

**Nature, Winter and Architecture:**

A Winter Community on Manitoulin Island Designed to Provide Benefits  
to The Residents, Landscape and Island During the Winter Months

by

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A thesis submitted in partial fulfillment  
of the requirements for the degree of  
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*How can the design of a community aid in improving the social and living challenges faced by residents and tourists, and revitalize Manitoulin Island during the winter months?*



Figure 1. Manitoulin Island Swing Bridge

**KEYWORDS**

**COMMUNITY**  
**WINTER**

**LIVING CHALLENGES**  
**SUSTAINABILITY**

**RESIDENTIAL**  
**TOURISM**

**ABSTRACT**

This thesis proposes the design of a community that focuses on architecture, and winter living on the landscapes of Manitoulin Island, Ontario. The proposed community aims to provide solutions in direct response to the social and living challenges brought by the colder months, experienced by permanent residents, summer residents, and tourists. In addition to providing benefits to the users, the solutions to these issues also aim to increase winter population and revitalize the Island during winter months. The question of my thesis is, **How can the design of a community aid in improving the social and living challenges faced by residents and tourists, and revitalize Manitoulin Island during the winter months?**

Manitoulin Island's landscapes are ideal for camping, boating, hiking, hunting, snowmobiling, and other outdoor activities. Although the Island has a very successful tourism industry, it is still subject to issues experienced by residents and tourists during the colder months. Minimal focus is put on winter living, resulting in a drastic decrease in winter population in contrast to the increase seen during the summer. This decrease is due to the closing of local businesses and campgrounds that are not designed for year-round use in Northern Ontario, thus deterring people from visiting during these colder months.

The primary programs that drive the proposed community are a network of trails, marina, beach, residential housing, a market centre, and a variety of social spaces and activities. These programs center around connecting with nature, living with the landscape, and creating a strong social environment among residents and visitors. Most importantly, these programs are designed to provide the visitors and residents of the community with activities and opportunities for a healthy lifestyle during the winter months. The design of the community focuses on the individual human scale, middle scale (larger gatherings of people), and the community scale, as well as the environmental scale.

Research presents an understanding of how people live with the landscape, ecosystem services, biophilic design, human needs, landscape needs, and how these are met, as well as how both humans and nature can coexist and benefit from each other. In designing the community, attention is focused on how it is placed in the landscape, public and private space, circulation, and how the design of the site influences the use of the community. A community that is able to successfully implement these characteristics is campgrounds. Campgrounds are studied to determine the patterns, physical layouts, social dynamics, demographics, and statistics that make it successful. On Manitoulin Island, campgrounds have a diverse and strong social network while encouraging respect for the environment; elements that this community hopes to achieve.

Manitoulin Island would significantly benefit from a residential community nestled within its winter landscape, designed to respectfully interact with the landscape during all seasons; offering residents year-round access and use to a place that provides lifelong social, ecological, and architectural benefits. A desired benefit of this community design proposal is for it to be highly adaptable for locations throughout Northern Ontario and in other cold climates.

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**Figure 2.** View of Proposed Site

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## TERMINOLOGY

### BIOPHILIC DESIGN (BIOPHILIA)

Biophilic design is derived from the term biophilia, meaning a “A hypothetical human tendency to interact or be closely associated with other forms of life in nature” or a person’s “innate affinity towards nature and living things”.<sup>1</sup> Biophilic design is a concept based primarily on urban cities, focusing on integrating natural elements and built representational forms of nature with architecture to create a space that benefits its users and the surrounding landscape.

### ECOSYSTEM SERVICES

Ecosystem services, refers to benefits or needs that are provided to humans by the natural environment.<sup>2</sup> Ecosystem services can only be obtained when there is a healthy and balanced relationship between both humans and the landscape. Ecosystem services are comprised of a complex network of systems and categories, including provisioning services, regulating services, cultural services, and supporting services.

### ECOLOGICAL SUSTAINABILITY

The term sustainable or sustainability is “relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged.”<sup>3</sup> In the context of this thesis, I will define ecological sustainability as the healthy way of living and interacting with the landscape. Creating a healthy relationship between humans and nature. The term is not referring to the systems that are used in architecture to make a building sustainable, achieve net zero, or passive house. Instead, the term refers to the ability for architecture and the environment to co-exist in a healthy ecological manner, with specific environmental goals.

### ARCHITECTURAL SUSTAINABILITY

For the design of this community, I will be using the term architecture sustainability to represent how the buildings interact with the landscape, by protecting and reducing damage to the landscape, vegetation, and wildlife. Architectural sustainability can be achieved through materiality, renewable resources, and the overall design and shape of the building. This can also present opportunities to improve native plant species and make the ecosystem more resilient.

### SOCIAL SUSTAINABILITY

“Sustainability is the ability to meet the needs of the current generation without compromising the ability of future generations to meet their needs.”<sup>4</sup> To obtain social sustainability, the design of this community will focus on the behavior, interaction, and structure of the people within the community.

### WARMER MONTHS

The warmer months refers to the months from May to September, with July and August having the highest temperatures in Ontario. Ontario Campgrounds are open on average from mid-May to Thanksgiving weekend in October.

### COLDER MONTHS

The colder months refers to October to April, with January and February having the lowest temperatures in Ontario.

