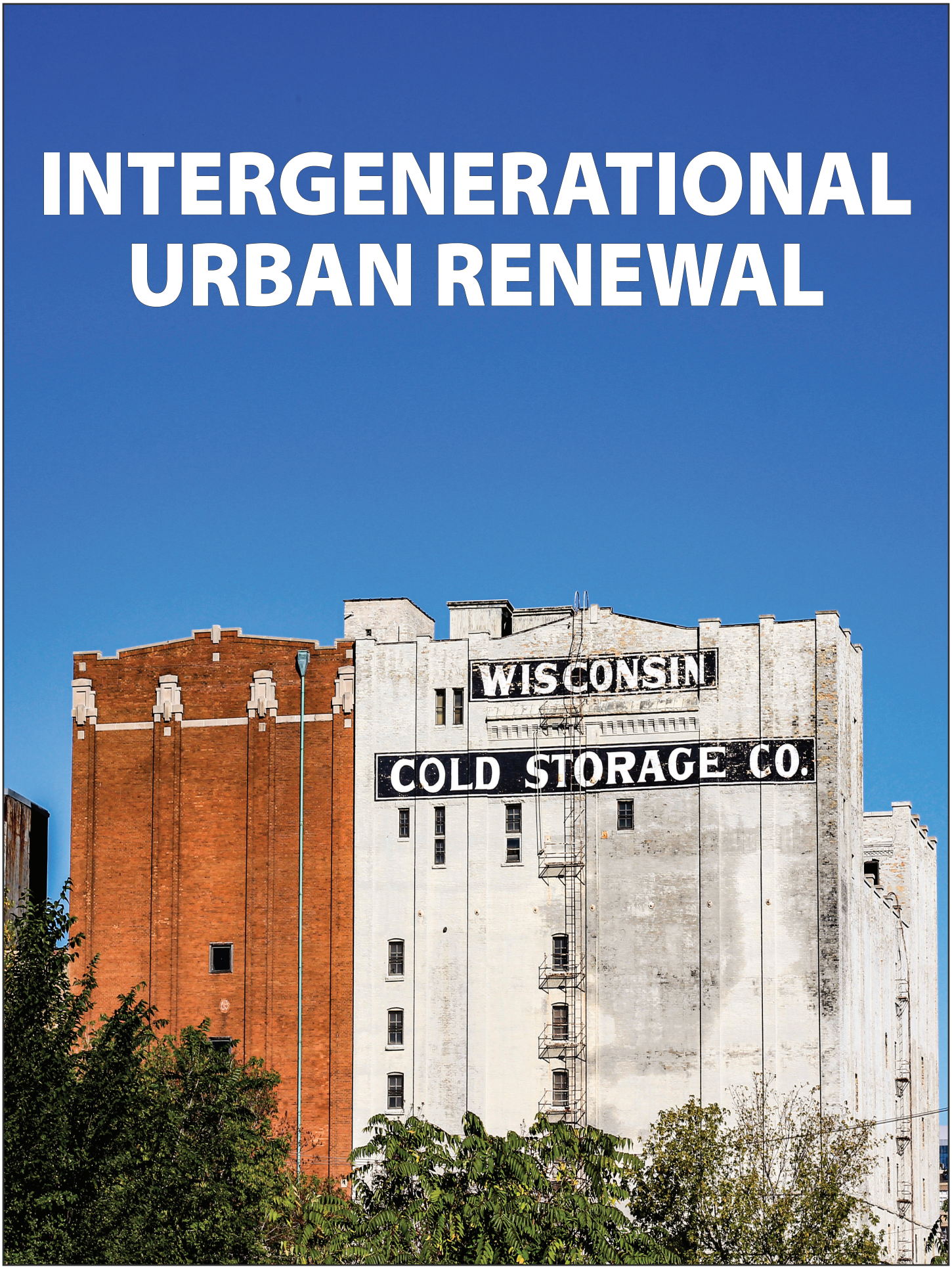
INTERGENERATIONAL URBAN RENEWAL



INTERGENERATIONAL URBAN RENEWAL

A Design Thesis Submitted to the
Department of Architecture
School of Design, Architecture, and Art
North Dakota State University

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Master of Architecture

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ABSTRACT

Figure 1.1: Marmalade Lane Co-housing, Cambridge, UK, Mole Architects

Across the United States, there are cities and towns that have been crippled with rundown and abandoned buildings or lots around their downtown district. Often, nothing is done to fix this problem which leads to these prime sites being avoided. Additionally, these sites negatively affect the local economy, environment, equity, and the safety of the general public. Moving forward it is important for our cities and country to focus on urban infill and redevelopment projects instead of continuing the suburban sprawl. Architecture plays a pivotal role in achieving the extent of influence these projects will have on the revival of the urban fabric.

This thesis seeks to find an architectural solution to how an urban redevelopment project can revitalize an area of a downtown district to the rest of the city by creating a neighborhood within a dense urban environment through the development and integration of intergenerational living. This urban redevelopment project consists of the removal of deteriorating buildings and the vacant land around them which will be replaced with a mixed-use building and a landscape that reconnects the city back to the site and adjacent waterways. A catalyst for sustainable urban revival will be formed from this architectural framework.

NARRATIVE

Our country currently is facing a problem of downtown areas being debilitated with degraded or abandoned buildings and lots. As our world has continued to evolve and our technology advances, we have moved development farther out for the core downtown areas of cities. When our cities were first built the downtown area was a vibrant area for all to live, work, and play but overtime businesses and people have come and gone leaving wear on these now undesirable areas of downtown. In looking to the future, the question of how we address these undesirable sites is not a one size fits all but rather one that includes different precedent strategies that best fit the need of the area. The solution is not one to be taken lightly or to be done by one person, rather professional and community involvement in the design is required for the project to be successful.

This thesis will look at downtown metropolitan areas that have been left with holes throughout or abandoned around the edges, leaving undesired areas that were once vibrant. It may seem easy to just replace the old with something new to improve the site, but what if these sites could be designed to strengthen community connection, add to the economy, improve the environment, and add equity back to the hub of the city. How can sustainable mixed-use design serve as a catalyst for urban infill and redevelopment? **Can intergenerational development lead to community renewal?** Through the process of research and design, a redevelopment of the edge of downtown Milwaukee to reconnect the downtown to the rest of the city will be attempted. Additionally, providing a reconnection to the riverfront and lakefront will increase pedestrian traffic and well-being. Through intentional planning, a vibrant downtown core can be revived, and provide a place for multiple generations to live, work, and play again.

At this pivotal point in time, it is important for us to start designing places that unite the community together again. We shouldn't be afraid to ask the tough questions of why the present isn't currently working. We shouldn't stand by blindly and watch our downtowns degrade and die off; now is the time to revive them. For our country to continue to advance and grow we must start looking to redevelopment and infill to restore the economy, environment, and community equity, with intergenerational mixed-used developments playing a key role in this effort.

Economics - is the social science that studies how people interact with value; in particular, the production, distribution, and consumption of goods and services.

Equity Design - is a creative process to dismantle systems of oppression and (re)design toward liberation and healing by centering the power of communities historically impacted by the oppressive systems being (re)designed. Equity-focused value is rooted in transparency, education, collaboration, and trust in a creative process to dismantle systems of oppression and (re)design toward liberation and healing by centering the power of communities historically impacted by the oppressive systems being (re)designed. Equity-focused value is rooted in transparency, education, collaboration, and trust.

Intergenerational - is interactions between members of different generations that may not be related to each other.

Mixed-Use - is a style of urban development, urban planning, and/or a zoning type that blends residential, commercial, cultural, institutional, or entertainment uses into one space, where those functions are to some degree physically and functionally integrated, and that provides pedestrian connections.

Multigenerational - relating to several generations that are typically related.

Sustainable - is the capacity to endure in a relatively ongoing way across various domains of life.

Urban Infill - is a new development that is sited on vacant or undeveloped land with an existing community.

Urban Redevelopment - is any new construction on a site that has pre-existing uses.

Urban Renewal - is the clearing out of blighted areas in inner cities to clear out slums and create opportunities for higher class housing, businesses, and more.

A Sustainable Mixed-Use Development for Urban Infill or Redevelopment

This project looks at how a sustainable mixed-use development for urban redevelopment can be used to transform the degraded and neglected south side of Downtown Milwaukee. The result of the redevelopment would be similar to Urby in Staten Island, NY, Bridge Meadows in Portland, OR, Carmichael Commons in Carmichael, CA, and Gerling Ring in Cologne, Germany which will be expanded on later. These four precedents are all intergenerational communities that strive to reconnect the spans of the living generations. This thesis will investigate how a sustainable mixed-use development can reintegrate the generations that makeup Milwaukee.

Figure 1.2: Urby, Staten Island, NY, Concrete

Living Units Geared Towards Different Age Groups and Family Size

Figure 1.3: Intergeneration Living Aspects

One of the most essential elements that are included in this project is creating living units that accommodate different age groups and family-size units. By providing accommodations for everyone, integrating the different generations that will make up the development community will be more successful and lead to stronger bonds between residents. These formed bonds will help the residents feel connected, cared for, and have a purpose/role within their community.

Outdoor Recreational Space

The second major element of this project is the creation of outdoor recreational spaces that provide additional places for residents to connect with each other. The site, sitting on the point where the Milwaukee River and Kinnickinnic River meet Lake Michigan within Downtown Milwaukee, allows for a reconnection to the water for both the residents and the rest of the city. The space will also strive to promote health and wellness through a variety of activities that will be expanded on later and provide connections to the surrounding area of the city.

Commercial Space

Given the site is in the downtown area, commercial spaces that are open to the public will provide a greater purpose for all people to interact with the site and development. A mixed-use development will help add to the site economy as well as add amenities to the residents of the development. These commercial spaces are expected to change and evolve throughout time as the needs of the development residents and the demands of the downtown area change and expand.

Sustainability Provisions

Another large element of the project is sustainability. Our planet is changing at a faster rate than ever before and if we continue on the path we are on, the world we know today will not be recognizable to future generations. This project looks to achieve LEED V4.1 and/or WELL V2 certification. The sustainable strategies will be expanded on later.

The client for this project would be a developer that has a passion for sustainable design and urban revitalization. Additionally, the owner of the finished development would be a group or organization that sees value in bringing different generations together to learn from each other and assist each other. Other groups or organizations important to the project may include businesses that will be housed in the finished project and both state and local officials.

The user group for this project is not limited because of the open to anyone nature of the project. The target audience of this intergenerational development is people of all ages and abilities that are looking to find a place of community. The most frequent users of the site would include the residential residents, business employees, and surrounding downtown Milwaukee residents.

Residential Residents

People of all ages and abilities will make up the residential portion of the building and will be the primary users of the facility. Each individual's time spent in the facility will vary based on their chosen lifestyle but the facility will be designed to accommodate them 24/7. The residents will be able to choose how active or passive they want to be within the living community development.

Business Employees

The secondary users of the facility and site are the employees that work at the on-site businesses and within the residential aspects of the development. For the most part, these users will inhabit the facility during typical business hours. The employees will foster an environment that will drive economic activity and draw people to the site.

Milwaukee Residents

The tertiary users of the development and site are the residents and visitors that come to the site. The places that they will use the most will are the commercial spaces and outdoor recreational spaces. The development may also host larger community events that outside visitors attend.

PROJECT SITE

Figure 1.4 Project Site Options in Milwaukee, Wisconsin

The location of this thesis project is on the south side of Downtown Milwaukee, located at the point where the Milwaukee River and Kinnickinnic River meet Lake Michigan. Currently, this site has possible site options for redevelopment. Option 1 is a long narrow strip along the river that has a deteriorating industrial building and underutilized parking lot. Option 2 is a large site but has a road running through the middle of it. This site also has deteriorating industrial buildings, a marine service, and open land that has previously been developed. I will visit the sites on October 16th and 17th and will choose a final site option based on my findings and conclusions from the site visits.

Figure 1.5 Milwaukee in Relation of the U.S.

EMPHASIS

Figure 1.6 Community and Friendships Formed Over Coffee

The emphasis of this thesis is to provide an architectural solution to the redevelopment of urban sites that have been left degraded or abandoned. The architectural solution will seek to transform the site back into a place of life and serve as a catalyst for an urban intergenerational community. By incorporating these types of communities, social equity and the economy are restored to these sites and the larger urban area. When people have a greater connection to their community or feel like they have a place and are heard, social equity is strengthened. Additionally, when places include space for people to gather, eat, and socialize the site's vibrancy is restored and expands as more people are drawn to the site. Furthermore, an emphasis on sustainable design looks to create a resilient community that is environmentally conscious for future generations to come. The desired goal for this thesis is to create a place that fosters interconnection and relationships between different generations.

The primary goal of this thesis is to create a community that is inclusive of all ages and abilities. By inclusion, this community embraces strong social ties that lead to a safer, healthier, and happier place to be. In today's current society the older generations are often looked down on as being useless after retirement with nothing beneficial or new to contribute. And older generations look down on the younger generations as being self absurd and unopened to learning about the past. This thesis will strive to bridge this gap between the generations and restore generations' value to all generations. The designed spaces within this project look to foster places where people can gather, learn, and grow together. This may be achieved through an intergeneration garden and kitchen, an older resident teaching woodworking to a younger resident, a younger resident teaching an older resident technology, or an older resident just sharing about their past to a younger resident. Each generation has a purpose and a story to tell and this project plans to incorporate a place for each individual. This intergenerational community looks to foster stronger local equity, stimulate the local economy, and provide for future generations.

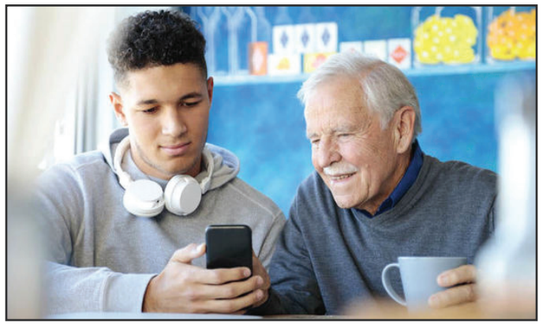


Figure 1.7 Learning from Different Generations

Secondary goals for the thesis include sustainable design that is healthier for both the users and the plant. The project will be designed to achieve LEED certification and/or WELL certification. Both of these certification systems will ensure that development is healthy for the plant and those that will occupy the spaces within it. Sustainability materials and practices are of large importance because of the rapid climate change effects that we have seen around the globe. Indoor environment quality has gained additional importance in the last few years and will be considered in the design of the space to mitigate any potential unhealthy partials that enter the buildings. Additionally, I want to provide a better human connection to the waterfront on the site that sparks interaction, exploration, and well-being. This connection has the potential to become a destination for the city and host city events while providing residents with ample access to fresh air.

Figure 1.8 LEED and WELL Certifications

Overall, I hope this project can serve as a catalyst for greater intuitive sustainable design that connects users back to each other and the community on sites that once repelled users. I also hope that this project works to change how we, as a society, view the different generations that

PROJECT GOALS

make up our world. We must restore value and purpose in all generations if we truly want to restore the American spirit.

Academic Goals:

1. Increase my knowledge of living communities and how social interactions shape the environment around of the occupants.
2. Demonstrate research-based design and evidence-based design.
3. Provide a greater understanding of why it is important for every generation to be valued and have a purpose in their communities.

Professional Goals:

1. Identify how design can influence one's interactions.
2. Identify how architecture can bridge the social gaps in society and foster a new idea of the spirit of a community or place.
3. Identify what I want to purpose after graduation and secure a position at a firm that aligns with my passions.

Personal Goals:

1. Balance working at a firm and working on school work.
2. Eat healthier.
3. Workout more.
4. Get at least 4 hours, minimum, of sleep at night.
5. Enjoy my last year of college by making memories with friends.
6. Grow and lead the USGBC student group on campus.

Design Methodology

The primary research strategy that will be used in this thesis is to collect case studies that will be analyzed. The attention that will be given in these analyses will focus on how intergenerational relationships can provide a more equitable living environment. The focus will also be given to the relationship architecture plays in bringing different people together.

From these case studies, comparisons will be drawn on the similarities and differences; as well as, the single or multiple factors that influenced the outcome. This qualitative data will then be organized into a format that is easy to understand.

The secondary research strategy that will be used in this thesis is the collection and analysis of literature reviews. These literature reviews will be focused on the cognitive effects that living in an intergenerational community has on one.

Findings from the literature reviews will be recorded and used to influence the design of the development during the design phase portion of the thesis project. This qualitative and quantitative data will be organized in a table for quicker processing and understanding of the information that was derived from the literature reviews.

Documenting the Design Process

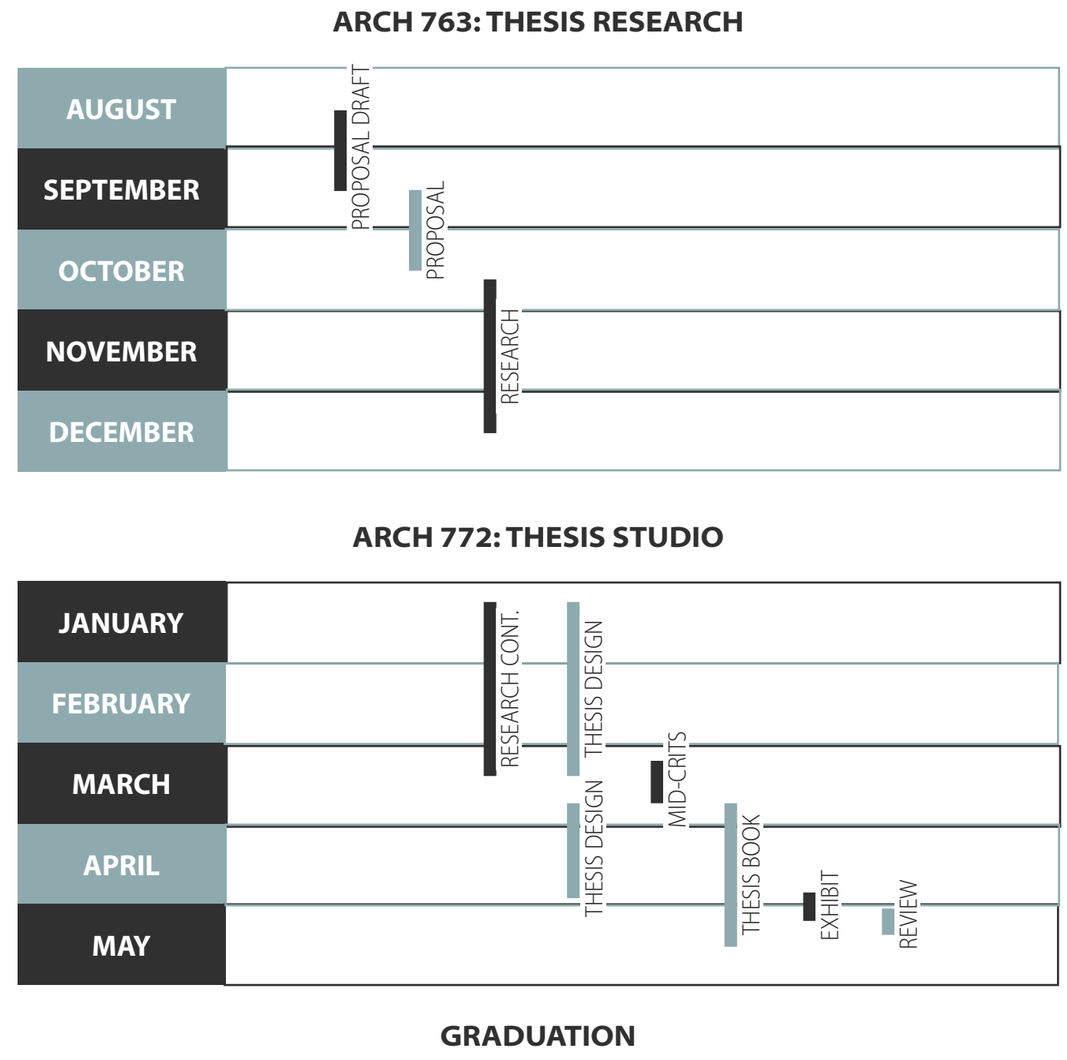
The documentation process for this thesis will be a evolving process that's not linear but is guided by research discoveries that present new ideas and methods throughout the project. The methods that will be used to illustrate these discoveries in the continuous process will be through the following:

- Figures and Tables
- Diagrams and Maps
- Research Data and Summaries
- Writing
- Physical and Computer Analysis
- Drawings and Sketches
- Computer and Physical Models

At the completion of the thesis project in April of 2022, a comprehensive book will be presented with a cumulation of all my documentation and research findings. This book is in partial fulfillment of the requirements for the degree of Master of Architecture. The North Dakota State University Repository will preserve a digital copy of this design thesis for future reference and use.