### HUMAN NEEDS

Human needs can refer to anything a person needs throughout their life, more specifically referring to things they need to survive, their need for access to natural resources, security, and comfort, as well as their wants. In addition, the end result can also provide mental and physical health benefits. These needs can be achieved independently or are often dependent on people, the environment, or other things to achieve them.<sup>5</sup>

### CONATIVE HUMAN NEEDS

Conative needs refer to the direct and physical needs for survival, as well as wants, such as, food and objects.<sup>6</sup>

### TRANSCENDENTAL HUMAN NEEDS

Indirect needs are the mental needs and wants that are experienced “beyond the boundaries of self” such as spiritual needs and self-fulfillment.<sup>7</sup>

### INTERGENERATIONAL AND MULTIGENERATIONAL

These terms are often used to define a household containing two or more generations living together. Intergenerational refers to the “increasing interactions, cooperation to achieve common goals, a mutual influence and the possibility of change.”<sup>8</sup> Multigenerational refers to the interaction between generations in a much broader sense. In the context of this thesis, the term intergenerational will be used over the term multigenerational, with a focus on designing for all generations as a whole and individually.

1 Schropfer and Menz, *Dense and Green Building Typologies Research, Policy and Practice Perspectives*, 79.

2 “Ecosystem Service.” Wikipedia.

3 Merriam-Webster. “Definition of Sustainable.”

4 Susan R, “Social Sustainability – Everything You Need to Know [2021 ] | Diversity for Social Impact,” accessed May 5, 2021, <https://diversity.social/social-sustainability/>.

5 Murphy, *Landscape Architecture Theory*, 98.

6 *Ibid.*, 101.

7 *Ibid.*

8 Patricia Brownell and Rosa Perla Resnick, “Intergenerational-Multigenerational Relationships,” *Journal of Intergenerational Relationships* 3, no. 1 (April 19, 2005): 67–75, [https://doi.org/10.1300/J194v03n01\\_06](https://doi.org/10.1300/J194v03n01_06).

## PREFACE

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Figure 3. Manitoulin Island in Ontario

Manitoulin Island is a well-known landmark in Ontario, that attracts people from all over Canada and the world. The Island has been a very important part of my life. Growing up I spent the majority of every summer camping with family and friends, enjoying all that the Island has to offer. I then secured a co-op opportunity where I then spent the next four summers of University working and gaining experience while living at my camp. The Island has become a second home to me where I know the landscape and communities well.

Having spent each summer on Manitoulin Island for most of my life I was witness to the drastic change in population and social engagement due to the closing of businesses and lack of activities that colder weather brought. With the increasing development of urban cities and suburbs, along with the lack of design for winter climates, the separation between humans and the natural environment is drastically increasing. Even more so during Northern Ontario's colder months, as people retreat to the warmth of the indoors. Many residents on the Island live near forested areas that they simple do not use, especially during the winter. These circumstances are often due to these areas not being equipped with the proper resources to make people comfortable enough to use this land.

When the natural environment and architecture are integrated into a design, in this case the proposed community, it can have the ability to satisfy human needs, leading to mental and physical health benefits. With natures unpredictability and constant change, it is continuously being modified by humans in order to access resources, provide security and comfort, and satisfy needs and wants. It is important that nature is provided with the resources that it needs for adapting to human disturbance and survival.

Fortunately, Manitoulin Island contains the fundamentals vital to transforming areas that are lacking a lively winter atmosphere into a proposed design that encompasses what a winter community could be. This community will not only provide benefits for people, the environment, and the community, but it will also attract people from all over Northeastern Ontario and all over the Island.



# 1

## MANITOULIN ISLAND

## 1.1 HISTORY

Manitoulin Island, the largest freshwater Island in the world, is located in Ontario on Lake Huron, of the Great Lakes. The Island is part of the Niagara Escarpment, which runs through Canada and the United States. The escarpment creates a unique topography, allowing for numerous opportunities to engage with the landscape.

### 1.1.1 Industry and Economy

Composed of large amounts of limestone, dolostone, and shales, Manitoulin Island's geology is very distinctive from surrounding areas. Due to these large quantities of stone, many quarries began operating on the Island to distribute rock to other surrounding areas in high demand of these resources.

Manitoulin Island was first inhabited by indigenous people in the early 1800's, when it became a trading post for Canadian Missionaries.<sup>9</sup> The Island was eventually transferred over to the British crown in 1866<sup>10</sup> and became populated by settlers for agriculture, farming, hunting and fishing. Agriculture and the production of natural resources were the Islands main sources of economy for some time. Farmers produced and sold dairy products, produce, and game meat. Manitoulin Island had an advantage in being able to disperse their products to a wide range of locations, with Lake Huron touching a large area of Northeastern Ontario and the United States.<sup>11</sup> In 1966, The Ontario Department of Economics and Development conducted a survey on the Islands economic position.<sup>12</sup> Due to the decline of sales, economy of surrounding areas, and the rising cost of materials and machinery, the Island was said to be "one of a number of areas in Canada where incomes are low and thus can not support its own population."<sup>13</sup> The use of the Island began to shift and became recognized as a rural development. As shown in figures 6-7, there are many historical homesteads and abandoned buildings on Manitoulin Island, with some displayed at local museums.

### 1.1.2 Evolving and Becoming A Community

In the early 1900's the swing bridge and railway were built, under the Algoma Eastern Railway (AER) and Manitoulin & North Shore Railway (M&NS) to connect the town of Little Current to Espanola and easily transport goods to other locations, as shown in figure 4. The Little Current train station was in use from 1912 – 1969.<sup>14</sup> Due to losses in business, The Great Depression, and World War II, railway lines were cut back or rerouted, ending passenger transportation to Little Current in 1963.<sup>15</sup> The bridge was converted to vehicular use in 1980, after which Manitoulin quickly became a popular tourist and recreation area. Other access to the Island was through ferry boats. Today the Chi-Cheemaun runs daily from South Baymouth to Tobermory, from May to October.

<sup>9</sup> Manitoulin Municipal Association. Manitoulin Island: Interim Planning Study, 3.

<sup>10</sup> Ibid, 3.

<sup>11</sup> Ontario. The Stones of Manitoulin Island.