PLAN FOR PROCEEDING

Thesis Schedule



Thesis Research

The research for this thesis project was collected through literature reviews and case studies. Five different texts were analyzed, with three of the outlined in the following section, as well as looking at multiple case studies, with three being summarized later on in this document. Together these resources will be influential in my design solution for this thesis project on urban revival through intergenerational communities.

The results that I have recorded from the literature reviews I have conducted include data drive research methods and intergenerational implementation practices that I will be able to apply to my own project. It was important for me to develop an understanding of the most common factors that influence one's living community before I start seeking out the intergenerational practices that should be included in the design response. Going forward it will be important for me to research more about what living environment influences impact the residents of Milwaukee today and then figure out which intergenerational practice will positively impact one's living environment.

Building on the more detailed research that will need to be performed on Milwaukee residents' living environment, a more detailed evaluation and demographic study of the site and overall area will be beneficial when it comes to designing amenities and support spaces. Based on the information gathered from the case study reviews, the types of space that make up an intergenerational community are based primarily on the community-focused mission. As one case study highlighted, their mission is to accommodate fostered children, adopted children, and the elderly, so the spaces they need differ from some of the other studies that focus on a broader mission of focusing more on the social connections between residents.

An area of the project that I will need to give more thought to now after performing the research I have completed is looking at the negative societal factors that impact an individual and how intergenerational communities can combat these negative impacts on one's life. These negative impacts can range from loneliness, isolation, depression, decrease in physical activity, decrease in mental and physical health, and a shortened lifespan.

In conclusion, the results of the research I have examined have been beneficial in increasing my background knowledge of intergenerational communities and it will be influential to the design solution of this thesis project. However, more specific research will have to be done that is geared more towards the needs of the Milwaukee area and the intended occupants of the completed project. But, by implementing this evidence-based design research it is possible for intergenerational communities to lead to urban revival.

> **"The key to the term *intergenerational*, therefore lies, not in the *generational* but in the *inter* - the existence of the *between* in *relationships* between people."**
>
> - from Promoting Sustainable Communities Through Intergenerational Practice

The following literature reviews analysis and summarizes three texts that contributed to the research that was conducted for this thesis project. The central question investigated was, "Can intergenerational development lead to community renewal?" The information that was provided by and collected from these texts are the primary sources that will be used to influence the future design solution, therefore, these texts need to be reliable and accurate.

Differences in Perceptions of the Living Environment By Respondent Age by Bojan Grum (2019):

The first text analyzed is Differences in Perceptions of the Living Environment By Respondent Age by Bojan Grum (2019), the European Faculty of Law in Nova Gorica. Grum is skilled and has extensive experience in housing, land use planning, urban planning, urban ecology, urbanism, built environment, landscape architecture, real estate, and valuation. He has fourteen publications that discuss different impacts on the living environment. In this text, Grum performed multiple data drive formulas to evaluate the perceptions different age groups have on different elements of the living environment.

Overall, the text was beneficial for gaining a better understanding of what different age groups or generations find important to their living environment. The text started with the following introductory statement, " This article explores whether potential statistically significant differences in terms of respondents' demographic characteristics (i.e., age) can point to intergenerational differences in perceptions of the living environment," which I believe was a strong way to introduce the research the followed. However, the term intergenerational, in my opinion, is not the best term used to explain the findings from the data. The findings from the data were reflected through the use of a table that separated the responses by age group. Grum then explained the findings of the data. Nowhere in his explanations was there evidence that intergenerational influence had an effect on the data. Rather it was through his own assumptions of the data that certain intergenerational correlations could be drawn. Now, don't get me wrong, I think the intergenerational assumptions that Grum drew from the data would probably be true but without including intergenerational factors into the data it is hard to say for sure if these assumptions are one-hundred percent accurate. The data was focused a little too broadly to develop a strong connection to the living environment qualities that influence an intergenerational community.

One of the strongest parts Grum included in the text was a definition of the prescriptions of the built environment in regards to the residential environments and neighborhood satisfaction. Residential environments take on a more objective view by including things like architectural style, location, landscaping, and spatial layout. While neighborhood satisfaction is divided into three features: physical features, social features, and economic features. These factors were the driving aspects of the data that were collected in this study and will be important in my study of planning, organizing, and designing an intergenerational living community.

A key aspect of this text that continually was presented throughout the text was in regards to the elderly and their desire to maintain their independence. Drum states, "with regards

to respondent age, many studies show that the elderly want to stay in their homes (i.e., the environment they are familiar with) as long as they can and to retain their independence and autonomy as long as possible." The idea that is not clearly stated, is the fact that the elderly are able to still retain their independence even if they move from a home they have lived in for a while. Moving to a care facility from one's home doesn't have to the social standard, rather moving to a supportive interconnected community can allow older generations to retain their independence longer. For some it will be mentally and emotionally challenging to move, but in a broader view of the mental and emotional benefits that come from social interactions within an intergenerational community, older adults' well-being, health, and life-span can be improved. Grum stressed the validity of this by referring to a previous text that he and Kobal Grum worked on, "exclusion from the social environment causes loneliness, isolation, a feeling of insecurity, and loss of a sense of purpose in life, and therefore it is crucial to support the elderly in their integration into the social environment."

A key issue in the research results portion of the text was a lack of common second or third readers' ability to understand how the data was collected and commuted. The names of the methods used were listed but no explanation was provided. This leaves the readers confused and requires them to externally seek an understanding of the methods used before they are able to fully understand the results of the data in the study. Additionally, the abbreviations used in the table were not spelled out in the explanation leaving readers puzzled by what the data in the columns represent.

Another key aspect of this text that Drum drew connections to is financially security. The older generations tend to be more financial secure than the younger generations which were reflected in the data portion of this text. The older adults in this text were more satisfied with their living environment than younger participants that are still trying to build up their living environments. Typically students, younger adults, and some middle-aged adults haven't had the time and resources available to reach the same living environment as an older adult has been able to. The same could be said for the number of personal experiences and connections that older adult has compared to a younger individual. I agree with Grum's statement that "interpersonal relations are just as important as financial security," and this idea relates to how intergenerational development can lead to community revival and success. By creating a greater sense of community people develop greater faith within themselves, which allows them to succeed more than living in fear of becoming victimized.

> **"Exclusion from the social environment causes loneliness, isolation, a feeling of insecurity, and loss of a sense of purpose in life"**
>
> - Kobal Grum and Bojan Grum

Grum's conclusion contradicts the idea and purpose of the text by suggesting that we change our view on we view age. Instead of looking at age as a chronological one, like he did when assembling his research, we start to view age as a cultural category. These cultural categories

make sense for analyzing and categorizing the results of his research findings but in order to make these cultural categories ages, a chronological one has to be used. Additionally, by culturally categorizing individuals based on the age range, we are in essence confining their perceptions to one general view that doesn't account for opposing factors.

Intergenerational Living: An Intercultural Comparison by Bojan Grum and Alenka Temeljotov-Salaj (2016):

The second text analyzed is Intergenerational Living: An Intercultural Comparison by Bojan Grum and Alenka Temeljotov-Salaj (2016), the European Faculty of Law in Nova Gorica and a Professor in Sustainable Refurbishment and Facility Management at NTNU IBM. Grum is skilled and has extensive experience in housing, land use planning, urban planning, urban ecology, urbanism, built environment, landscape architecture, real estate, and valuation. He has fourteen publications that discuss different impacts on the living environment. Temeljotov-Salaj is skilled in psychology and construction and has extensive experience in building value orientation, co-creation solutions, urban facility management, sustainable solutions, and health and well-being. In this text Grum and Temeljotov-Salaj create and review the data they received from a questionnaire they provide to three cultural environments: Slovenia, Serbia, and Japan, to draw connections to potential living environment influences.

This text is more difficult to analyze and critique because of the cultural environments it specifically looks at. However, the results that were found on the influence that impacts one's choice in their living environment will be beneficial for my background knowledge of this thesis project. The authors' hypothesis on younger generations not gaining intergenerational benefits from living with their parents for an extended period of time is a statement that I would argue is not fully accurate. As humans, we seek social connections and knowledge which starts with our parents when we are born and continues through our lifetime, while our parents are still alive that is. As we each leave our parents and start our own living environment we still crave knowledge and social connections. We find these things in our intergenerational connections that are formed in our lives, whether they be within our living environment or other aspects of our lives.

The text also described the perceptions of younger individuals on whether the government should provide assistance to help them become independent. Their finds suggested that in certain cultural environments that it should be the responsibility of the government to help its citizens become independent. However, this presents the case of becoming independent from one's parents and becoming dependent on the government before one can become completely independent. This idea of government assistance in the United States includes things like affordable housing, rent credits, and tax incentives. These things will be looked at in more detail as the design and program of my thesis takes shape. These are not bad things they do in the end lead to an improved economy and equitable society.

A factor that leads to most individuals not becoming independent sooner is an inability to find independent housing. The text laid out that a combination of a limited job market, limited

affordable housing, and government assistance primarily for older generations is to be blamed. However, the text fails to examine the social and emotional factors of younger generations.

Another key factor the text outlines as being an obstacle for younger generations to become independent is finances. This is the factor that seems to be the most universally agreed upon. The authors outline the expense that comes with an independent living environment and found that more younger adults are waiting to leave home until later in life when they are ready to start a family. I think that this is becoming more accurate for the United States as inflation increases at a higher rate than the minimum wage rate. However, the authors offer no possible solutions to combat this financial obstacle other than government assistance.

The best study that the authors cited in the text was a study conducted in 2014 by Bostjan Kerbler that states co-dependence can bridge the gap between population aging and the built environment. This study goes to show that there are benefits to intergenerational living. When one is a part of an intergenerational living community they have the ability to have their own living environment as well as the co-dependence of others with the community. It was interesting that the authors fail to call this out as a solution to being independent.

> **"Intergenerational living does not seem to be an indication of 'being spoilt' or permissive parenting, but rather a form of good intergenerational collaboration."**
>
> - A. Naterer

The authors conclude despite their findings that younger generations are spending a longer period of time living with their parents the overall shared idea is that they still want to "go it alone." This statement doesn't help the authors prove their point that more has to be done to become independent but the authors do stress again after this statement younger generations would be able to become independent sooner if there was governmental assistance. As the older generations age and become more removed from the workings of society, it is important for the younger generations to become independent quickly to take over the reins, so to speak, from the older generations. By providing the younger generations with the resource they need to be successful, they can, in return, contribute more to society which can drive urban revival.

Promoting Sustainable Communities Through Intergenerational Practices by Tine Buffel, Free De Backer, Jeltsen Peeters, Chris Phillipson, Veronique Romero Reina, Ankelien Kindekens, Liesbeth De Donder, and Koen Lombaerts (2013):

The third text analyzed is Promoting Sustainable Communities Through Intergenerational Practices by Tine Buffel, Free De Backer, Jeltsen Peeters, Chris Phillipson, Veronique Romero Reina, Ankelien Kindekens, Liesbeth De Donder, and Koen Lombaerts (2013), all who have ties to Vrije Univeriteit Brussel, Department of Educational Sciences or The University of Manchester,

School of Social Sciences. In this text, Tine Buffel et al. describe the intergenerational practice within European societies that promote sustainable communities.

Overall, this text related to the goals of my thesis project the best and provided me with additional knowledge that will be influential to the overall project. This text shared valuable examples of how intergenerational communities influence the participants and the impacts the intergenerational practices can have on the larger community. Although this text is based on the European society, the authors shared broad enough ideas, strategies, goals, and results that most of the information in the text can be applied to almost any location and have similar results.

The founding principle that the authors built the text on is the ability for intergenerational relationships to unite communities together because they bridge the gap between generations. The authors choose of starting by setting the foundation for what intergenerational connections can do and focused first on the smallest scale, people, and then moving up to the larger scale, community, by the end of the text is a very strong way to present the intergenerational philosophy and build support its beneficial impacts.

> **"When people from different generations learn together, there is an interactive exchange of knowledge, skills, attitudes, and values."**
>
> - A. K. Bostrom

A key resource the authors used that built credibility for intergenerational practices was referencing the following definition of intergenerational practices from the UNESCO, "IPs [intergenerational practices] are vehicles for the purposeful and ongoing exchange of resources and learning among older and younger generations." However, what I found to be missing from the text that followed this definition were the results or programs that have been developed or implemented in the ten countries that were represented at the meeting where this definition was written and agreed upon.

Another key factor in explaining how the term intergenerational is different from multigenerational is called out by the authors pulling the word apart. Instead of focusing on the generational part of the term greater emphasis on the inter part - referring to "the existence of the between in relationships between people" - is required. This explains the shift away from the traditional idea of multigenerational, where it's perceived the young learn from the old to a two-way stream of learning where both the young and old are able to learn from each other.

The authors break the potential impacts of intergenerational practices into two categories, impacts on the participants and impacts on the community setting. By splitting these into the two different topics the authors are successfully able to break down intergenerational practices into small scales. These smaller scales provide the readers with a greater understanding and are left with a holistic view of intergenerational practices. Additionally, it allows readers that may be looking for ways to implement intergenerational practices to know what scale certain practices work best.

According to the text, there are four key factors that represent an effective intergenerational practice. The following are the four factors: "first, they provide opportunities for the development of relationships between generations; second, they have access to a range of support mechanisms; third, they provide opportunities for generations to do a range of things together; and fourth, they take account of program-specific issues, such as gender, culture, and language." The text also suggests that these benefits tend to influence the community through the individual participant's friends, family, neighbors, work, school, and other aspects that they may be involved in.

There were multiple ways the authors continued to grow credibility and overall support for intergenerational practice as one goes throughout the text. Earlier on I mentioned the authors' use of the UNESCO to build credibility at the beginning of the text, but the authors want to expand on this even more halfway through the text. They achieved this by including policy initiatives where established and launched by the World Health Organization. These policy initiatives show the growing world support for intergenerational practices. The World Health Organization stressed the notion that planning and designing for "active ageing" provides individuals with a greater quality of life. It is important for individuals to be happy and live a healthy lifestyle because this is reflected in those around them and the community. Designing for active ageing allows a place to become reconnected to the areas around and unit the individuals that occupy the space. This intergenerational practice can lead to urban revival when implemented.

> **"Age-friendly communities have been defined as encouraging active ageing by optimizing opportunities for health, participation and security in order to enhance quality of life as people age."**
>
> - World Health Organization

The text provides two recent examples involving intergenerational perspectives that influence the development of age-friendly communities. The information provided on Appropriate Urban Neighborhoods in Germany was smart for the authors to include to show that the community practice has worked and continues to work as we refine the possibilities of intergenerational communities. Additionally, the text included another example of intergenerational practice being implemented and working in the City of Manchester, "the first UK city to be accepted into the World Health Organization's Global Network of Age-friendly Cities. These two examples will be beneficial when evaluating the needs of Milwaukee for this thesis project.

The text concludes by outlining how neighborhoods and communities moving forward will need to recognize the growing gap between the generations and the best way to bridge this gap is by implementing intergenerational practices. These practices need to be supportive of the individuals that make community and intentionally seek permanent solutions to an age-friendly community. One of the parting thought left by the authors state, "Achieving recognition of the needs of different generations within neighborhoods, and exploiting the potential of the city for groups of whatever age, will be central to the process of making communities more 'age-friendly'."

Overall, all the three texts had relevance to this thesis project. Some aid in providing knowledge in more ways than others but together they provide a broad overview intergenerational factors, benefits, and practices that have the ability to influence this project. On the other hand, some of the information that was provided by these texts will not be directly beneficial to this thesis project. The cultural-specific data that was provided by some of the texts are not relevant to the project location. However, this data has provided me with different statistical data and information to look for and consider as I move forward with the thesis project.

> **"As demographic transitions, economic restructuring, shifting social norms and improved technological innovation have led to generations frequently becoming segregated from one another."**
>
> - from Promoting Sustainable Communities Through Intergenerational Practice

The first two texts that were analyzed took a greater look at the outside influence of one's living environment by performing data-driven studies to build their conclusions. The information that was gathered from these studies provided the authors, and the readers of the text, with a better understanding of the influences that affect one's living conditions and environment. These influences start with the factors that impact onces ability to become independent and when they are able to become independent. Once one has become independent their satisfaction in their living environment may or may not have improved. This can be due to not being able to achieve one's living environment goals yet. Assumptions from the data can be drawn that a co-dependent living environment, should as an intergenerational community, is able to provide its participants the independence they seek while providing support when one may need it. This, as a result, leads to participants being more satisfied with their living environment.

The third text that was analyzed took the approach of setting the foundation for what intergenerational connections can do and focused first on the smallest scale, people, and then moving up to the larger scale, community, by the end of the text which was a very strong way to present the intergenerational philosophy and build support its beneficial impacts. Additionally, this text provided real-world examples of implementing intergenerational practices and provided solutions for involving different generations in the process of designing age-friendly spaces and communities.

The information that has been collected from these three texts will be influential to my thesis project as proceed with the project. By combining practice-driven research and data-driven research a holistic solution can be created. These three texts, more than likely, are just the starting points to greater research and data that will be used to shape the design solution for urban revival through the use of intergenerational practice and communities.

Urby Staten Island

Figure 2.1: Urby Entrance from the Street

Location: Staten Island, New York
Year Completed: 2016
Architects: Concrete
General Contractor: AJD Construction Co.