<sup>12</sup> Sloss, Marian Susan. "Agricultural Economy of the Manitoulin Island." Laurentian University, Department of Geography, 1973, 1.

<sup>13</sup> Ibid, 2.

<sup>14</sup> "Old Time Trains."

<sup>15</sup> Ibid.

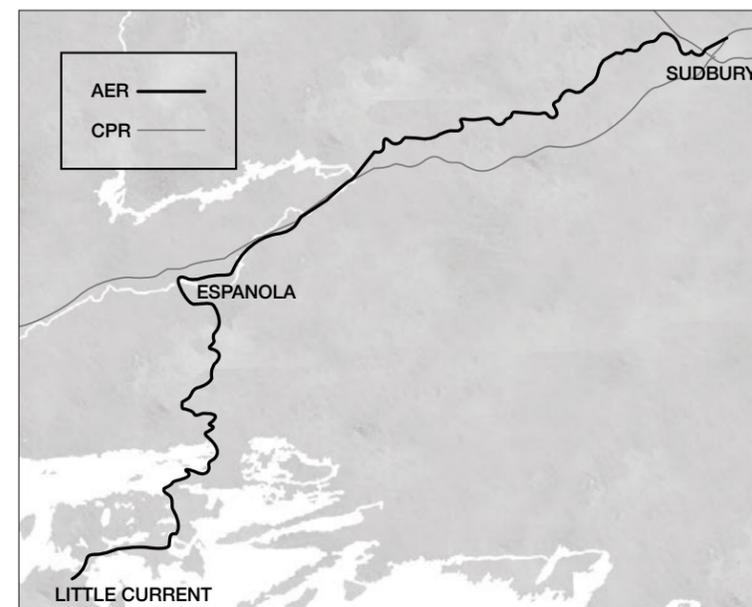


Figure 4. Algoma Eastern Railway Route

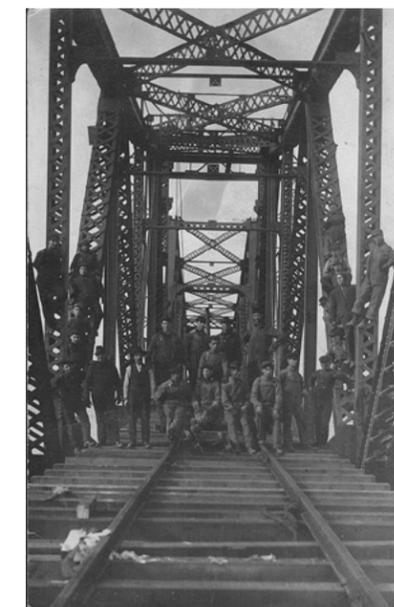


Figure 5. Little Current Swing Bridge Construction



Figure 6. Homestead Displayed At The Centennial Museum of Sheguiandah



Figure 7. Homestead Displayed At The Centennial Museum of Sheguiandah



Figure 8. Old Barn On Manitoulin Island



Figure 9. Batman's Sawmill

## 1.2 PRESENT

There are many townships and communities on Manitoulin Island that were originally established for their close proximity to areas of resource development.<sup>16</sup> Although the Island is no longer relying on resource development and agriculture as a primary source for their economy, these communities still remain. The majority of housing is single family housing located in traditional rural subdivisions and more secluded areas. There are also a small number of off-grid housing.

### 1.2.1 Existing Lifestyles

The residents of Manitoulin Island can be divided into three groups. The largest group is permanent residents that remain on the Island year-round. Permanent residents have the opportunity to experience and engage in all four seasons as well as the different activities and lifestyles of each. These permanent residents have very different lifestyles than summer residents and tourists as they have full-time jobs and are not visiting on vacation. There are many activities and events of which the permanent residents are often coordinators or hosts. The remaining groups include full-time summer residents and tourists. Full-time summer residents have a lifestyle that is a combination of permanent residents and tourists. They often engage in events, and activities, however, they also take more time to relax and experience the quiet side of the Island. Most of the tourists are short term visitors, visiting the Island for events, holidays, and vacations, staying for weekend or week-long stays and filling up most of the campgrounds. The most popular time for tourists is during the warmest summer months. A deeper understanding and look into the lives of these residents, as well as what the communities provide and lack was done through conducting interviews and questionnaires, as documented in Appendix A.



Figure 10. Snowmobiling in Providence Bay



Figure 11. Wikwemikong Ice Fishing Derby



Figure 12. Manitoulin Country Fest



Figure 13. Haweater Weekend



Figure 14. Manitoulin Passage Ride



Figure 15. Sheguiandah Powwow

16 Manitoulin Municipal Association. Manitoulin Island: Interim Planning Study, 3.

## 1.3 WARMER MONTHS

### 1.3.1 Tourism

Manitoulin Island has a very successful tourism industry during the summer months that many local businesses rely heavily on. There are many outdoor activities as shown in figures 16-19, including Bridal Veil Falls and the Cup and Saucer Hiking trail. In addition, there are many annual events and activities that locals and tourists attend, including music festivals, Haweater and Canada Day weekend, powwows, fishing derby's, and the Manitoulin Passage Ride, see figures 10-15. Hunting and fishing are also very popular due to the availability of land and the open waters of Georgian Bay, containing a variety of fish species.

Manitoulin Island has a population of 13,000<sup>17</sup>, which is said to increase by one quarter during the summer months from the arrival of tourists and summer residents. A major contributing factor to the Islands tourism success is due to the large amount of camping accommodations offered. Manitoulin Island contains over 75 campgrounds, cottage rentals, and bed & breakfasts, which can accommodate individuals, families, friends, and a variety of clubs and organizations. In 1973, a thesis study was published on "Recreation and Tourism on Manitoulin Island" which states that there were 16 campgrounds on Manitoulin Island. This number has more than doubled today.<sup>18</sup> While the number of cottage only facilities has remained close to the same, however, today it is more common for tent and trailer campgrounds to also provide rental cottages.

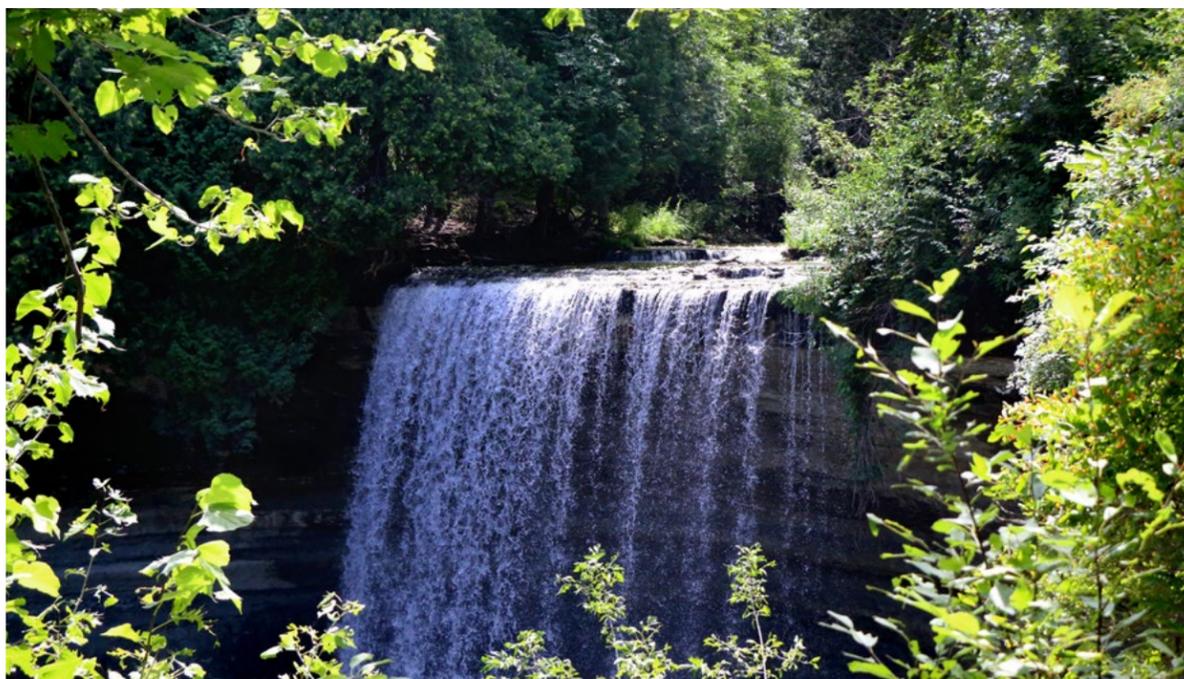


Figure 16. Bridal Veil Falls

<sup>17</sup> Government of Canada, "Census – Manitoulin."  
<sup>18</sup> Scarr. "Recreation and Tourism on Manitoulin Island."



Figure 17. Cup and Saucer Hiking Trail



Figure 18. Ten Mile Point



Figure 19. Providence Bay

## 1.4 COLDER MONTHS

### 1.4.1 Permanent and Full-time Summer Residents

The negative change in population from summer to winter is evident, as local residents refer to Manitoulin Island during the winter as a “ghost town”. This decrease in population during the winter is caused by the closing of many local businesses and campgrounds that are not designed for year-round use. The peak camping season in Canada is on average 90 days from June to August, with quieter months being May and September. Other factors that can influence the population include school start and end dates, holidays, and insect cycles. Figure 27 shows the existing campgrounds, tent and trailer parks, cottages, bed and breakfasts, and other land uses on Manitoulin Island. The blue points signify the severe lack of winter campgrounds located on the Island.

The change to colder seasons starts to affect the communities as early as September, when tourists, campers, and summer residents return home. By November many local businesses and campgrounds are shut down until the following spring, see figures 21-23. These circumstances create a lack of permanent jobs, low wage rates, and irregular part-time hours. The businesses that close are most commonly seen near marinas and waterfronts such as downtown Little Current. Use of these areas during the winter is less likely due to colder temperatures and winds from Lake Huron as well as the lake freezing, therefore restricting access. Many of these areas are central parts of the community and have enormous potential for winter activities, however, they are currently under-utilized during the colder months.

The current lack of design for colder temperatures creates a chain reaction that has major effects on Manitoulin Island, from business to lifestyle and tourism being nearly non-existent during the colder months. However, there is evidence that people still use the Little Current water front, with fresh tracks and snowmen built on the docks, as shown in figure 20. This evidence supports the potential for a community that provides businesses and activities that are open during the colder months. This would increase the number of people visiting these areas and benefit the community.