Figure 2.2: Urby Pool and Play Area

Figure 2.3: Urby Communal Urban Farm

- 571 Apartments
- 310 Car Parking Garage
- 30,000 sq ft of Retail Space
- Public Spaces
- Communal Spaces
- Landscaped Gardens
- Pool and Play Areas
- Urban Farm

Figure 2.4: Urby Communal Cafe & Dining

Figure 2.5: Urby Communal Living Room

Figure 2.6: Urby Bodega Store

Project Takeaways:
Urby is not specifically geared to intergenerational housing but the design of the spaces is set up to promote community connections. This is done by putting the community areas at the entrance and exits of the building as well as using a design in the form of a Zebra path that connects all of the communal spaces. The urban farm is a key part of the Urby sustainable community that allows residents to work together to plant, grow, and harvest food. This food is then eaten by the residents, sold in the Bodega store, and used by the chef in the communal kitchen. The layout of Urby's units was tested before implementation to provide the most flexibility in an affordable space.

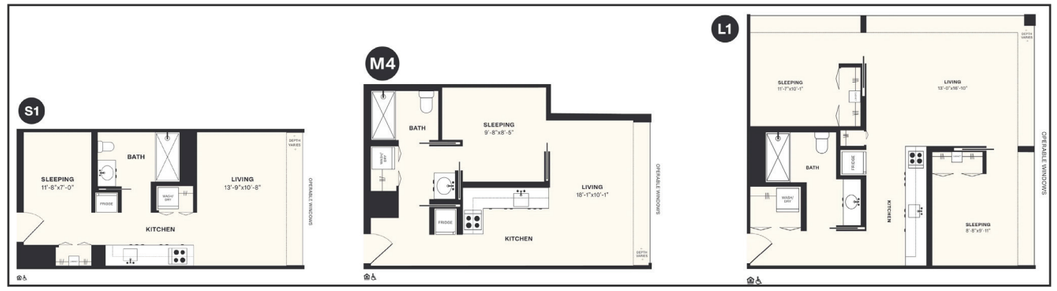


Figure 2.7: Urby Unit Floorplans

Agrihood - A Sustainable Community

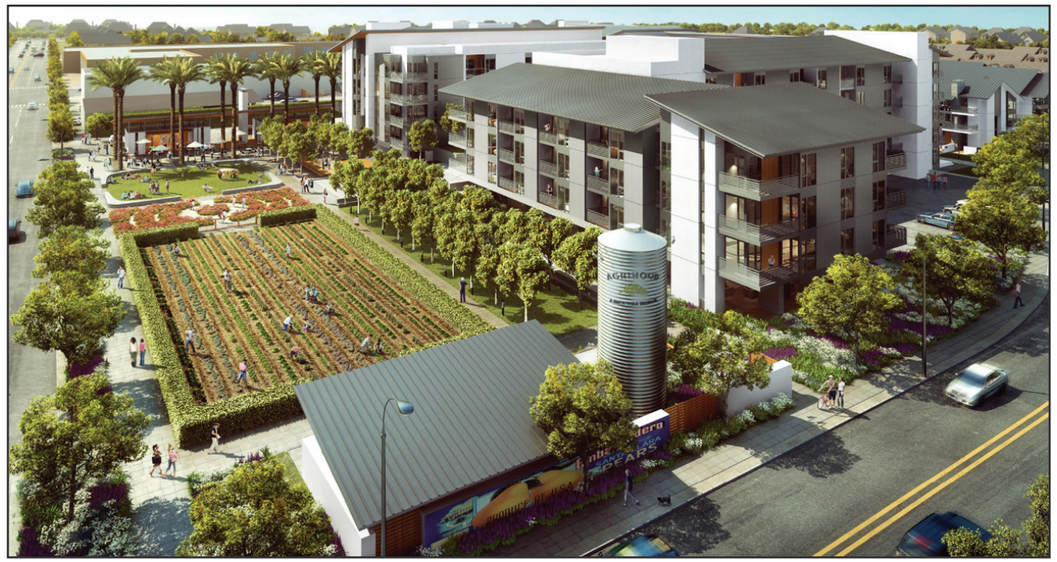


Figure 2.8: Agrihood Urban Farm Render

Location: Santa Clara, California
Year Completed: 2023 (Under Construction)
Architects: Steinberg Hart
General Contractor: The Core Companies

Figure 2.10: Agrihood Entrance Render

AGRIHOOD
A SUSTAINABLE COMMUNITY

Figure 2.9: Agrihood Community Logo

- **361 Living Units**
- **376 Car Parking Garage**
- **181 Below-Market-Rate Units**
- **2 Nearby VTA Stations**
- **Communal Spaces**
- **Pool and Play Areas**
- **1.7 Acre Urban Farm & Space**
- **Separate Senior Housing Apts**

Figure 2.11: Agrihood Outdoor Kitchen Render

Figure 2.12: Agrihood Street View Render

Figure 2.13: Agrihood Site Plan

Project Takeaways:
Agrihood's goal of becoming an affordable, sustainable, and intergenerational community is being achieved though city and resident partnerships. A main element of the Agrihood project is the intergenerational and mixed-income housing that allows anyone, struggling or not, to live side-by-side and learn from and share experiences together. Another main element of the project is incorporating active, hands-on sustainability. This is being achieved through an urban farm, green roofs, vertical gardens, solar power, and transportation management. The third main element of Agrihood that tie the previous elements together is resident engagement and activity. Thoughtful space to build community connections of being implemented into the design of the project.

Bridge Meadows

Figure 2.14: Bridge Meadows Beaverton Community

Location: Portland, Oregon
Year Completed: 2011
Architects: Carleton Hart Architecture PC
General Contractor: Walsh Construction

Figure 2.16: Bridge Meadows North Portland Community

Figure 2.15: New Meadows Youth Units

- **29 Family Homes**
- **93 Elder Apartments**
- **15 Young Adult Apartments**
- **Therapy Rooms**
- **Communal Spaces**
- **Landscaped Gardens**
- **Open Play Area**
- **Community Gardens**

Figure 2.17: New Meadows Furnished Unit

Figure 2.18: Bridge Meadows Community Room

Figure 2.19: Bridge Meadows Entrance

Project Takeaways:
Bridge Meadows strives "to create a world where every generation is cherished" through providing living communities for those formerly in foster care, adoptive families, and elders. The design and layout of the communities are meant to foster connections between the generations. Larger family units are incorporated into the communities since most adoptive parents are kinship relations that may need to accommodate 3-4 siblings. Besides the individual living units, communal areas have been added to strengthen connections and provide supportive services to the residents that make up the living communities. Bridge Meadows wants to give every child a chance to have a successful life.

Figure 2.20: Bridge Meadows Redmond Units

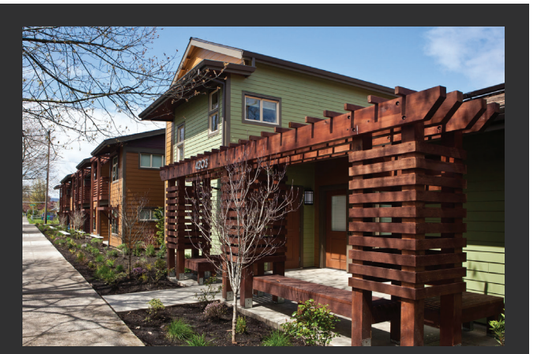


Figure 2.21: Private Entry on Townhouse Units

The three case studies that have been outlined previously, as well as, some broader idea case studies that have been examined have similarities and differences. Each one has featured different living unit options for residents to choose from to support the integration of different sized family groups into the living community. The size of these spaces varied based on the group of individuals the project was geared towards. However, each case study that was looked at featured affordable living units for all individuals. Even though they were affordable they didn't lack in design or communal spaces.

A major element of each project was the community spaces that were integrated both inside and outside. These spaces contribute the most to intergenerational living communities because this is where a lot of the interpersonal connections are first established. It is important that these spaces are accessible to everyone and can be of benefit to everyone. A communal space that continued to appear in each case study was the use of gardens or rather urban farms. This type of space allows multiple generations to work together to plant, grow, harvest, cook, and eat together. With this thesis project taking place in a colder climate, the exterior communal spaces will need to be considered carefully.

Since the exterior communal spaces for this thesis project may not be able to be used year-round, the interior communal spaces will need to be able to supplement the exterior spaces during the colder months. The three previous case studies each provide different interior communal spaces based on their project typologies. Some of the interior spaces that the case studies used are a communal kitchen, dining room, living room, recreation room, cafe, store, and supportive care spaces. Each one of these has the potential to be implemented into this thesis project. Some other necessary spaces that are needed can be designed to encourage resident connections like the entry spaces, potentially shared laundry spaces, fitness spaces, and mail room area. These spaces are typical include in projects of this typology but little thought of resident connections within the spaces has not influenced the designs previously.

Each case study looked to the future of the community and implemented sustainable strategies. Some of these strategies include solar power, green roofs, urban farms, access to public transit, and efficient floor plates. By implementing sustainable strategies in an affordable housing development both the owner and renting residents benefit on have lower utility bills. Additionally, by establishing this project in a downtown area that is close to public transit residents are not required to have a vehicle each allows reduces the amount of parking needed on-site and improve the air quality for the entire city.

Not all of the case studies that were looked at include different housing types but a few of them did. For example, Agrihood includes units that are geared specifically for seniors, other units that are specifically affordable, and townhome units that are available to anyone. By providing different types of housing a great variety of people and generations can be accommodated which diversify that living community providing more opportunities for residents to learn from each other and experience life together. The driving force behind intergenerational communities is providing spaces that allow people from different backgrounds and ages to come together to learn from each other and have a better understanding of one another.


Figure 2.22: Sunrise View from the Site

My project is geared primarily toward providing an interactive generational living community in a downtown area which will densify the area and drive economic activity in the area up. Additionally, the project will bring business on-site that will draw outside consumers to the site as well, which will make the site more economically influential for the area than it is right now. By implementing this project on the site the value of the area, that's on the edge of the downtown area, will increase in value, draw more people to the site and area, and improve the safety of the site for all individuals. In order for this project to happen funding will need to be secured which can come from a number of sources including private donors, developers, city incentives, and state or federal funding assistance.

The return on investment for this project is both monetary and intangible. The monetary aspects come from taxes, sale of retail space, sale of living spaces, and rent from spaces throughout the building. The intangible aspects include a more connected downtown area, a group of generations that have a better understanding of each other, and a decrease in criminal activity on the site.

The project also looks to achieve a high level of sustainability such as WELL, LEED Platinum, and/or LEED Net Zero certifications. The practices that these certifications employ will lead to a greater reduction in carbon emissions, a longer building lifespan reducing material waste, and an improved physical environment for individuals to interact with the site. The aspects that are included in this thesis project fit the site and act as a connection between the denseness of the downtown area to the North and the residential area to the South of the site. This project looks to serve as a catalyst for how future living communities can connect people together and to the greater community.

My thesis project on Intergenerational Urban Redevelopment is important to me because I have seen a growing divide between the current living generations that has occurred from the advancement of technology over time. More often than not, older individuals that are retired are looked down on as no longer contributing to society by younger individuals, and younger individuals are looked down on by older generations for not having enough life experience or having a poor work ethic. My project looks to bring these generations together to learn from and help each other in a living community. It is important for me to look at this project in this stage of my professional development because it allows me to increase my knowledge of mixed-use living communities that provide spaces and moments that bring people together. My project will also allow me to build a greater understanding of sustainable design strategies, community connection strategies, and the ability to demonstrate my holistic understanding of design and architecture. This project may not be perfect but architecture, in general, is not perfect. It is continually evolving and looking for the next best design response.

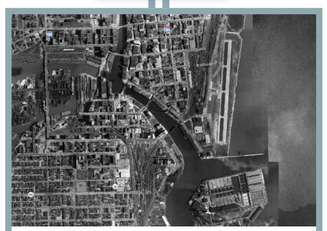
HISTORY, SOCIAL, & CULTURAL

HISTORY OF THE SITE

1937

The entire site is developed with warehouses and the west shoreline of Lake Michigan is undeveloped.

1951



The west shoreline of Lake Michigan is developed and includes a paved runway.

1963

A electrical substation was built to the south of the site. The west lake shoreline was extended farther east.

1970

I-94 is constructed to the west of the site and I-794 is constructed to the north of the site.

1975

The runway landing strip is removed to make way for the I-794 and the bridge to be constructed to the east.

1985

Redevelopment and infill begins around the new interstate system.

HISTORY OF THE SITE

1990

The west shoreline of Lake Michigan is expanded farther east to form a bay area to the east of the site.

2000

The rail yard to the west of the site is replace commercial warehouse buildings.

2005

The east Milwaukee river bank is redeveloped and some warehouse on the site are removed.

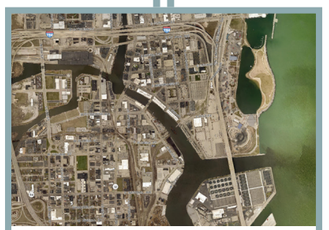
2010

All warehouses on the site have been removed expect for the ones on the south and east sides of the site.

2015

The railroad tracks that cross S Water St and the Milwaukee River are removed except the river bridge.

2020



Old warehouse foundations are removed and a new building is constructed on the north side of the site.

Figure 2.23: Timeline of Site History

HISTORY, SOCIAL, & CULTURAL

HISTORY OF INTERGENERATIONAL LIVING

HISTORY OF INTERGENERATIONAL LIVING

Pre WWI

Before the USA become a country and before WWI, single multigenerational living was common.

Post WWII

It becomes more common for families to live separately and senior care facilities grow in popularity.

1950

21% of households included 2 or more generations under one roof.

1980

12% of households included 2 or more generations under one roof.

1994

Intergenerational living is introduced for foster care youth to provide a more stable living environment.

HOPE MEADOWS

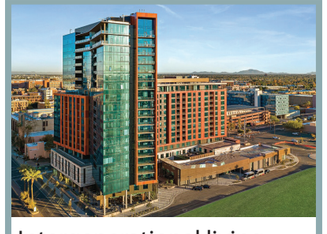
2011

The intergenerational concept grows to other cities, senior facilities, and college campuses.

2014

Multigenerational living grows in popularity again. 19% of U.S. residents live in a multigenerational home.

2015 +



Intergenerational living becomes known as New Urbanism after seen successful integrations.

Figure 2.24: Timeline of Intergenerational Living History

Social Benefits of Intergenerational Living

Studies conducted in Japan on the effects of intergenerational living show a direct correlation of improving the health of older adults. These health factors include physical, emotional, and mental health. The older adults that took part in the research study showed a decrease in depression symptoms, improved physical activity, strength, cognitive ability, and a decrease in sense of social isolation. Although this study only looked at the effects intergenerational living had on older adults, I believe a lot of the effects could be similarly found the other generations that make up the living communities. According to the BC Medical Journal, "while systematic reviews and meta-analyses on the topic of intergenerational housing and programming are limited, one systematic review compared seven studies on intergenerational programs, five of which showed mixed or positive outcomes for older adults. Importantly, Hawkley and colleagues described that loneliness can be alleviated, with one method being through increased socialization."

> **"With these statistics, we can start to appreciate the worldwide economic impact of tackling geriatric mental health with reduced social isolation and loneliness through intergenerational housing."**
> - Raiya Suleman, BHSc & Faizan Bhatia, MD

Besides the health impacts that intergenerational living can have, the overall social benefits that come form this community style can impact society. Social capital and trust can be built from pairing older adults and younger generation up to learn from each other. It allows ageism gaps be eliminated between the generations which, in return, leads to an increased sense of community reduces the effects of social isolation. As social isolation decreases so to does depression which allows for more social, physical, and economical activity on and around the site.

For younger generations and students, intergenerational housing provides a cost effective housing option. Most intergenerational communities provide affordable housing only or offer housing incentives to better diversify the community. This style of housing allows students and younger adults to network and be mentored by someone that has gone before them or simply have a community of people to turn to when they need support. The older generations that living in a intergenerational housing community typical remain in their own space longer, without full assistance, since the have a community of to act as partial term caregivers.

Older adults benefit from being around youth but youth can benefit from being integrated with older generations. A 2015 study concluded that the positive effects on youth that come out of intergenerational programs can dramatically reduce feelings of anxiety and improve ones sense of self-worth. Additionally, when youth have greater interactions with other generations their academic performance may improve, they develop a positive perception of the elderly, and build stronger communication and empathy skills.

HISTORY, SOCIAL, & CULTURAL

Cultural Benefits of Intergenerational Living

Cultural diversity improves a community's quality of life for individuals of all races, incomes, and ages. These qualities of life factors include general happiness, connectedness, economic growth, better education and understanding, and improved health to name a few. Cultural diversity can be achieved by creating communities, like intergenerational living communities, that welcome all individuals and has amenities that can be of benefit to everyone.

Studies of shown that diverse communities tend to be more innovative, entrepreneurial, and economically competitive driving economic growth and increased job opportunities for every individual in the community. As the economic stability of the community increases so does the financial stability of the individuals the make up the community. In return, increased economic growth in one area usually motivates the surrounding areas to boost their economic base resulting in a better more economically vibrant city.

> **"Diversity leads to greater prosperity and opportunity across a wide spectrum of issues: jobs, education, and health."**
> - Gregory Squires, Ph.D.

When different groups of individuals are brought together a greater understanding and education are developed. When people of varying income have access to some educational schooling, the chances of future success are much greater than if segregated. As noted before an intergenerational community has the ability to provide students and all individuals with the ability to learn from each other and helpful resource available to them. When individuals from different backgrounds and experiences live together in an intergenerational living community they develop a better understanding of others and the cultural ties that they may bring to the community. With greater cultural understanding comes less space for discrimination to have a place within the community improving the over well-being and health of the community. Diverse communities are filled with different ideas that allow the best solutions to a common problem to be employed.

Figure 2.25: Culturally Diverse Living Community

Introduction To The Site

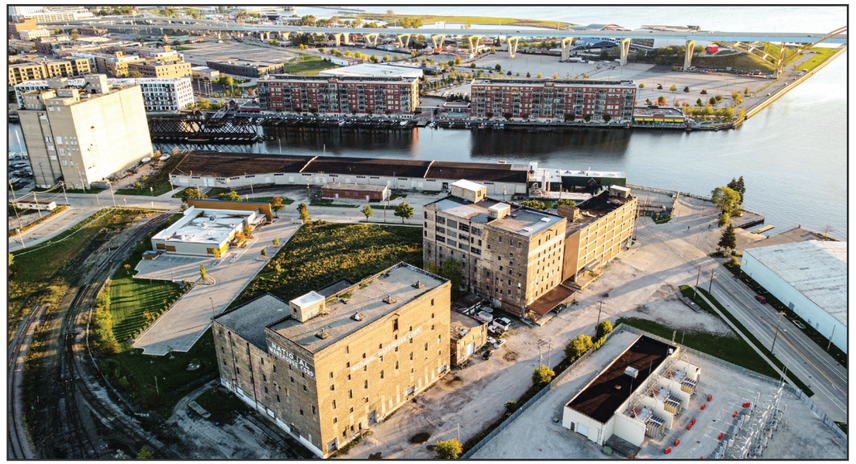


Figure 2.26: Aerial View of Site Looking Northeast from Southwest Corner of Site

After deciding on the general idea for my thesis it was time for me to choose the site location that would best suit the project and the place that needed a project on this topic. To start forming a list of possible cities that may be suitable for the project. The criteria that I used to form this list consisted of large metropolitan areas, space within or near the downtown district, access to public transit, local housing need, and near a body of water for the ability to promote a greater connection to nature. The list consisted of the following seven cities Milwaukee, WI, Tempe, AZ, St. Louis, MO, Cedar Rapids, IA, Casper, WY, Clarksville, IN, and Philadelphia, PA. After comparing all seven cities, I narrowed down the two possible cities to locate the project in, to Milwaukee and St. Louis based on the possible site options within the cities' downtowns. Upon further analysis of the local needs, Milwaukee was chosen as the location for this thesis project.

Once I choose Milwaukee, I looked closer into the specific site location and selection. I choose two sites on the southeast side of Downtown Milwaukee which were highlighted in the site portion of my thesis proposal above. Upon traveling to the sites, I concluded that site option one was not larger enough for the program of the project and was not accessible to obtain any site analysis. Site option two, just to the south of option one, provided me with the space that is needed for the project program as well as meeting the criteria I set at the beginning of my site selection process.

The site for this project is located between East Florida Street and Bruce Street and between the Milwaukee River on the east to the first set of railroad tracks to the west. The site offers incredible views of the water, downtown, and the historic buildings that surround the site. The site has been previously developed but has some open green space from structures that have been removed from the site. Most of the buildings that are on the site are older warehouse buildings with the exception of a clinic that was built in 2017.

Site Location

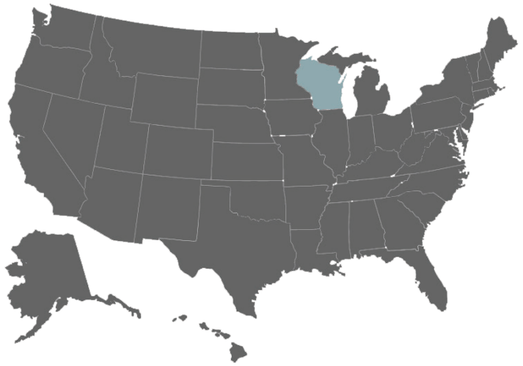


Figure 2.27: Wisconsin Within the USA

Figure 2.28: Milwaukee County Within Wisconsin

Figure 2.29: Site Within The City of Milwaukee

Proposed Site

Lot #1

Address:	343 E Florida St Milwaukee, WI 53204
Taxkey:	4290091000
Owner:	Mandel Fifth Ward
Zoning:	Industrial-Heavy
Land Use:	7523 - Parking Lot
Land Category:	9 - Transportation and Utilities

Lot #2

Address:	413 S Water ST Milwaukee, WI 53204
Taxkey:	4290064111
Owner:	Chicago & North Western
Zoning:	Industrial-Mixed
Land Use:	4010 - Railroads
Land Category:	9 - Transportation and Utilities

Lot #3

Address:	435 S Water St Milwaukee, WI 53204
Taxkey:	4290441000
Owner:	Planned Parenthood of Milwaukee
Year Built:	2017
Building Area:	11,845 sq ft
Zoning:	Industrial-Mixed
Land Use:	8011- Physicians-Offices of
Land Category:	6 - Services, Finance, Ins, R.E.

Lot #4

Address:	503 S Water ST Milwaukee, WI 53204
Taxkey:	4290442000
Owner:	Planned Parenthood of Milwaukee
Zoning:	Industrial-Mixed
Land Use:	8880 - Vacant Lot
Land Category:	13 - Vacant Public/Private Lot

Lot #5

Address:	531 S Water St Milwaukee, WI 53204
Taxkey:	4290021100
Owner:	National Warehouse Corporation Inc.
Year Built:	1925
Building Area:	136,254 sq ft
Zoning:	Industrial-Mixed
Land Use:	9999 - Commercial Mixed Use
Land Category:	7 - Commercial Mixed

Figures 2.30 - 2.40

Lot #6

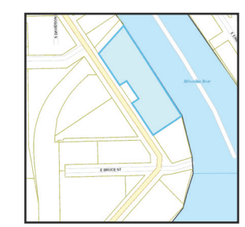
Address:	408 E Bruce St Milwaukee, WI 53204
Taxkey:	4290022000
Owner:	National Warehouse Corporation Inc.
Year Built:	1890
Building Area:	98,072 sq ft
Zoning:	Industrial-Mixed
Land Use:	4225 - General Warehousing, Storage
Land Category:	8 - MFG, Constr, Warehouse

Lot #7

Address:	404 S Water St Milwaukee, WI 53204
Taxkey:	4290033220
Owner:	C & NW Transportation Co
Zoning:	Industrial-Mixed
Land Use:	8880 - Vacant Lot
Land Category:	13 - Vacant Public/Private Lot

Lot #8

Address:	412 S Water St Milwaukee, WI 53204
Taxkey:	4290033100
Owner:	Hansen Storage Company
Year Built:	1948
Building Area:	71,092 sq ft
Zoning:	Industrial-Mixed
Land Use:	4225 - General Warehousing, Storage
Land Category:	8 - MFG, Constr, Warehouse

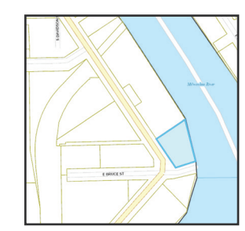


Lot #9

Address:	500 S Water St Milwaukee, WI 53204
Taxkey:	4290034000
Owner:	Hansen Storage Company
Year Built:	1948
Building Area:	3,000 sq ft
Zoning:	Industrial-Mixed
Land Use:	4222 - Refrigerated Warehousing
Land Category:	8 - MFG, Constr, Warehouse

Lot #10

Address:	546 S Water St Milwaukee, WI 53204
Taxkey:	4290036000
Owner:	Elementis LTP LP
Zoning:	Industrial-Mixed
Land Use:	2819 - Industrial Inorganic Chemical
Land Category:	8 - MFG, Constr, Warehouse



Views From The Site

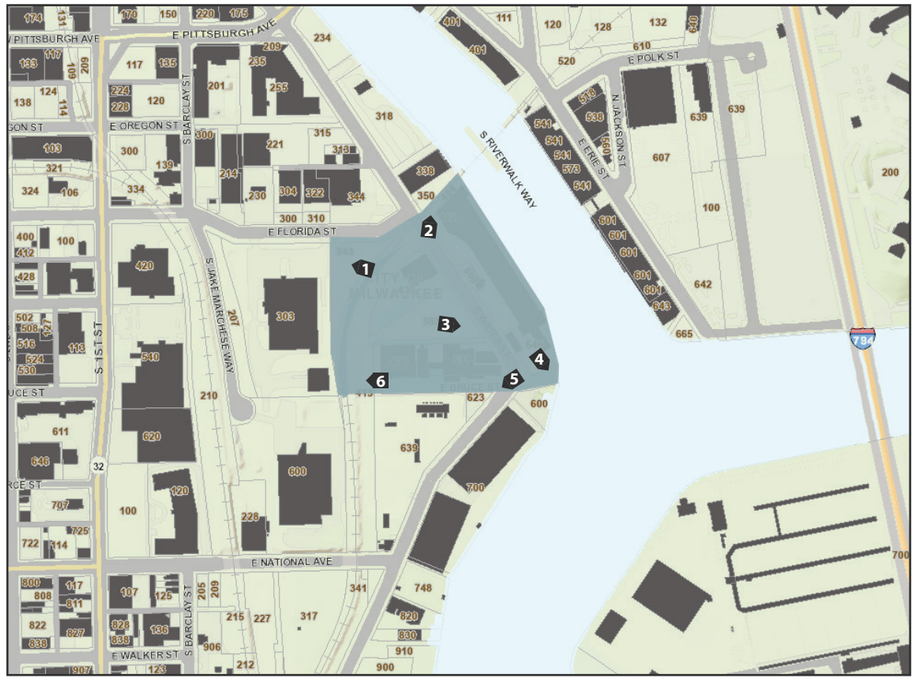


Figure 2.41: Site View Point Map

The location of this thesis project is on the south side of Downtown Milwaukee, located at the point where the Milwaukee River and Kinnickinnic River meet Lake Michigan. After visiting the site in October, site option 2 was chosen as the final site for this thesis project. The site sits in a part of the downtown district that has great potential but lacks community draw. However, with the right design solution and improvements life can be restored to this part of the downtown area. Being located on the shores of the river and lake, beautiful sunrises can be viewed from the site and a stronger connection to the water can be made. The current natural green space in the center of the site allows a break in the dense building makeup and hardscape of the area. This is a feature that will be considered and preserved in some form when planning for the future of the site. The site is surrounded by historic buildings that have been or can be restored. These historic buildings give the area its character and charm while helping people feel a stronger connection to the area. This site has the power to reconnect the area back to the greater downtown district by creating a place that attracts interaction instead of repealing urban connections.

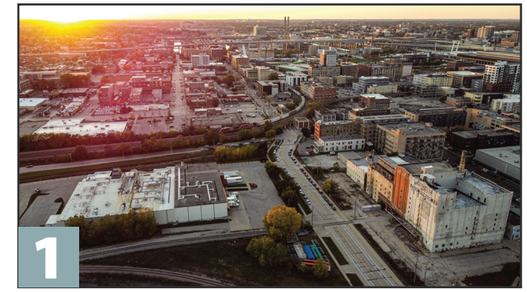


Figure 2.42: View looking Northwest from the site. Old historic buildings lay to North of the site and a commercial building lays directly to the West of the site. The heart of downtown is just to the North.

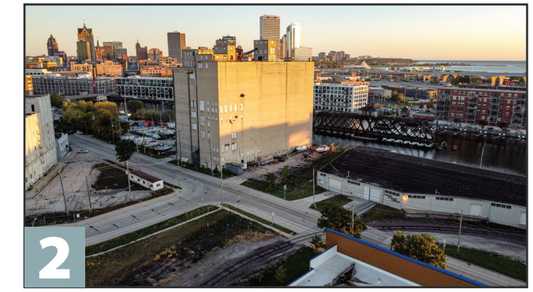


Figure 2.43: View looking Northeast from the site towards downtown. A decommissioned, turning railroad bridge still sits in the middle of the Milwaukee River to the East of the site. The art museum can be seen in the distance.

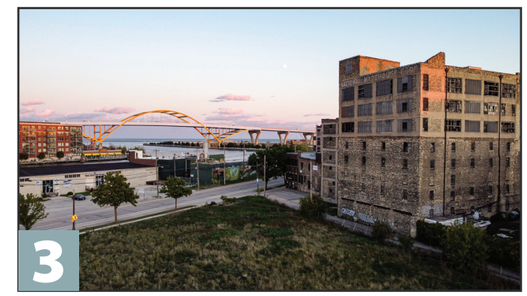


Figure 2.44: View looking Southeast on the site towards the point were the two rivers meet Lake Michigan. Also seen above is the I-784 bridge over the water inlet.

Figure 2.45: View looking Southeast from the site towards Jones' Island and Kinnickinnic River.

Figure 2.46: View looking Southwest from the site towards a few commercial buildings and the denser residential area beyond.

Figure 2.47: View looking directly West from the site towards commercial and mixed use districts. In the distance I-43 can be seen as well as Miller Park on the horizon line.

Built Features On The Site

Figure 2.48: Site and Surrounding Area Density Map

The site currently features ten commercial buildings with nine of them being a warehouse or storage building and one health clinic. The clinic is a conventionally constructed building while four of the warehouse facilities are constructed with brick, and the other five buildings are constructed from concrete or concrete masonry units. Additionally, all ten buildings are surrounded by concrete or asphalt parking lots. Abandoned railroad tracks run along the west side of the site and arc around to the north side of the site before terminating at the river. South Water Street also runs through the site. The ten buildings on the site vary in age and condition. The five warehouse buildings on the south side of the site show the greatest signs of physical deterioration and structural disrepair. The four concrete storage buildings on the east side of the site, along the river, have exposed rebar and cracking concrete. The clinic on the north side of the site is the newest building on the site but is already showing aging signs. The wood cladding is weathered and there are rust stains on various places around the building. The site built features for this thesis site overall is not very dense compared to the rest of the surrounding area and city. The area to the north of the site has denser blocks with larger buildings while the areas to the southwest of the site are denser with residential scaled blocks.


Figure 2.49: Looking south on South Water Street from the north side of the site. The street has on-street parking on both sides, bike lanes on both sides, one lane heading north, and one lane heading south.


Figure 2.50: Abandoned railroad tracks run along the west and north sides on the site. Natural vegetation has grown between the rails and ties in same places.


Figure 2.51: Southwest warehouse on the site. Vegetation has grown up the north wall. Brick is crumbling and windows have been broken out.


Figure 2.52: Southeast warehouse on the site. Brick and concrete are crumbling and windows have been broken out. Some openings in the build have been patched with sheet metal.


Figure 2.53: The Southeast face of the warehouse, the side facing the water, has a lot of exposed rebar, cracked or crumbling concrete, and broken windows.


Figure 2.54: The Hanson Storage building on the east side of the site has cracking concrete walls, exposed rebar, and rust stains from the rebar.

Light Quality On The Site

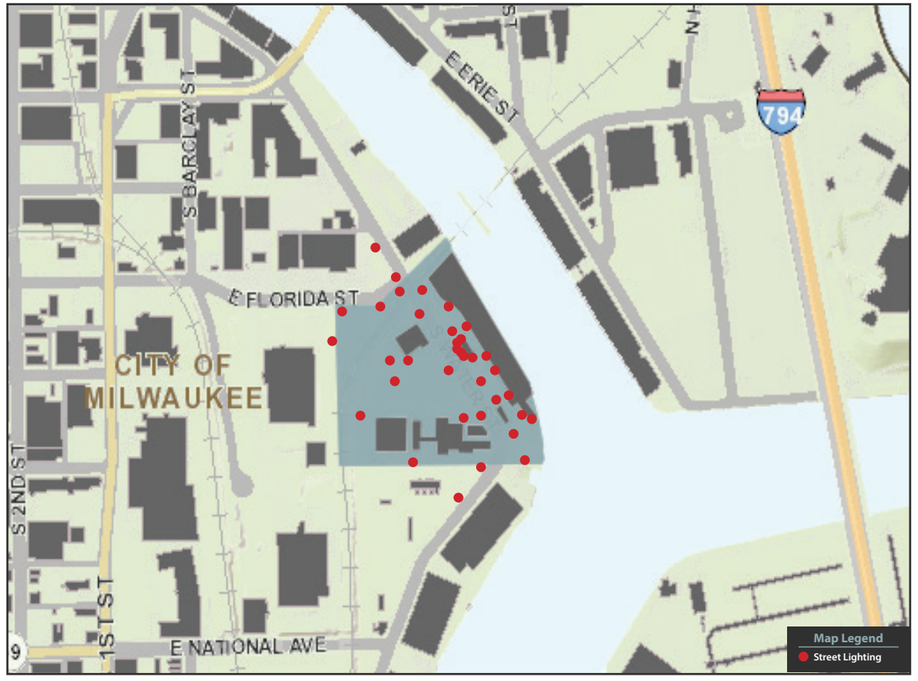


Figure 2.55: Street Lights and Security Lights Around the Site

The site currently has quite a few lights along the street as well as security lights around some of the buildings that are on the site. However, as you move farther onto the site the about of nighttime lighting is limited with most currently coming from the three lights in the Planned Parenthood parking lot. The street lights along the street are dim lights that give off a warm orange glow. The security lights that are on the buildings are very bright, directed outwards more than down, and give off a bright yellow glow. The lights that are in the parking lot are the newest lights on site which are bright cold white LED lights.

In the morning, the site receives a lot of unobstructed light from the east as the sun rises over Lake Michigan. As the day goes on the sun moves to the south which provides a lot of natural light to the whole site. The only exception to this is the area directly to the north of the buildings on the site currently. As the sun starts to set light starts to hit the from the west side of the site. The sun hits the existing buildings and hits the current green area between the buildings.

Figure 2.56: Morning sun shining on the site at 7:46 am on September 17, 2021.

Figure 2.57: Mid-day sun shining on the site at 11:10 am on September 17, 2021.

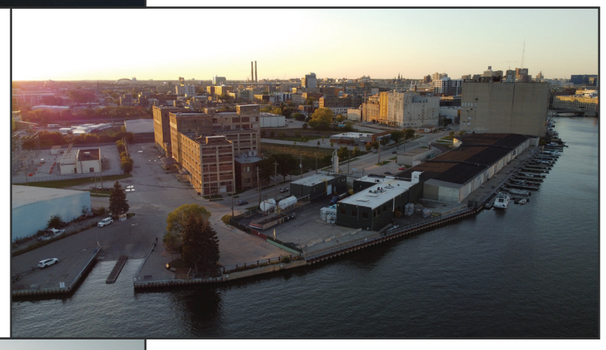


Figure 2.58: Evening sun shining on the site at 5:45 pm on September 16, 2021.

Figure 2.59: Night lighting on the site at 6:21 pm on September 16, 2021.

Vegetation On The Site

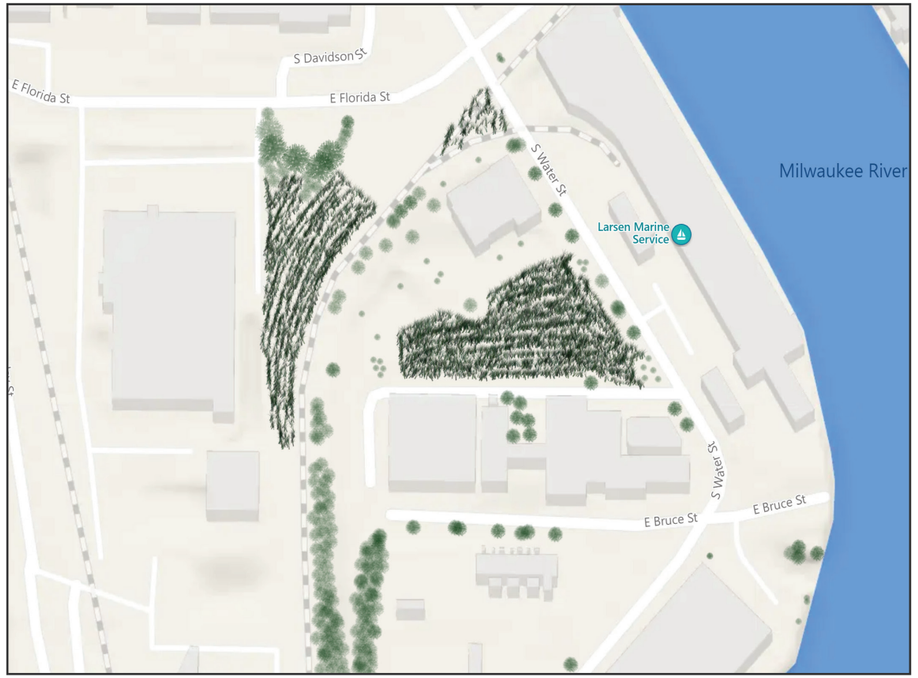


Figure 2.60: Tree and Natural Vegetation Site Map

The vegetation that is currently on the site is mostly native plants and grass. Larger trees are spread around the edges of the site with a few small new trees that have been planted on and around the site. The areas of the site that aren't built on, paved, or graveled are covered with natural plantings or grass. The map above shows the two areas, in dark green, that are covered in unmowed grass and natural vegetation to the site. There are a few places around the site that have been purposely landscaped with different vegetation that provides some color to the site. Overall, the site vegetation has some soft and maintained areas but a large majored of the site is covered in rough natural vegetation. The site is filled with shades of green and brown and small pops of color.