Figure 20. Snowman Built On The Docks At The Little Current Waterfront



Figure 21. Little Current Waterfront Docks - Summer



Figure 24. Little Current Docks Removed - Winter



Figure 22. Little Current Waterfront - Summer



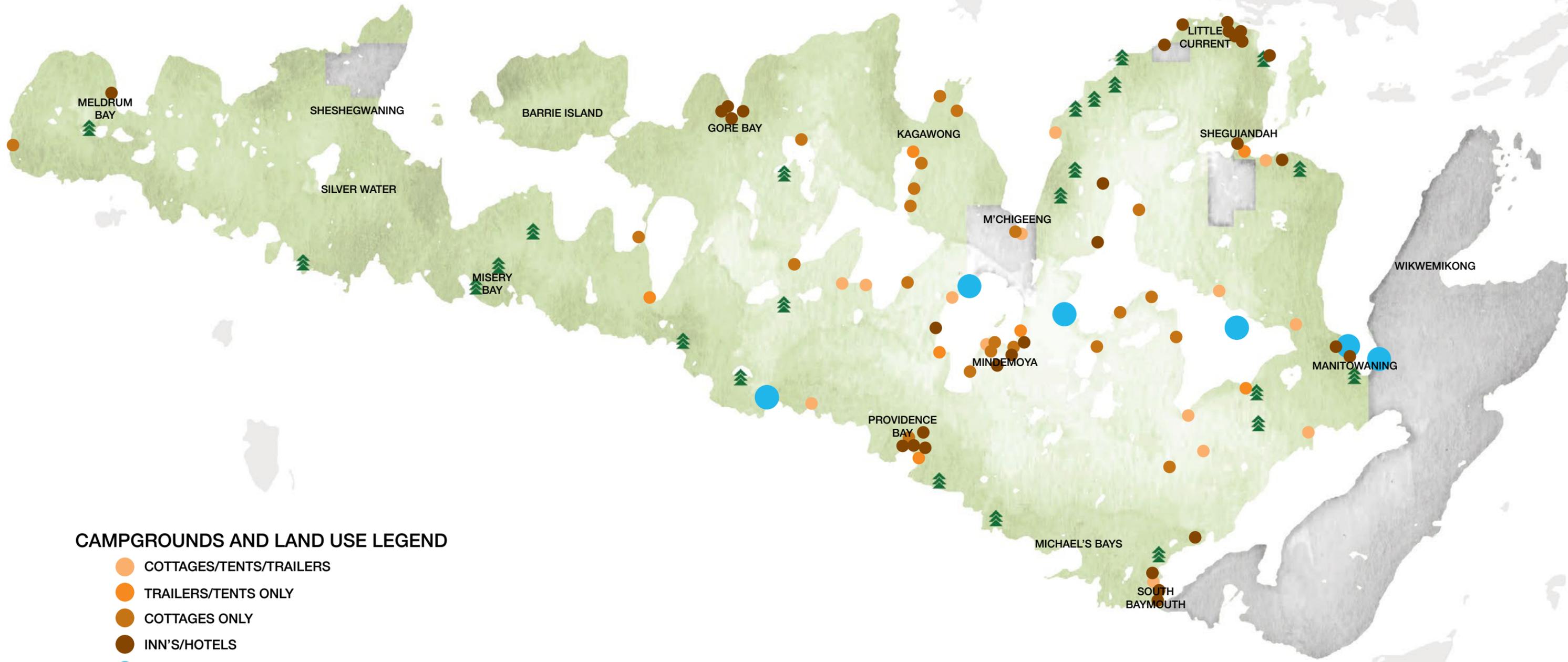
Figure 25. Little Current Waterfront - Winter



Figure 23. Little Current Downtown - Summer



Figure 26. Little Current Waterfront - Winter



**CAMPGROUNDS AND LAND USE LEGEND**

- COTTAGES/TENTS/TRAILERS
- TRAILERS/TENTS ONLY
- COTTAGES ONLY
- INN'S/HOTELS
- WINTERIZED COTTAGES
- ▲ NATURE RESERVES
- INDIGENOUS RESERVES

Figure 27. Manitoulin Island Campgrounds



# 2

## RESEARCH

There are four main areas of study that were used in the development of this thesis, each having specific elements that are of significant importance in the design and overall function of the community. These areas of focus include human needs, living with the landscape, the study of campgrounds and communities, and intergenerational living.

Furthermore, readings on the theories and opinions of architects and other scholars were completed, including Frank Lloyd Wright, Christopher Alexander, Deane Simpson, Frederick Law Olmsted, Michael D. Murphy, and Stephen Kellert. This research is important in understanding the elements that can be implemented into this community to create an environment that encourages people to engage in this active-outdoor lifestyle, that provides mental and physical health benefits to the people, Manitoulin Island as a whole, and the surrounding landscape. For further understanding of the following concepts, refer to Terminology.

## 2.1 HUMAN NEEDS AND THE LANDSCAPE

### 2.1.1 Human Needs

Humans have constant needs and wants that need to be fulfilled. Some needs can be met independently, while others are dependent on other people or the environment. People are constantly modifying the landscape to satisfy their needs and wants, access resources, and provide security and comfort. Landscape architecture theorist Michael D. Murphy explains that the natural environment, when combined with architectural design can have the ability to satisfy both conative needs and transcendental needs, which can lead to mental and physical health and well-being.<sup>19</sup> Conative needs refers to the direct and physical needs for survival, as well as wants, such as food and objects. Transcendental needs are the indirect needs and wants that are experienced “beyond the boundaries of self” such as spiritual needs and self-fulfillment.<sup>20</sup> In 1865, landscape architect Frederick Law Olmsted stated that “...the enjoyment of scenery employs the mind without fatigue and yet exercises it, tranquilizes it and yet enlivens it; and thus, through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration to the whole system.”<sup>21</sup> A space can be designed by incorporating nature to cater to specific needs, such as relieving stress, by using the design to divert the user’s attention away from their stresses.

The needs of humans can also change drastically with the change of season. As winter approaches and the months become colder a human’s needs increase. During the winter the colder temperatures as well as the lack of daylight push people indoors. Providing spaces outdoors that can allow people to remain outside longer is very important. For the community, this includes, implementing exterior spaces that provide warmth as well as light, such as fire place gathering spaces. For times when the winter weather does not permit outdoor activities, it is beneficial to have a space indoors, such as larger gathering spaces that are flexible and can provide for these activities.

### 2.1.2 Human Expectations of The Landscape

Nature as an element of design and a resource has existed for all of human history. Humans have to adapt to nature as it changes, similarly, nature has to adapt as humans invade its landscapes. According to Stephen Kellert and Judith Heerwagen, human’s dependence on nature “evolved in adaptive response to natural conditions and stimuli, (...) which continue to be essential contexts for human maturation, functional development, and ultimately survival.”<sup>22</sup> This evidently supports the need for nature in architecture. When humans adapt to use the landscape to satisfy their needs and wants, their expectations often become extreme and the landscape is then taken advantage of. This results in major negative effects on the environment, including deforestation, overpopulation, urban sprawl, land degradation, natural resource depletion, habitat loss, and loss of biodiversity.<sup>23</sup> The avoidance or reduction of these will provide a greater experience for humans and the landscape.

### 2.1.3 Natures Needs and Expectations

Similar to how humans have expectations of the landscape, there are also expectations on how nature should be treated by humans; a standard that is not being achieved. Landscapes that are treated and cared for well by the people around them should be thriving, however, the current and more disturbing reality is that landscapes are being neglected by people. Thus, they are struggling to sustain life or are destroyed entirely.

The best circumstances for an environment or ecosystem would be to leave it untouched entirely, however, with the growing population and the development of urban cities and suburbs, this is nearly impossible in some locations. The leading alternative is to consider the best possible ways in which a project can be designed on a site, meet its specific needs, while reducing further damage to effected landscapes. These concepts and those presented in Chapter 2.2 can be adapted and implemented to suit the design of this community as it explores new ways of designing for living in a winter environment. The design pays close attention to the transition spaces, open spaces in the landscape, and shorelines as shown in figure 28.



Figure 28. Design Considerations

19 Murphy, Landscape Architecture Theory, 99.

20 Ibid, 101.

21 Browning, Ryan, and Clancy. “14 Patterns of Biophilic Design”

22 Kellert, Heerwagen, and Mador, Elements of Biophilic Design, vii.

23 Conserve Energy Future. “17 Disastrous Current Environmental Issues.”

## 2.2 LIVING WITH THE LANDSCAPE

### 2.2.1 Understanding the Landscape

Sustaining a healthy landscape is a very important element of the community. When nature and human needs are understood as well as how to provide for them, humans and the natural environment will be able to live in harmony with each other. Michael D. Murphy, author of *Landscape Architecture Theory* explains that designing with the landscape is to “create and sustain useful, healthful, and engaging built and natural environments; and to protect and enhance the landscape’s intrinsic cultural, ecological, and experiential qualities.”<sup>24</sup> A report on *Human Landscape Perception* explains that there are two paradigms of importance between human and nature, including ecological determinism, which has the ability to determine human behavior. As well as, ecological possibilism, meaning that “human and nature have a mutual interaction; the landscape provides possibilities for humans, and humans provide possibilities for nature to develop.”<sup>25</sup> This community is designed with a focus on ecological possibilism, where the site must be properly understood in order for humans and nature to successfully adapt and function together in all seasons.

### 2.2.2 Biophilic Design and Ecosystem Services

A primary focus of this thesis is to develop a connection between architecture and nature when designing the community, which can be aided by biophilic design. Designing a space using biophilic design can provide benefits to its users and the surrounding landscape. Although the concept of biophilic design is based on urban cities and developments, the same principles have been adapted to suit the design of this community as it explores new ways of designing in a winter environment.

Ecosystem services refers to benefits or needs that are provided to humans by the natural environment, obtained through a healthy and balanced relationship between humans and the landscape.<sup>26</sup> For the design of the community, there are four types of ecosystem services that can aid in integrating nature and architecture into the design. Provisioning services refers to anything that can be directly obtained from the environment, such as fruits, vegetables, and water.<sup>27</sup> Regulating services is any basic services provided by the environment to aid in sustaining humans and ecosystem life, including air and water purification as well as aiding structurally by preventing erosion and other events.<sup>28</sup> Cultural services are the “non-material benefits” that aid in the developing culture, the human mind and knowledge.<sup>29</sup> Lastly, supporting services refers to the fundamental services such as photosynthesis that aid in the survival of ecosystems and thus, the survival of humans.<sup>30</sup> According to professor and award-winning scholar Stephen Kellert, “communities with higher-quality environments reveal more positive valuations of nature, superior quality of life, greater neighborliness, and a stronger sense of place than communities of lower environmental quality.”<sup>31</sup> Ecosystem services presents ways in which humans and ecosystems can provide for the community in a resourceful way and how these ecosystems must be maintained in order to do so.

<sup>24</sup> Michael D. Murphy, *Landscape Architecture Theory: An Ecological Approach*, 5.

<sup>25</sup> Heijgen, Eugenie van. “Human Landscape Perception.”, 20.

<sup>26</sup> “Ecosystem Service.” Wikipedia.

<sup>27</sup> National Wildlife Federation. “Ecosystem Services.” Accessed December 22, 2020.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

<sup>30</sup> Ibid.

<sup>31</sup> Stephen R Kellert, Judith Heerwagen, and Martin Mador, *Biophilic Design: The Theory, Science, and Practice of Bringing Buildings to Life* (Hoboken: Wiley, 2008), 4.

### 2.2.3 Ecological and Architectural Sustainability

In the context of this thesis, ecological sustainability refers to the healthy way of living and interacting with the landscape, using biophilic design and ecosystem services to create a healthy relationship between humans and nature. Architectural sustainability pays close attention to how the buildings interact with the landscape, by protecting and reducing damage to the site, shoreline, vegetation, and wildlife. This also presents opportunities to improve native plant species, wildlife, and make the ecosystem more resilient. This community design hopes to achieve ecological and architectural sustainability through the use of local materials, renewable resources, and the overall design and shape of the building.