Figure 2.61-2.74: Vegetation on Site

Water Around The Site

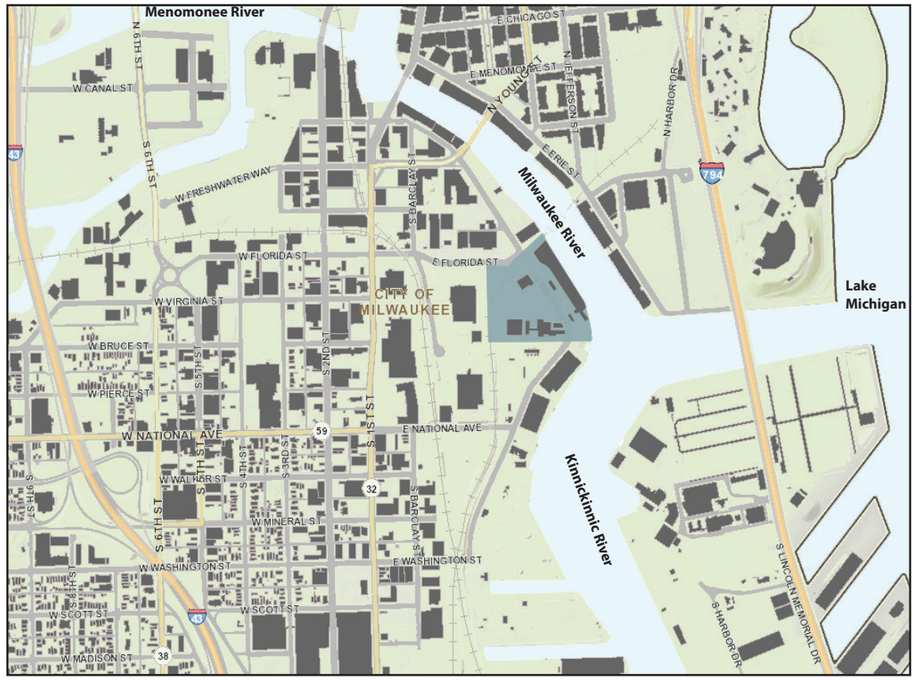


Figure 2.75: Waterways Surrounding the Site

The site for this thesis project sits surrounded by multiple bodies of water. The Menomonee River meets the Milwaukee River just to the northwest of the site. The Milwaukee River runs along the east side of the site and ends on the southeast corner of the site where the river meets Lake Michigan and the Kinnickinnic River begins. These permanent bodies of water are free-flowing and important waterways to the history of Milwaukee. For the most part, the water is clean and safe to be in, but should not be used for drinking or washing because of pollution that has infected the water both now and in the past. Being located this close to multiple waterways, a variety of connections to the water and water actives can be accessed from the project site.


Figure 2.76: Lake Michigan to the East of the Site

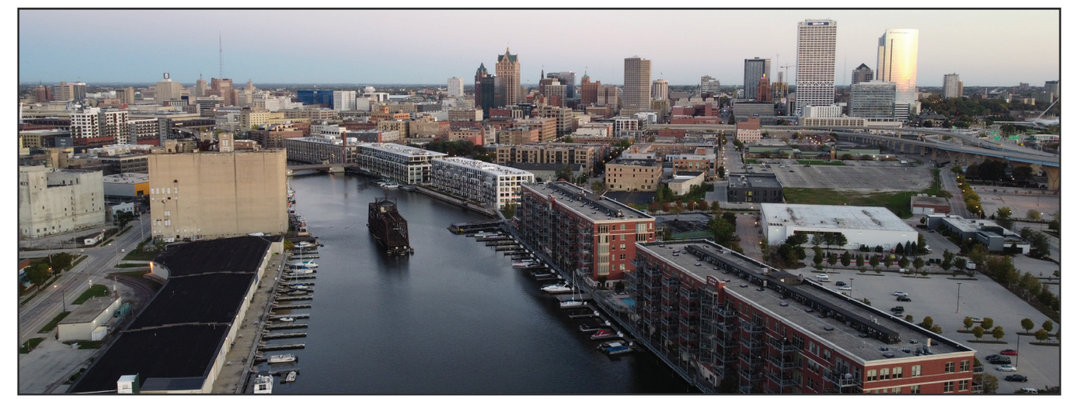


Figure 2.77: Milwaukee River to the Northeast of the Site


Figure 2.78: Kinnickinnic River to the Southeast of the Site

Distress On The Site

Figure 2.79: Signs of Human Activity Present on the Site

Figure 2.80: Sign of Crumbling Concrete on the Site

Figure 2.81: Signs of Broken Windows and Crumbling Brick

Figure 2.82: Signs of Structural Distress on the Site

The site shows signs of both natural distress and human activity distress. Most of the structures on the site are older warehouse buildings built from brick or concrete that are deteriorating. Exposed rebar can be seen on most of the concrete structures as the concrete had eroded and crumbled away over time. The east side of the structures on the site has experienced greater impacts of erosion from the large bodies of water. Broken windows and attempts to seal holes around the structures can be seen on almost all of the structures on the site. Half the structures on the site are currently abandoned and show signs of possible squatters.

The one space that surrounds the structures on the site also shows signs of distress. Although the vegetation is natural, it is not maintained and feels out of place in the middle of the city. Adding to the distress feeling that the tall unmaintained vegetation gives the site, the amount of gravel and crumbling pavement on the site makes the area feel unsafe and undesirable.

Additionally, the site is currently the area where a lot of criminal activity takes place. Upon my visit to the site, I witness trespassing, drug deals, and drug use happening on and around the site. However, I felt that just being on the site deterred some criminal activity from taking place on the site. This is a sign that with an improvement and redevelopment of the site were to take place the amount of criminal activity that takes place there would more than likely be reduced.

Vehicular Traffic

Figure 2.83: Vehicular Traffic on the Site

Pedestrian Traffic

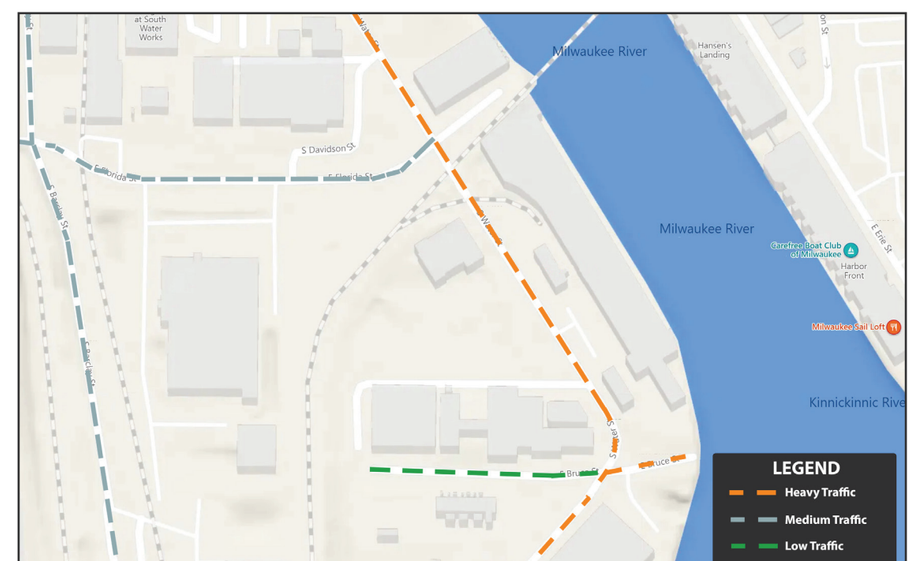


Figure 2.84: Bike and Pedestrian Traffic on the Site

Soils On The Site

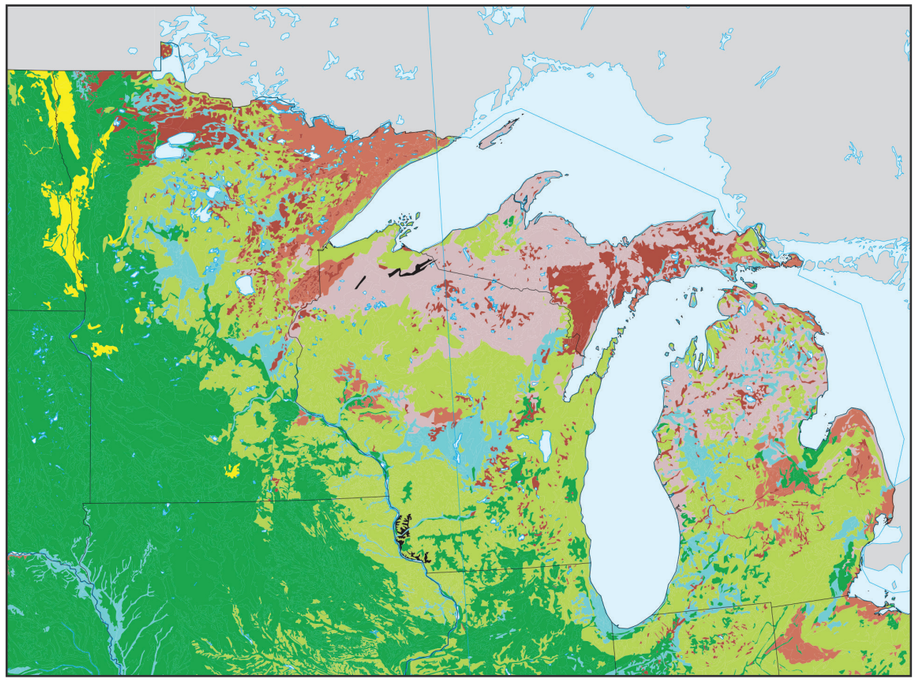


Figure 2.85: Map of Soil Orders Across Wisconsin

The site for this thesis project is looked in Milwaukee, WI along the Great Lake of Michigan. The soil makeup of this area consists mostly of the Alfisols soil order which is a USDA soil taxonomy. This type of soil is formed in semi-arid to humid areas and has clay-enriched subsoils. Alfisols soils have become known for food and fiber production. The soil suborder found on the site is Udalfs. Udic moisture regimes can be found in Udalfs. Available soil information for Milwaukee is limited.

SITE ANALYSIS

Site Topography

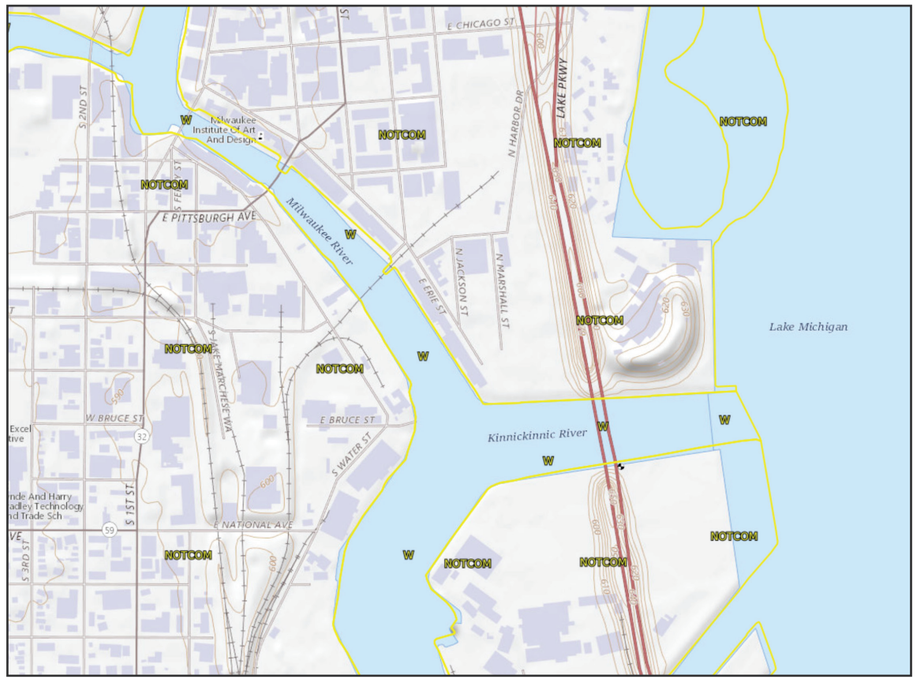


Figure 2.86: Map of Site Contours

The site is almost completely flat with the only change in elevation near the railroad tracks on the west side of the site. The elevation change is a ten-foot change in elevation. The small area is currently covered in trees and rough grass.

Site Climatology

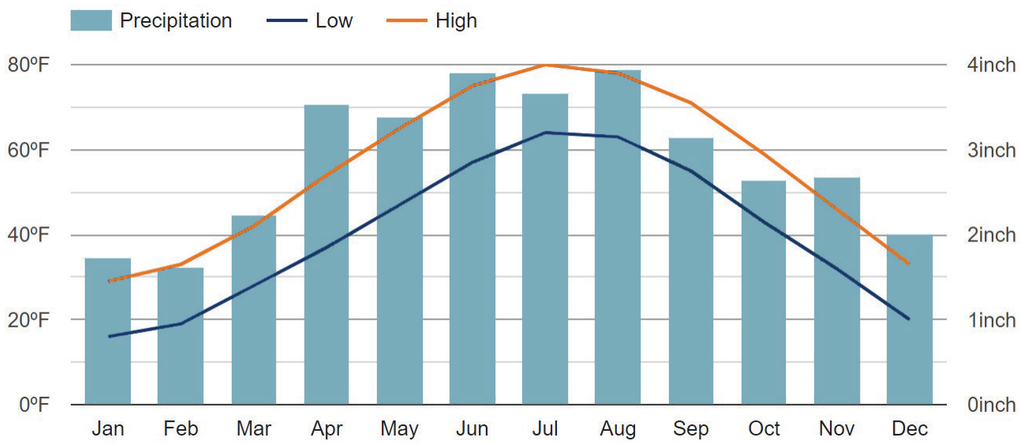


Figure 2.87: Milwaukee Climate Chart

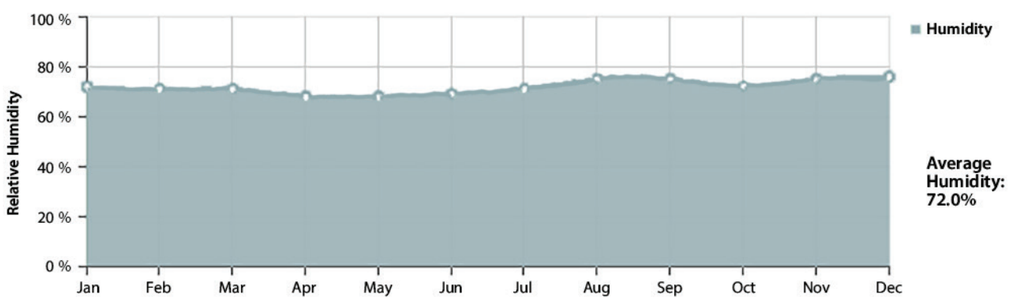


Figure 2.88: Milwaukee Relative Humidity Chart

The city of Milwaukee is located in an area that experiences all four seasons and the temperature changes that come with them. On average, Milwaukee experiences its coldest weather in January and its warmest weather in July. However, the city experiences its highest average humidity in the month of December.

Compared to other areas of the Midwest, Milwaukee tends to have less wind but experiences higher wind gusts when they do have wind. Figure 2.89 to right shows the annual windrose for Milwaukee which shows the wind speeds from the south during the summer and the wind speeds from the north during the winter.

Figure 2.90 shows the path of the sun across the site during the summer and winter solstices and the spring and fall equinoxes. Each diagram shows the location of the sun at noon on each of the four days. The amount of daylight and shadow length is noted for each one as well.

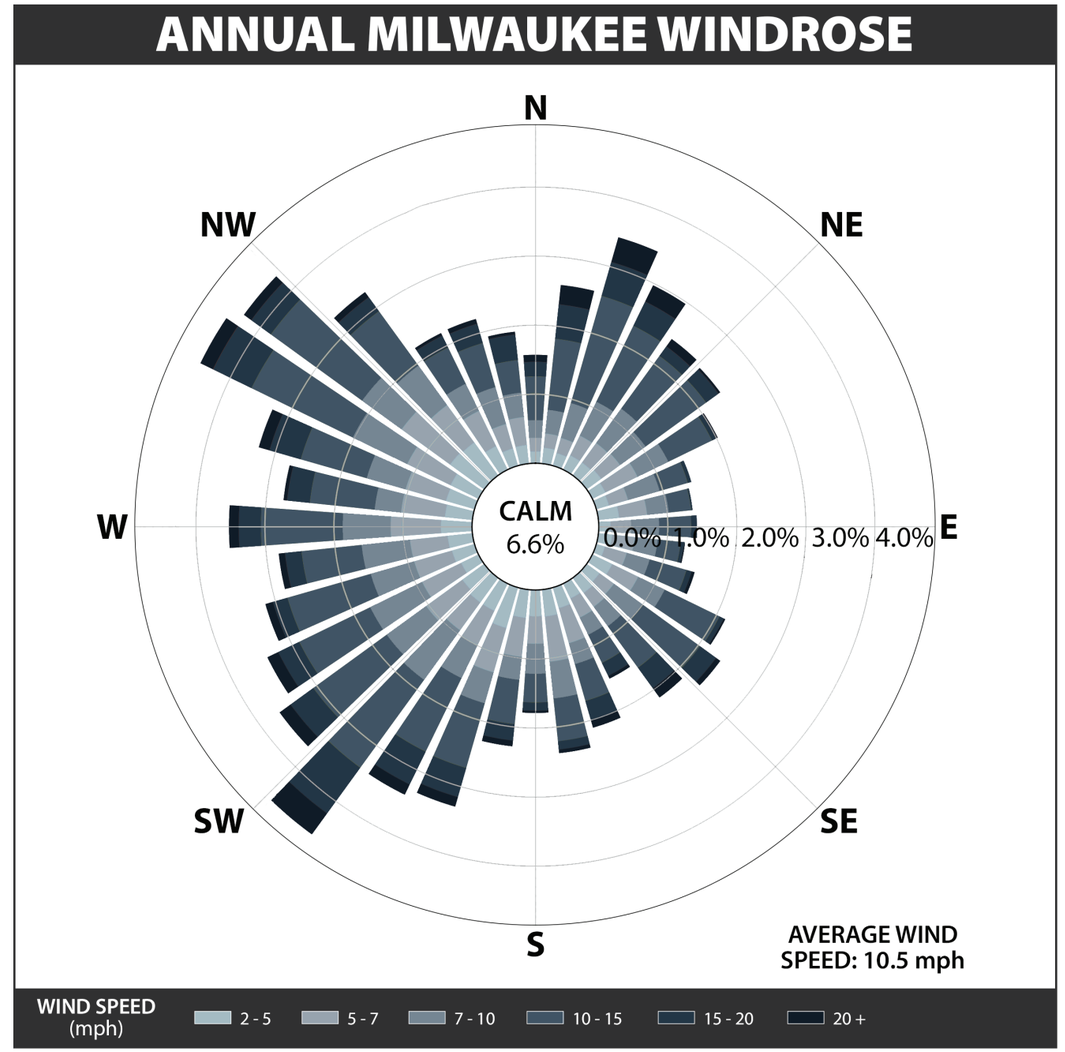


Figure 2.89: Annual Milwaukee Windrose

SPRING EQUINOX

Sunrise - 06:52 am
Sunset - 07:05 pm
Altitude - 45.52 Degrees
Azimuth - 158.82 Degrees
Object to Shadow Length - 1:0.98 meters

SUMMER SOLSTICE

Sunrise - 05:12 am
Sunset - 08:35 pm
Altitude - 67.51 Degrees
Azimuth - 146.29 Degrees
Object to Shadow Length - 1:0.41 meters

FALL EQUINOX

Sunrise - 06:40 am
Sunset - 06:47 pm
Altitude - 45.54 Degrees
Azimuth - 164.26 Degrees
Object to Shadow Length - 1:0.98 meters

WINTER SOLSTICE

Sunrise - 07:20 am
Sunset - 04:20 pm
Altitude - 23.53 Degrees
Azimuth - 182.52 Degrees
Object to Shadow Length - 1:2.30 meters

Figure 2.90: Site Sun Path Diagrams

Existing Site Aerial Fly Around

FLOWCODE

PRIVACY.FLOWCODE.COM

Figure 2.91: QR Code to Site Fly Around Video

Performance Measurements: The cost of living continues to rise, and as downtown districts are revitalized the amount of affordable housing within the area decreases comparably. This leads to inequitable districts and a greater divide between the people of the community. Through thoughtful and efficient design, a property can lower its operational cost, provide affordable spaces, and restore equity to the downtown district while maintaining a similar return on investment.

A variety of design elements within the project will be measured to evaluate the performance to ensure the project meets the goals of restoring social equity to the area, providing affordable spaces for living and working, as well as lower operational costs through sustainable design approaches. A series of cost analyses will be performed to compare different design aspects to ensure the greatest return on investment without compromising the quality of life for the project occupants.

Additionally, environmental and social impact analysis will be evaluated to see if the project benefits the community. The social impact conclusions that are drawn from this project will be specific to the site and overall area and may require modifications to the design to reflect the findings analysis to achieve a greater community connection that adds equitable value.

Performance Measurement Sources: For this project, I will be imploring a variety of different methods and sources to collect my research and develop my design. I will be using the programs, Revit and AnyLogic, for spatial planning and layout design, Green Building Studio and/or OpenStudio for building energy analysis, and local site and geographical information to analyze the social need of the site. A majority of these sources will provide quantitative results on how the building will perform under certain criteria, as well as show how successful the project goals are achieved. Additionally, some of these sources will provide more qualitative data that may influence the design elements of the project. The final programming of the project will be based on the findings from the data collected.

Performance Analysis: Through the use of the programs listed above a series of models and simulations will be conducted to analyze and calculate the desired criteria measurement. A primary goal of this project is to provide affordable living units within the downtown district which will require the building to achieve the highest efficiency possible. To validate the project simulations will have to be conducted to influence the overall layout of the facility and project site. These measurements will be collected by placing multiple building layouts into AnyLogic to find which layout provides the best use of the space and connections to other elements on and surrounding the site.

In addition to pursuing the most efficient layout of the project, the building's total energy consumption and operations are another aspect to look at when planning the building's efficiency. Energy, daylighting, solar, and other energy-producing analysis will be needed to evaluate the efficiency of the facility's operations. Through models and simulations, each of the building's energy categories will be optimized to limit energy consumption. The simulations will

PERFORMANCE CRITERIA

incorporate different factors that are imposed on the site such as orientation, lighting, the sun path, shading, wind, climate, traffic, and designed elements. These calculations will influence the design as the project continues to evolve.

The final design solution will be derived from the calculations and data that come from the performance simulations and this solution looks to achieve the project goals. Providing affordable housing and the downtown district can be made possible by designing for maximum building efficiency.

Performance Judgment: To confirm the findings of my calculations I will perform comparisons to case studies that are similar to my project typology. This will tell me if my project is improving efficiency and is more cost-effective while providing a similar or greater return on investment. To reach this level of efficiency, my goal for this project is to achieve WELL AP, and/or LEED Platinum and LEED Zero to serve as a catalyst for future urban redevelopment projects.

Spatial Allocation Table:

Spaces	Small	Average	Large	Percentage of Building
Studio Units	400	500	600	6%
1 Bedroom Units	600	700	800	10%
2 Bedroom Units	800	1,000	1,200	15%
3 Bedroom Units	1,200	1,350	1,500	10%
4 Bedroom Units	1,400	1,700	2,000	8%
Parking	160,000	256,000	320,000	18%
Retail	5,000	17,500	30,000	6%
Restaurant	1,000	3,500	6,000	5%
Office	1,000	4,000	7,000	6%
Recreational	42,000	57,000	72,000	6%
Community	4,000	12,000	20,000	5%
Entertainment	48,000	61,500	75,000	3%
Service	5,000	7,500	10,000	2%
Total	**270,400**	**424,250**	**546,100**	**100%**

Table 2.1: Spatial Allocation Table

This spatial allocation table lists the major project elements that will more than likely be incorporated into the final design solution in the future. This list is a starting put that will be added to or subtracted from as research progress and the design program is configured. The square footage data, which is organized from small to large, was collected from case studies and the typical space type square footage in the United States.

Adjacency Interaction Matrix:

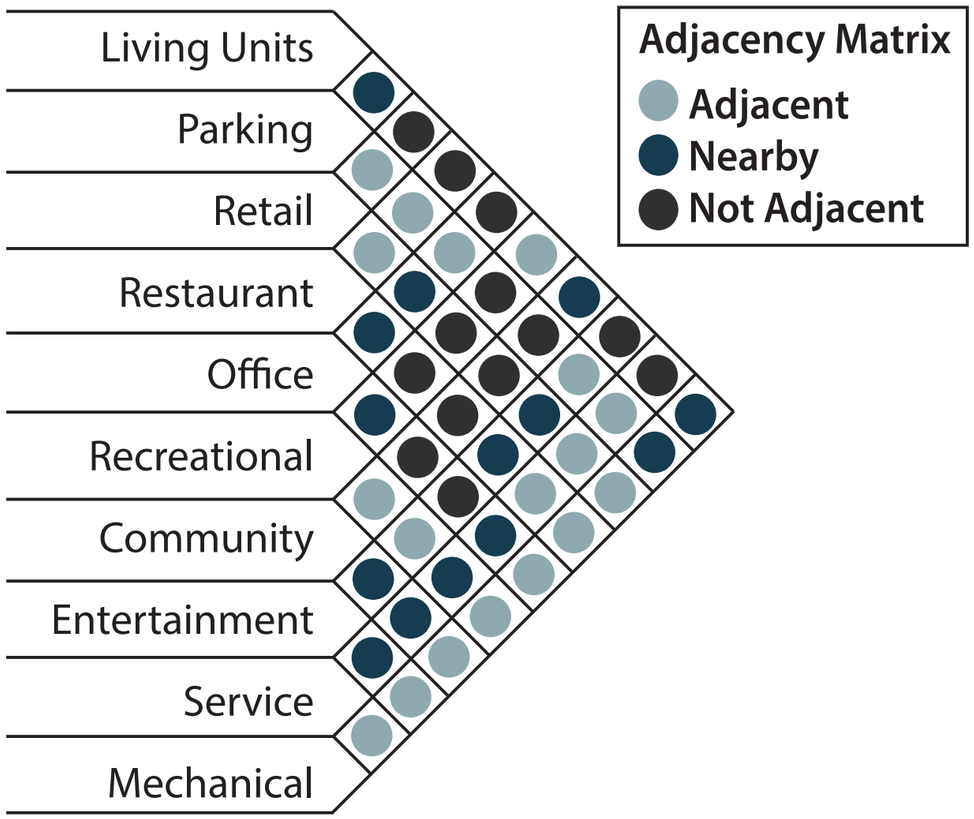


Figure 2.91: Adjacency Interaction Matrix

The adjacency interaction matrix above shows the locational relationships between the different typologies that make up the project program. Although this project will prioritize connectivity, the matrix shows that a separation between private and public spaces will be employed. Depending on additional spatial needs and site setbacks, some of these relationships may need to be adjusted as the project proceeds to better suit the occupants and uses of the site.

PERFORMANCE CRITERIA

Spatial Interaction Net:

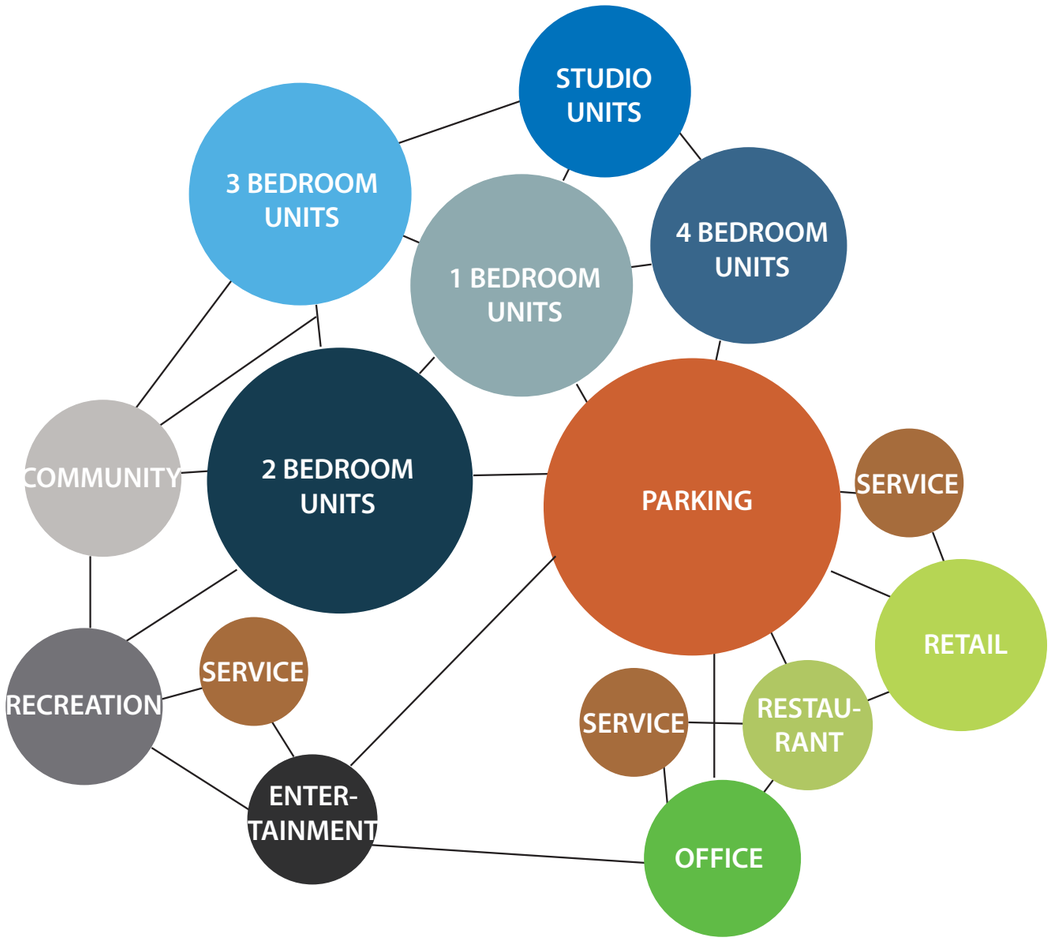
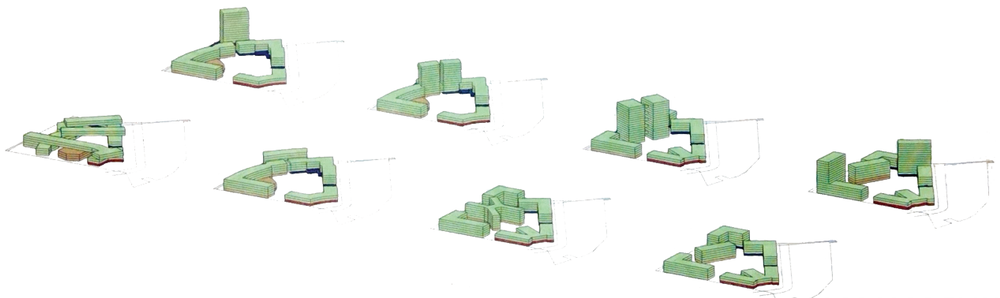


Figure 2.92: Spatial Interaction Net

The spatial interaction net above illustrates the programmatic spaces that make up this living community and the relationships between the total building square footage and layout. The net also represents the separation that will be made between the private living spaces, public spaces, and shared spaces within the living community. These three areas within the project will be carefully placed to suit each of their own functions while maintaining connections to the surrounding areas that are a part of the project.

Design Solution



MASS MODELING

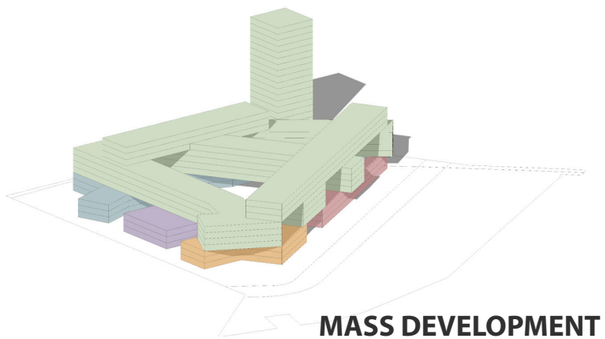
Residential Units

Complex Amenities

Recreation

Museum

Retail & Business



MASS DEVELOPMENT

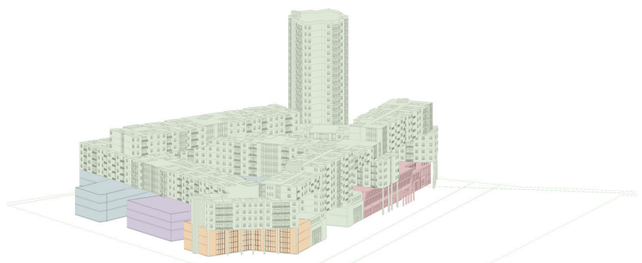
Residential Units

Complex Amenities

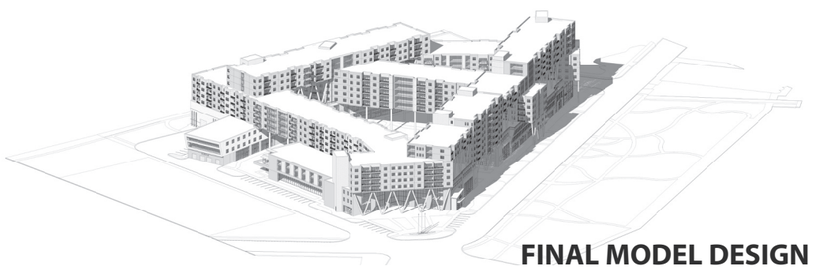
Recreation

Museum

Retail & Business



MID-CRIT DESIGN DEVELOPMENT



FINAL MODEL DESIGN

Figure 3.1: Digital Model Progression Started from Variety of Mass Models to Finished Model Form

Response to the Site

Currently, the site is degraded and repeals people away from the site that has a great location on the rivers and lake. However, the buildings that are currently on the site blocked the view and connection to the water. In order to give the water back to the community, my response was to remove all of the rundown buildings on the site that are currently a safety concern.

The new design for the site includes a mixed-use intergenerational building that will draw people back to the site and boost the local economy. Additionally, a community park was designed to draw even more people from the community to the area and provide a connection to the adjacent waterways. Is park would be one of the only green spaces along the river.

The new building on the site was designed to take advantage of the views from the site. In order for the spaces within the building to have the best views from the site, the building form took shape as a series of rectangular forms that were rotated to be tailored for the best views. Although the building is around 1,000,000 square feet, I was able to maintain a lot of the open green space that was originally on the site but still created a higher density block.

Figure 3.2: Existing Site Map

Figure 3.3: Proposed Site Map

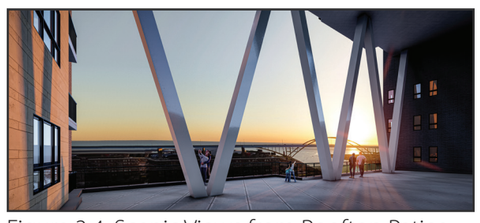


Figure 3.4: Scenic Views from Rooftop Patios

Figure 3.5: Rending of Views from Site

Figure 3.6: Rendering of Waterfront Park

PERFORMANCE ANALYSIS

Response to the Typological Research

After conducting my research on intergenerational communities and looking at case studies, I was able to better shape my building for its users. The biggest part of this was looking at what space a community like this needs in order to successfully provide interactions between generations. These spaces include all of the spaces that are included in a typical mixed-use community plus some additional amenities that are unique to an intergenerational community.

Some of the elements that I have taken from my case studies include a community garden, healthcare facility, co-work, community rooms, pet room, market, entrepreneurship center, etc. Additionally, from other research I did into the resources that multiple generations need, I have included social, mental, emotional, and physical service spaces in the community design.

As your cities continue to evolve and take on a new shape it will be important for us as designers to recognize this and design places that still attract people. In addition, the United States is currently one of the few countries in the world that have created a divide between its older and younger generations. This has been a problem for years and it is about time that we start to solve it. This intergenerational community is only the start of a greater solution, it will take all of us for these issues to be solved and for the United States to have a population that is connected intergenerationally.

Figure 3.7: Urby Community Farm - Case Study #1

Figure 3.8: Proposed Community Farm

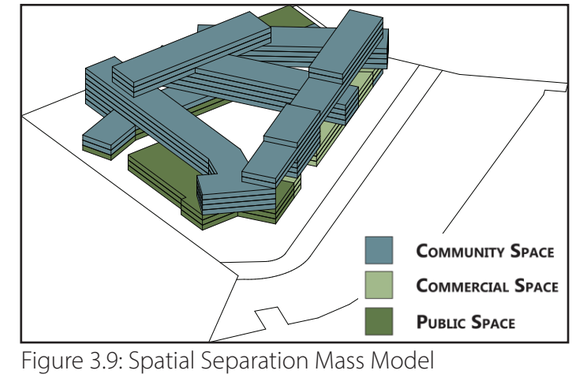


Figure 3.9: Spatial Separation Mass Model

Response to Goals and Emphasis

INCLUSIVE COMMUNITY

The first goal of this project was to create a community that is open and welcoming to all ages and abilities. This was achieved by providing a variety of different spaces and activities that promotes different generation interactions.