In the design of the community, the term sustainability is not referring to the systems that are used in architecture to make a building sustainable, achieve net zero, or passive house. Although some of these scientific elements will be met and touched on to some degree, they are not the main focus. Instead, the term refers to the ability for architecture and the environment to co-exist in a healthy ecological manner, with specific environmental goals. The term sustainable or sustainability is “relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged.”<sup>32</sup> Another form of sustainability important to this community in social sustainability, as discussed in “Intergenerational Living”.

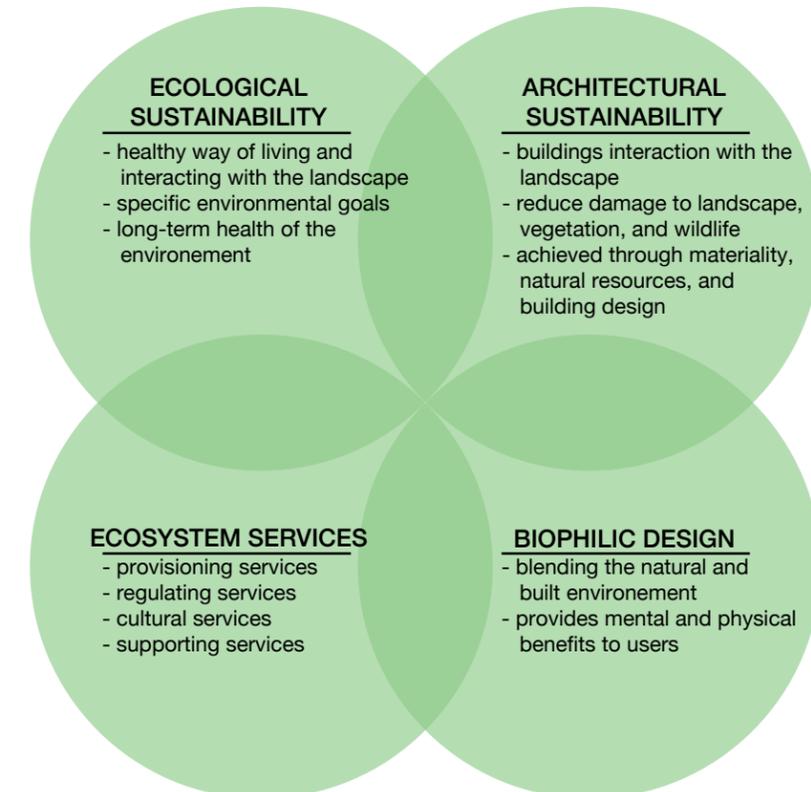


Figure 29. Sustainability Diagram

<sup>32</sup> Merriam-Webster. “Definition of Sustainable.”

## 2.3 CAMPGROUNDS

Camping has shifted from being considered an active sport to being a familial social activity for all ages<sup>33</sup> and provides the appeal of “increased leisure time, (...) interest in ecology and getting back to nature”.<sup>34</sup> There are many different camping styles, including a variety of cottages, trailers, and tents to support a variety of people and incomes. As shown in figure 30, campgrounds offer short-term, long-term, and seasonal camping, allowing campers to stay for longer or shorter periods of time within the summer months. Seasonal camping is the closest thing to permanent living, as it involves living on the same campsite year after year with the camper’s setup remaining all winter until they return again the following spring. These campers develop a sense of permanence and ownership, allowing them to make the site their own, and forge strong relationships with neighbouring campers. Although campgrounds promote a sense of impermanence, the choice of studying campgrounds was made to understand why people are enjoying their stay and what campgrounds offer that have people returning often to the same park.

In the research and design proposal of this community, an emphasis is put on adapting and implementing the most beneficial characteristics of a campground. The research on campgrounds is not used with the intentions of designing a campground. The intention is not to design a campground with trailers and campsites, but rather implement the desirable characteristics they offer. Studying campgrounds is beneficial to understand the use of spaces, boundaries, social dynamics, and connection to the landscape. A series of case studies have been conducted on the design of campgrounds, communities with similar programs, and winter design strategies, as documented in Appendix E.

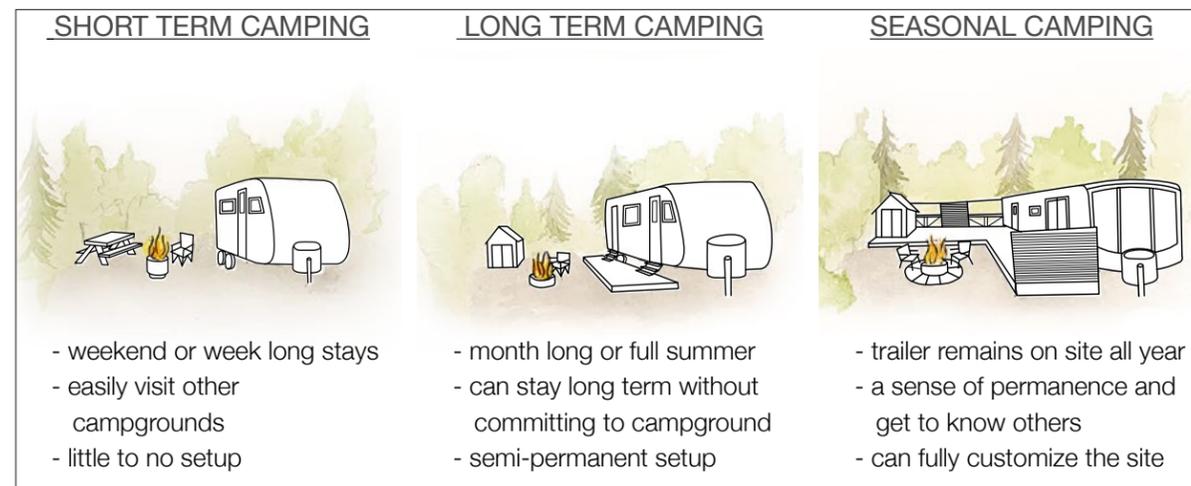


Figure 30. Campsite Types

33 Canadian Government Office of Tourism, John Andrews International/Roger du Toit, and Canada. Planning Canadian Campgrounds: A Manual for Campground and Recreational Vehicle Park Development and Management, Covering the Feasibility, Planning, Design, Construction and Operation of Campground Development. Ottawa: Industry Development Branch, Canadian Government Office of Tourism, Dept. of Industry, Trade and Commerce, 1980, 24.