FOSTERING CONNECTIONS

The second goal of this project was to design a community that fosters connections between people. This was achieved by designing spaces that foster people gathering, growing, and learning together. This can also be seen in how the balconies have been arranged to allow for resident interactions.

REGENERATIVE DESIGN

The third goal of this project was to ensure the community based on the concept of regenerative design to provide for future generations. This could be achieved through the Living Building Challenge, WELL, or LEED. This project could achieve LEED Platinum in one of two ways, refer to **Figures 3.12 & 3.13**.

WATERFRONT CONNECTION

The fourth goal of this project is to restore human connections to the waterways that are adjacent to the site. This was achieved by removing the old storage building along the river and replaced it with a community park. This can be seen in **Figure 3.6**.

The emphasis of this thesis is to provide an architectural solution to the redevelopment of urban sites that have been left degraded or abandoned (otherwise known as brownfields). The desired goal for this thesis is to create a place that fosters interconnections and relationships between different generations.

The emphasis for the project was achieved from the beginning of the project when I selected the site for this project. When picking a site it was important for me to choose a site that had been previously developed, so those sites became the only ones that I was looking for.

Figure 3.10: Benefits of Developing a Brownfield

It was also important that the site was in or near the downtown area to allow for urban renewal and provide interconnections between generations.

The design solution for the site promotes community, provides spaces and services for wellbeing, and is designed with sustainable provisions to safeguard our environment for future generations. Together these three factors create a place that fosters interconnections and relationships between different generations.

Figure 3.11: The Diagram to the Left Shows the Relationships Between Community, Wellbeing, and Sustainability and How They Foster Connections

LEED v4.1 BD+C
Project Checklist

Project Name: Mil Port Community
Date:

Y	?	N			
1			Credit	Integrative Process	1

10	6	16	**Location and Transportation**		16
		16	Credit	LEED for Neighborhood Development Location	16
	1		Credit	Sensitive Land Protection	1
2			Credit	High Priority Site and Equitable Development	2
	5		Credit	Surrounding Density and Diverse Uses	5
5			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
1			Credit	Electric Vehicles	1

8	2	0	**Sustainable Sites**		10
Y			Prereq	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
	2		Credit	Protect or Restore Habitat	2
1			Credit	Open Space	1
3			Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
1			Credit	Light Pollution Reduction	1

9	2	0	**Water Efficiency**		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
6			Credit	Indoor Water Use Reduction	6
	2		Credit	Optimize Process Water Use	2
1			Credit	Water Metering	1

33	0	0	**Energy and Atmosphere**		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
6			Credit	Enhanced Commissioning	6
18			Credit	Optimize Energy Performance	18
1			Credit	Advanced Energy Metering	1
2			Credit	Grid Harmonization	2
5			Credit	Renewable Energy	5
1			Credit	Enhanced Refrigerant Management	1

9	4	0	**Materials and Resources**		13
Y			Prereq	Storage and Collection of Recyclables	Required
5			Credit	Building Life-Cycle Impact Reduction	5
2			Credit	Environmental Product Declarations	2
	2		Credit	Sourcing of Raw Materials	2
	2		Credit	Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

16	0	0	**Indoor Environmental Quality**		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
2			Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
2			Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
2			Credit	Interior Lighting	2
3			Credit	Daylight	3
1			Credit	Quality Views	1
1			Credit	Acoustic Performance	1

6	0	0	**Innovation**		6
5			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

4	0	0	**Regional Priority**		4
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1

96	14	16	**TOTALS**	Possible Points:	110

led: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80

Figure 3.12: LEED v4.1 BD+C: New Construction Scorecard

LEED v4.1 Residential: Multifamily
Project Checklist

Project Name Mil Port Community
Date:

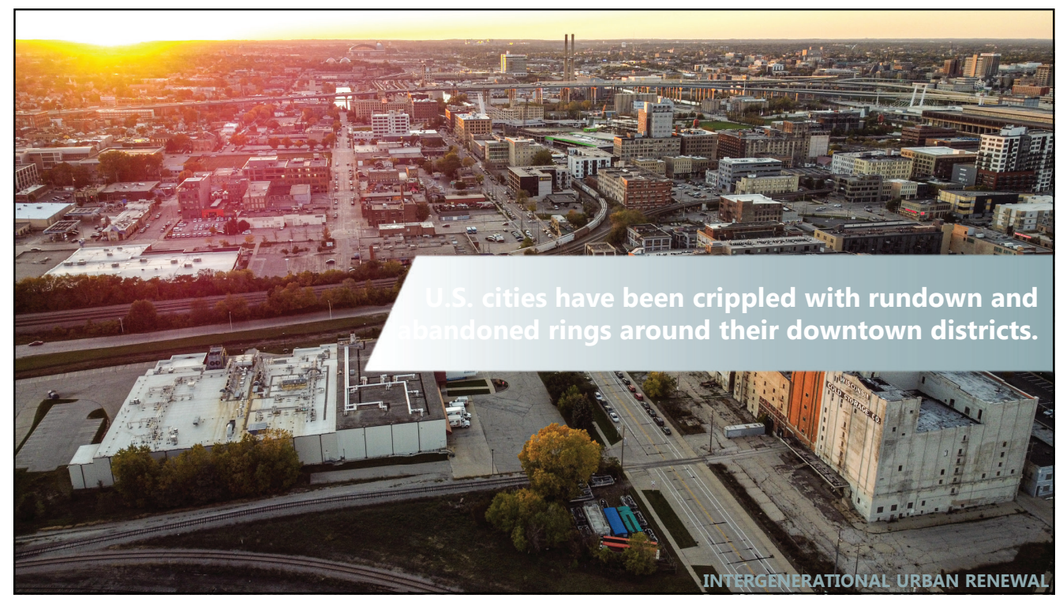
Y	?	N			
1	1	0		**Integrative Process**	**1**
1	1	0	Credit (D)	Integrative Process	1
	1			Option 1. Installation Contractor Training	1
1				Option 2. Integrative Process	1
15	2	15		**Location and Transportation**	**15**
		15	Credit (D)	LEED for Neighborhood Development Location	15
2	0	1	Credit (D)	Sensitive Land Protection	2
2				Option 1. Previously Developed Land	2
		1		Option 2. Avoidance of Sensitive Land	1
1	1	0	Credit (D)	High-Priority Site	1
1				Option 1. Historic District	1
	1			Option 2. Priority Designation	1
1				Option 3. Brownfield Remediation	1
5	0	1	Credit (D)	Surrounding Density and Diverse Uses	5
3	0	1		Option 1. Surrounding Density	3
3				Case 1. Surrounding Density	3
		1		Case 2. Compact Development	1
2				Option 2. Diverse Uses	2
3			Credit (D)	Access to Quality Transit	3
1			Credit (D)	Bicycle Facilities	1
1	1	0	Credit (C)	Reduced Parking Footprint	1
	1			Option 1. No Off-Street Parking	1
1				Option 2. Reduce Parking	1
1				Option 3. Carshare	1
	1			Option 4. Unbundling Parking	1
2	0	0	Credit (C)	Electric Vehicles	2
1				Option 1. Electric Vehicle Charging	1
1				Option 2. Electric Vehicle Charging Infrastructure	1
8	5	2		**Sustainable Sites**	**9**
Y			Prereq (C)	Construction Activity Pollution Prevention	Required
1			Credit (D)	Site Assessment	1
0	0	1	Credit (D)	Protect or Restore Habitat	1
		1		Option 1. On-Site Restoration	1
		1		Option 2. Financial Support	1
1	1	0	Credit (D)	Open Space	1
1				Option 1. Onsite Open Space	1
	1			Option 2. Access to Open Space	1
3	3	0	Credit (D)	Rainwater Management	3
3				Option 1. Percentile of Rainfall Events	3
	3			Option 2. Permeable Lot Area	3
2			Credit (D)	Heat Island Reduction	2
1	1	1	Credit (D)	Light Pollution Reduction	1
1				Option 1. BUG Rating Method	1
	1			Option 2. Calculation Method	1
12	9	0		**Water Efficiency**	**12**
Y			Prereq (D)	Water Use Reduction	Required
Y			Prereq (D)	Building-Level Water Metering	Required
10	9	0	Credit (D)	Water Use Reduction	10
10				Option 1. Total Water Use Reduction	10
	9			Option 2. Outdoor and Indoor Water Use Reduction	9
	3			Path 1. Outdoor Water Use Reduction	3
	6			Path 2. Indoor Water Use Reduction	6
2	0	0	Credit (C)	Water Metering	2
1				Option 1. Meter Water Subsystems	1
1				Option 2. Meter Dwelling Units	1
34	23	18		**Energy and Atmosphere**	**34**
Y			Prereq (C)	Fundamental Systems Testing and Verification	Required
Y			Prereq (D/C)	Minimum Energy Performance	Required
				Option 1. Energy Performance Compliance	
				Option 2. Prescriptive Compliance	
				Option 3. Dwelling Unit Energy Simulation	
				Case 1. New Construction	
				Case 2. Major Renovation	
Y			Prereq (C)	Energy Metering	Required
Y			Prereq (D)	Fundamental Refrigerant Management	Required
6	2	0	Credit (C)	Enhanced Commissioning	6
	1			Option 1. Supply Air Flow Testing	1
	1			Option 2. Pressure Balancing	1
3				Option 3. Enhanced Commissioning	3
1				Option 4. Enhanced and Monitoring-Based Commissioning	1
2				Option 5. Envelope Commissioning	2
18	18	18	Credit (D/C)	Optimize Energy Performance	18
	18			Option 1. Energy Performance Compliance	18
	13			Option 2. New Buildings Institute Family Guide	13
18	0	18		Option 3. Dwelling Unit Energy Simulation	18
18				Case 1. New Construction	18
		18		Case 2. Major Renovation	18
1			Credit (D)	Whole Building Energy Monitoring and Reporting	1
3	2	0	Credit (C)	Grid Harmonization	2
	2			Case 1. Demand Response Program Available and Participation	2
1				Case 2. Demand Response Capable Building	1
2				Case 3. Load Flexibility and Management Strategies	2
5			Credit (D)	Renewable Energy	5
0	1	0	Credit (D)	Enhanced Refrigerant Management	1
1				Option 1. No Refrigerants or Low-Impact Refrigerants	1
	1			Option 2. Calculation of Refrigerant Impact	1
1			Credit (D)	Domestic Hot Water Pipe Insulation	1

Y	?	N			
12	7	7		**Materials and Resources**	**13**
Y			Prereq (D)	Storage and Collection of Recyclables	Required
Y			Prereq (C)	Construction and Demolition Waste Management Planning	Required
4	0	5	Credit (C)	Building Life-Cycle Impact Reduction	5
		5		Option 1. Historic Building Reuse	5
		5		Option 2. Renovation of Abandoned or Blighted Building	5
0	0	4		Option 3. Building and Material Reuse	4
		4		Path 1. Maintain a combination of Structural and Non-Structural Elements	4
		3		Path 2a. Maintain Existing Walls, Floors and Roofs	3
		1		Path 2b. Maintain Interior Nonstructural Elements	1
4				Option 4. Whole-building Life-Cycle Assessment	4
6	5	0	Credit (C)	Environmentally Preferable Products	6
6				Option 1. Environmentally Preferable Products	6
1	1	0		Option 2. BPDO - Environmental Product Declarations	2
1				Path 1. Environmental Product Declaration (EPD)	1
	1			Path 2. Multi-Attribute Optimization	1
2	0	0		Option 3. BPDO – Sourcing of Raw Materials	2
2				Path 1. Responsible Sourcing of Raw Materials	2
0	2	0		Option 4. BDPO - Material Ingredients	2
	1			Path 1. Material Ingredient Reporting	1
	1			Path 2. Material Ingredient Optimization	1
2	2	2	Credit (C)	Construction and Demolition Waste Management	2
2	1	2		Option 1. Diversion	2
		1		Path 1a. Divert 50% and Three Material Streams	1
	1			Path 1b. Divert 50% using Certified Commingled Recycling Facility and One More Materials Stream	1
		2		Path 2a. Divert 75% and Four Material Streams	2
2				Path 2b. Divert 75% using Certified Commingled Recycling Facility and Two More Materials Streams	2
	2			Option 2. Reduction of Total (Construction and Demolition) Waste Material	2
10	4	0		**Indoor Environmental Quality**	**16**
Y			Prereq (D/C)	Minimum Indoor Air Quality Performance	Required
Y			Prereq (C)	Combustion Venting	Required
Y			Prereq (C)	Garage Pollutant Protection	Required
Y			Prereq (C)	Radon-Resistant Construction	Required
				Case 1. New Construction	
				Case 2. Renovation of Existing Building	
Y			Prereq (C)	Interior Moisture Management	Required
Y			Prereq (D)	Environmental Tobacco Smoke Control	Required
Y			Prereq (C)	Compartmentalization	Required
	1		Credit (C)	Enhanced Compartmentalization	1
1			Credit (D)	No Environmental Tobacco Smoke	1
4	1	0	Credit (D)	Enhanced Indoor Air Quality Strategies	4
1				Option 1. Walk-Off Mats	1
1				Option 2. Filtration	1
	1			Option 3. Enhanced Local Exhaust	1
2				Option 4. Balanced Whole-Dwelling Unit Ventilation	2
1			Credit (C)	Low-Emitting Materials	4
1	0	0	Credit (C)	Indoor Air Quality Assessment	2
1				Option 1	1
	1			Option 2 (1 additional point)	1
1	1	0	Credit (D)	Thermal Comfort	1
	1			Option 1. Radiant Comfort	1
1				Option 2. ASHRAE 55-2017	1
1				Option 3. ISO Standards	1
1	0	0	Credit (D)	Daylight and Quality Views	1
1				Option 1. Daylight	1
1				Option 2. Quality Views	1
1	1	0	Credit (D)	Acoustic Performance	2
1				Option 1. HVAC Background Noise	1
	1			Option 2. Envelope Acoustic Performance	1
5	1	0		**Innovation**	**6**
4	1	0	Credit (D/C)	Innovation	5
1				Option 1. Innovation	1
	1			Option 2. Pilot	1
3				Option 3. Additional Strategies	3
1			Credit (D/C)	LEED Accredited Professional	1
4	0	0		**Regional Priority**	**4**
1	0	0	Credit (D/C)	Regional Priority	1
1				Historic Site	1
1	0	0	Credit (D/C)	Regional Priority	1
1				High-Priority Site	1
1	0	0	Credit (D/C)	Regional Priority	1
1				Access to Quality Transit	1
1	0	0	Credit (D/C)	Regional Priority	1
1				Bicycle Facilities	1
101	52	42		**TOTALS** Possible Points:	**110**

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

(D) Design Prequisite or Credit*
(C) Construction Prerequisite or Credit
*Note that prerequisites and credits awarded during the design review are still subject to verification by the Green Rater during the site visit. If the status of the prerequisite or credit changes based on the site visit, the updated form and documentation must be submitted and reviewed by GBCI.

Figure 3.13: LEED v4.1 Residential: Multifamily Scorecard



"The key to the term intergenerational, therefore lies, not in the generational but in the inter – the existence of the between in relationships between people"

- from Promoting Sustainable Communities Through Intergenerational Practice

INTERGENERATIONAL

INTERGENERATIONAL URBAN RENEWAL

What is Intergenerational?

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Intergenerational – is interactions between members of different generations that may not be related to each other and reside in different living units.

This differs from multigenerational which relates to several generations that are typically related and live within the same living unit.

INTERGENERATIONAL

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TOSHIBA
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"Exclusion from the social environment causes loneliness, isolation, a feeling of insecurity, and loss of a sense of purpose in life"

- Kobal Grum and Bojan Grum

RESEARCH

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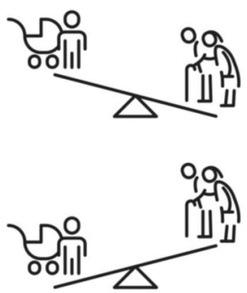
"As demographic transitions, economic restructuring, shifting social norms and improved technological innovation have led to generations frequently becoming segregated from one another"

- from Promoting Sustainable Communities Through Intergenerational Practice



RESEARCH

INTERGENERATIONAL URBAN RENEWAL

"Age-friendly communities have been defined as encouraging active ageing by optimizing opportunities for health, participation and security in order to enhance quality of life as people age"

- World Health Organization

RESEARCH

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"When people from different generations learn together, there is an interactive exchange of knowledge, skills, attitudes, and values"

- A.K. Bostrom

RESEARCH

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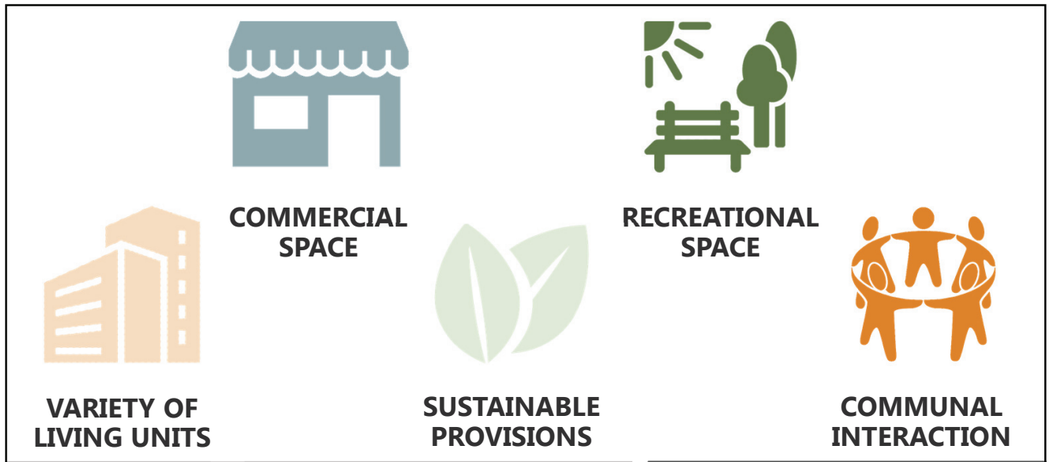

MAJOR ELEMENTS

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EMPHASIS

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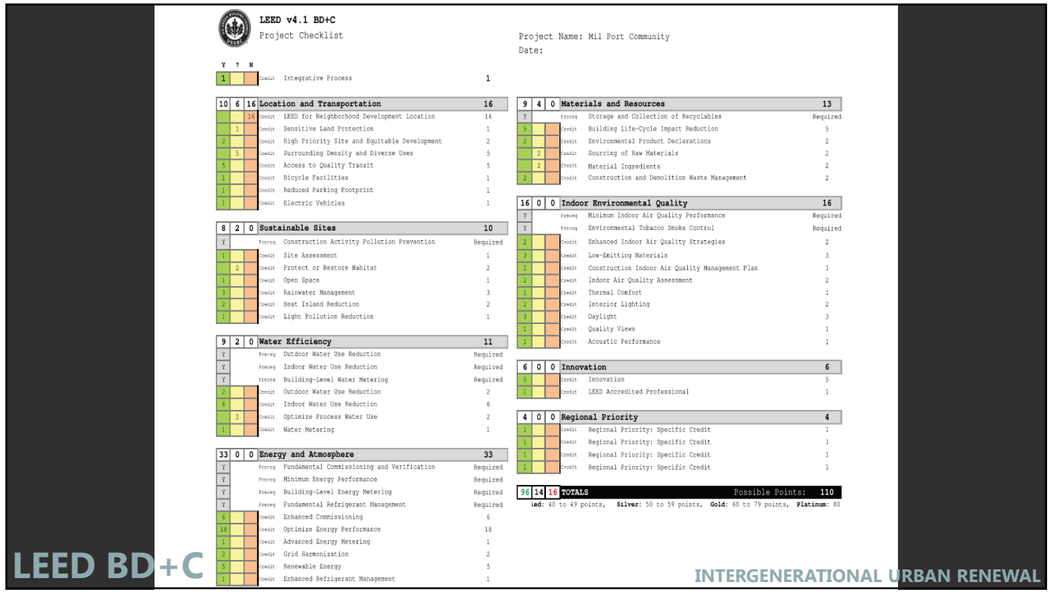
PROJECT GOALS

INTERGENERATIONAL URBAN RENEWAL



LEED v4.1 BD+C
Project Checklist

Project Name: Mil Port Community
Date:

Y	?	N			
1			Credit	Integrative Process	1

10	6	16	**Location and Transportation**		16
		16	Credit	LEED for Neighborhood Development Location	16
	1		Credit	Sensitive Land Protection	1
2			Credit	High Priority Site and Equitable Development	2
	5		Credit	Surrounding Density and Diverse Uses	5
5			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
1			Credit	Electric Vehicles	1

8	2	0	**Sustainable Sites**		10
Y			Prerequ	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
	2		Credit	Protect or Restore Habitat	2
1			Credit	Open Space	1
3			Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
1			Credit	Light Pollution Reduction	1

9	2	0	**Water Efficiency**		11
Y			Prerequ	Outdoor Water Use Reduction	Required
Y			Prerequ	Indoor Water Use Reduction	Required
Y			Prerequ	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
6			Credit	Indoor Water Use Reduction	6
	2		Credit	Optimize Process Water Use	2
1			Credit	Water Metering	1

33	0	0	**Energy and Atmosphere**		33
Y			Prerequ	Fundamental Commissioning and Verification	Required
Y			Prerequ	Minimum Energy Performance	Required
Y			Prerequ	Building-Level Energy Metering	Required
Y			Prerequ	Fundamental Refrigerant Management	Required
6			Credit	Enhanced Commissioning	6
18			Credit	Optimize Energy Performance	18
1			Credit	Advanced Energy Metering	1
2			Credit	Grid Harmonization	2
5			Credit	Renewable Energy	5
1			Credit	Enhanced Refrigerant Management	1

9	4	0	**Materials and Resources**		13
Y			Prerequ	Storage and Collection of Recyclables	Required
5			Credit	Building Life-Cycle Impact Reduction	5
2			Credit	Environmental Product Declarations	2
	2		Credit	Sourcing of Raw Materials	2
	2		Credit	Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

16	0	0	**Indoor Environmental Quality**		16
Y			Prerequ	Minimum Indoor Air Quality Performance	Required
Y			Prerequ	Environmental Tobacco Smoke Control	Required
2			Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
2			Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
2			Credit	Interior Lighting	2
3			Credit	Daylight	3
1			Credit	Quality Views	1
1			Credit	Acoustic Performance	1

6	0	0	**Innovation**		6
5			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

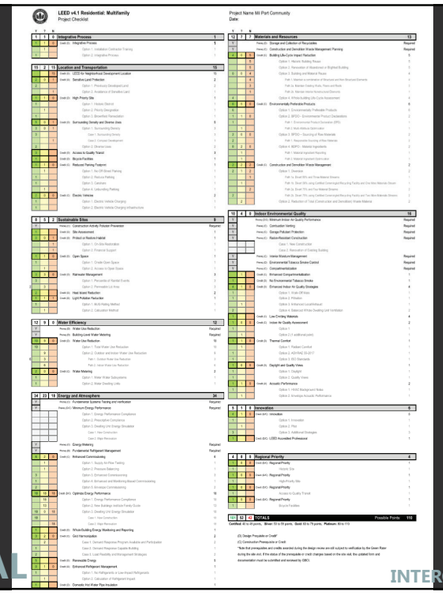
4	0	0	**Regional Priority**		4
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1

99	14	16	**TOTALS**	Possible Points:	110

ied: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80

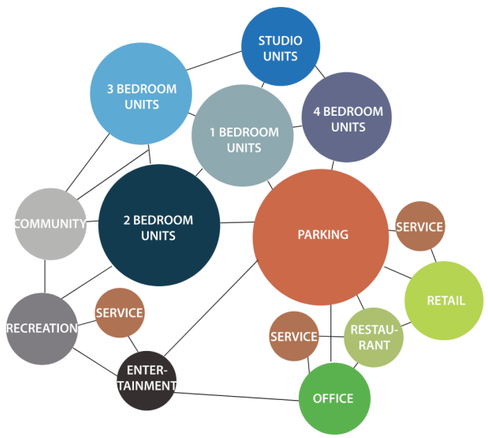
LEED BD+C

INTERGENERATIONAL URBAN RENEWAL



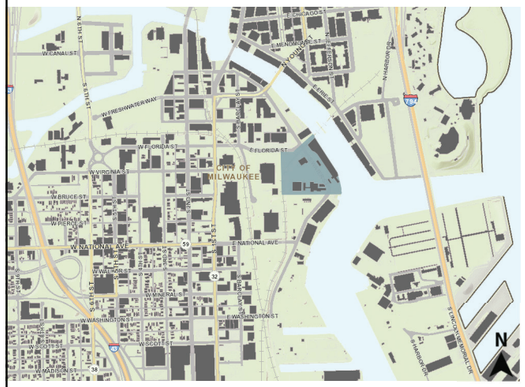
LEED RESIDENTIAL

INTERGENERATIONAL URBAN RENEWAL



SPATIAL INTERACTION NET

INTERGENERATIONAL URBAN RENEWAL



EXISTING SITE

INTERGENERATIONAL URBAN RENEWAL

EXISTING SITE

INTERGENERATIONAL URBAN RENEWAL

EXISTING SITE

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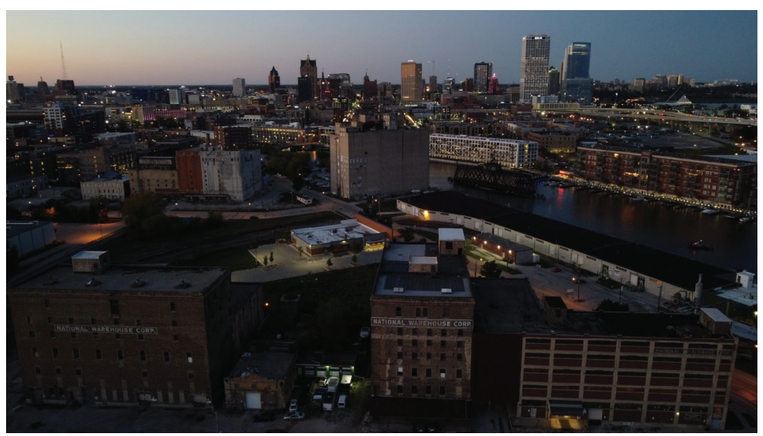

EXISTING SITE

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PRESENTATION

SITE DETERIORATION

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PROPOSED SITE PLAN

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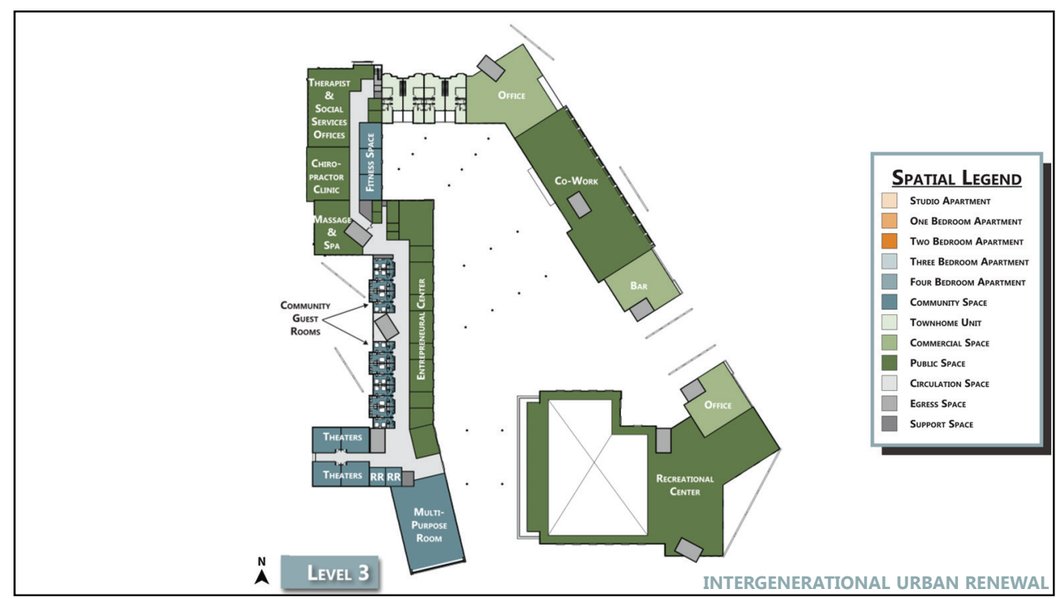
MIL PORT
COMMUNITY
NORTH ENTRANCE
INTERGENERATIONAL URBAN RENEWAL


Target Express
Leasing Office
Retail
Restaurant
Co-Work Lobby
Retail
Retail
Bar
Kitchen
Outdoor Recreation Rentals
Dining Room
Community Room
Pet Play Room
Shop
RR RR
Ice Cream
Barber
salon
Ramp to Underground Parking
Coffee Shop
Child Care Center
Recreational Center
Spatial Legend
Studio Apartment
One Bedroom Apartment
Two Bedroom Apartment
Three Bedroom Apartment
Four Bedroom Apartment
Community Space
Townhome Unit
Commercial Space
Public Space
Circulation Space
Egress Space
Support Space
N
Level 1
INTERGENERATIONAL URBAN RENEWAL

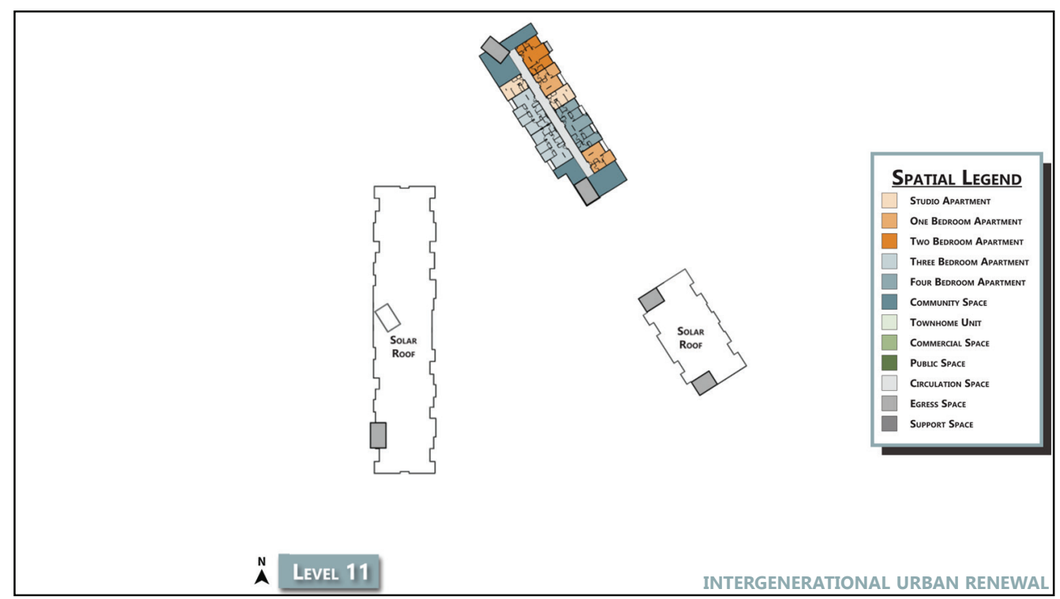

Health Clinic
Pharmacy
PT Clinic
Simulator Games
Simulator Games
Library
Craft Room
Shop
RR
RR
Multi-Purpose Room
Office
Retail
Co-Work
Bar
Coffee Shop
Child Care Center
Recreational Center
Spatial Legend
Studio Apartment
One Bedroom Apartment
Two Bedroom Apartment
Three Bedroom Apartment
Four Bedroom Apartment
Community Space
Townhome Unit
Commercial Space
Public Space
Circulation Space
Egress Space
Support Space
N
Level 2
INTERGENERATIONAL URBAN RENEWAL

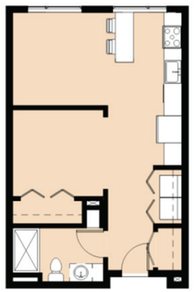

Therapist & Social Services Offices
Chiro-practor Clinic
Massage & Spa
Fitness Space
Community Guest Rooms
Entrepreneurial Center
Theaters
Theaters
RR RR
Multi-Purpose Room
Office
Co-Work
Bar
Office
Recreational Center
Spatial Legend
Studio Apartment
One Bedroom Apartment
Two Bedroom Apartment
Three Bedroom Apartment
Four Bedroom Apartment
Community Space
Townhome Unit
Commercial Space
Public Space
Circulation Space
Egress Space
Support Space
N
Level 3
INTERGENERATIONAL URBAN RENEWAL


Green Roof
Roof Patio
Roof Patio
Roof Patio
Roof Patio
Solar Roof
Solar Roof
Spatial Legend
Studio Apartment
One Bedroom Apartment
Two Bedroom Apartment
Three Bedroom Apartment
Four Bedroom Apartment
Community Space
Townhome Unit
Commercial Space
Public Space
Circulation Space
Egress Space
Support Space
N
Level 4-7
INTERGENERATIONAL URBAN RENEWAL


Green Roof
Green Roof
Solar Roof
Spatial Legend
Studio Apartment
One Bedroom Apartment
Two Bedroom Apartment
Three Bedroom Apartment
Four Bedroom Apartment
Community Space
Townhome Unit
Commercial Space
Public Space
Circulation Space
Egress Space
Support Space
N
Level 8-9
INTERGENERATIONAL URBAN RENEWAL


Green Roof
Green Roof
Spatial Legend
Studio Apartment
One Bedroom Apartment
Two Bedroom Apartment
Three Bedroom Apartment
Four Bedroom Apartment
Community Space
Townhome Unit
Commercial Space
Public Space
Circulation Space
Egress Space
Support Space
N
Level 10
INTERGENERATIONAL URBAN RENEWAL


Solar Roof
Solar Roof
Spatial Legend
Studio Apartment
One Bedroom Apartment
Two Bedroom Apartment
Three Bedroom Apartment
Four Bedroom Apartment
Community Space
Townhome Unit
Commercial Space
Public Space
Circulation Space
Egress Space
Support Space
N
Level 11
INTERGENERATIONAL URBAN RENEWAL



Studio Units
543 SF
85 Units

One Bedroom Units
764 SF
162 Units

Two Bedroom Units
1134 SF
53 Units

INTERGENERATIONAL URBAN RENEWAL

Three Bedroom Units
1380 SF
66 Units

Four Bedroom Units
1604 SF
57 Units

INTERGENERATIONAL URBAN RENEWAL


SUSTAINABLE PROVISIONS
INTERGENERATIONAL URBAN RENEWAL


GATHER
INTERGENERATIONAL URBAN RENEWAL


CONNECT
INTERGENERATIONAL URBAN RENEWAL


PLAY
INTERGENERATIONAL URBAN RENEWAL


GROW
INTERGENERATIONAL URBAN RENEWAL


target
express
MARKET
INTERGENERATIONAL URBAN RENEWAL


INTERGENERATIONAL URBAN RENEWAL


INTERGENERATIONAL
URBAN RENEWAL
Milwaukee, Wisconsin
43° 1' 34.1328" N & 87° 54' 22.392" W
Grow
Scale Views
Market
Spatial Legend
Nature Encounter

Figure 3.14: Project Installation for Public Exhibition on Renaissance Hall 5th Floor

Figure 3.15: Presenting My Thesis Project in Renaissance Hall Room 216

Figure 3.16: Me Standing Next to Project Installation for Public Exhibition on Renaissance Hall 5th Floor

Thesis Appendix

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2nd Year 2018-2019

FALL SEMESTER
Milton Yergens

Meditation Garden & Breathing Room
Project Name: Meditation Granary
Location: Moorhead, MN

Boat House
Project Name: Jamestown Rowing
Location: Jamestown, ND

SPRING SEMESTER
Cindy Urness

Dwelling
Project Name: The Walker Dwelling
Location: Marfa, TX

Mixed-Use Multi-Family
Project Name: North 4 Plaza
Location: Fargo, ND

3rd Year 2019-2020

FALL SEMESTER
Regin Schwaen

Visitors Center - Wood Project
Project Name: Ravelin at Oscar-Zero
Location: Cooperstown, ND

Art Museum - Brick Project
Project Name: Crescendo
Location: Nekoma, ND

SPRING SEMESTER
Emily Guo

Doomsday - Concrete Project
Project Name: William J. Crowe Emergency Response Center & Shelter
Location: Stroud, OK

Office Design - Dennis Lanz Competition
Project Name: West Park Complex
Location: Bismarck, ND

PREVIOUS STUDIO EXPERIENCE

4th Year 2020-2021

FALL SEMESTER
Mark Barnhouse

Capstone Project - High Rise
Project Name: Reflections
Location: Miami, FL

SPRING SEMESTER
David Crutchfield

Marvin Windows Competition
Project Name: 1529 7th St S
Location: Fargo, ND

FarGO2050 Masterplan
Project Name: Johnson Park Block @ Uptown
Location: Fargo, ND

5th Year 2021-2022

FALL SEMESTER
Lance Josal

Urban Infill - Empire Builder Project
Project Name: Block 7
Location: Fargo, ND

SPRING SEMESTER
Dr. Bakr Aly Ahmed

Design Thesis
Project Name: Intergenerational Urban Renewal
Location: Milwaukee, WI

[redacted]

Hometown: Casselton, North Dakota

PERSONAL IDENTIFICATION

"My time at NDSU has left me with more than words can describe. There's been ups and downs but the lifelong friends I've made have been with me through it all."

A special thank you to all the people that have helped make this project possible and for getting me to this point in my life. Thank you to my family, professors, and friends. A special thank you to Jordan Magistad, Jeremiah Thyen, Chase Mosser, Brennan Tyler, Jared Kaesmeyer, Mitchell Osland, Sidney Angell, Nicole Mathiowetz, Renanna Lardy, and Rachel Johnson.