34 Canadian Government Office of Tourism, Planning Canadian Campgrounds, 10.

### 2.3.1 Demographics and Statistics

In recent decades, there has been a shift from provincial campgrounds to the quickly growing number of smaller private campgrounds, however, both have similar amenities, facilities, activities, and performance. According to a report completed on Ontario Parks in 2012, the most common age group in campgrounds is 25 to 44, while the least common is 65 years and older.<sup>35</sup> Among group types, the most common is families and the second most common is couples.<sup>36</sup> In addition, 30% of visitors travelled with their dog, therefore it is important that campgrounds be designed to make travelling with a pet easier.<sup>37</sup> This can include dog friendly living accommodations, beach areas, as well as off-leash areas. In addition to the statistics above, high percentages of respondents felt that campgrounds had an improvement on their mental, social, spiritual, and physical well-being.<sup>38</sup>

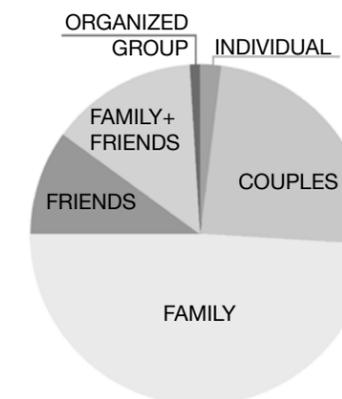


Figure 31. Canadian Campground Group Demographics

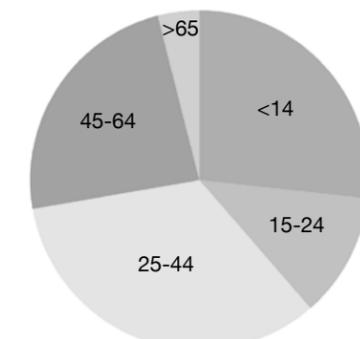


Figure 32. Canadian Campground Age Demographics

### 2.3.2 Planning and Use of Space

Through the correct planning and use of space, a campground can provide opportunities for social interaction, access to beaches, trails, and private living-spaces, allowing campers to have a greater experience with the surrounding landscape. The design of a campground determines how pedestrians interact, circulate, and drive through the site with their trailers in tow, and the organization of lots. In addition, the planning of a campground should ensure that visitors can circulate through the park efficiently and have easy access to amenities and facilities such as bathroom and shower houses. Campgrounds often have a more organic layout that lies within the landscape, than one that resembles a subdivision that has been placed on the landscape. Many older campgrounds have an organic layout as they often started small and were expanded over time as the campground’s popularity grew.

35 “Ontario Parks Campground Visitor Survey.” Ont: Ontario Parks, 2012, 13.

36 Ibid, 17.

37 Ibid, 5.

38 Ibid, 87.

## 2.4 INTERGENERATIONAL LIVING

### 2.4.1 Social Sustainability

Social sustainability focuses on the behavior, interaction, and structure of the people within the community. Another area of research is intergenerational living and its benefits, as well as viewing it at a small scale and a community scale. The proposed community will be designed for a wide age demographic with a focus on intergenerational living. Multigenerational housing consists of two or more generations living in one household, often done when an elderly parent is unable to live on their own or when a family of grandparents, parents and grandchildren move in to one under a single roof. For this community, intergenerational living will be referred to at the community level scale. The proposed community will be comprised of residents of all generations, creating a wide age demographic and establishing a strong social dynamic.

### 2.4.2 Benefits of Intergenerational Living

At a community level, intergenerational living can provide many benefits by allowing the residents to be closer to their family and friends, create a strong social dynamic, provide independent elderly with a safe place to live, and allow people to support others who are in different stages of their lives. This community hopes to achieve the same intergenerational social sustainability seen in campgrounds.

Deane Simpson is an architect, professor, and author who published *Young-old: Urban Utopias of an Aging Society* in 2015. The book discusses those who are retired but are still living an active lifestyle. Simpson discusses the isolation of the elderly and explains that, the elderly are first pushed from their homes by being unable to maintain them.<sup>39</sup> They are then pulled to facilities that provide “weather, safety and security, social life and activities, and the affordability and availability of healthcare.”<sup>40</sup> This encourages the question of, what will attract the elderly to this community that focuses on outdoor winter living? Implementing places of gathering and socializing as well as a variety of activities for different levels of ability are all very important factors in welcoming the elderly to this community.

<sup>39</sup> Kolson Hurley, Amanda. “Deane Simpson’s ‘Young-Old.’”  
<sup>40</sup> Ibid.

A major interest in the design of the proposed community is the understanding of boundaries as well as public and private spaces. In urban areas, the dividing line between public and private space is often too clear, using fences, gates, and walls, limiting social interaction between people and making a space appear uninviting. The contrast to campgrounds is evident, in that there is rarely any form of boundaries. The only division between site and people is the tree line between the lots themselves (Figure 33). These trees, the softness of the campsite, and open concept to the road encourages conversation and does not limit one’s ability to interact with people passing by or from entering a space. The understanding of public and private spaces and the boundaries that create them have been explored through precedents and case studies in Appendix E.

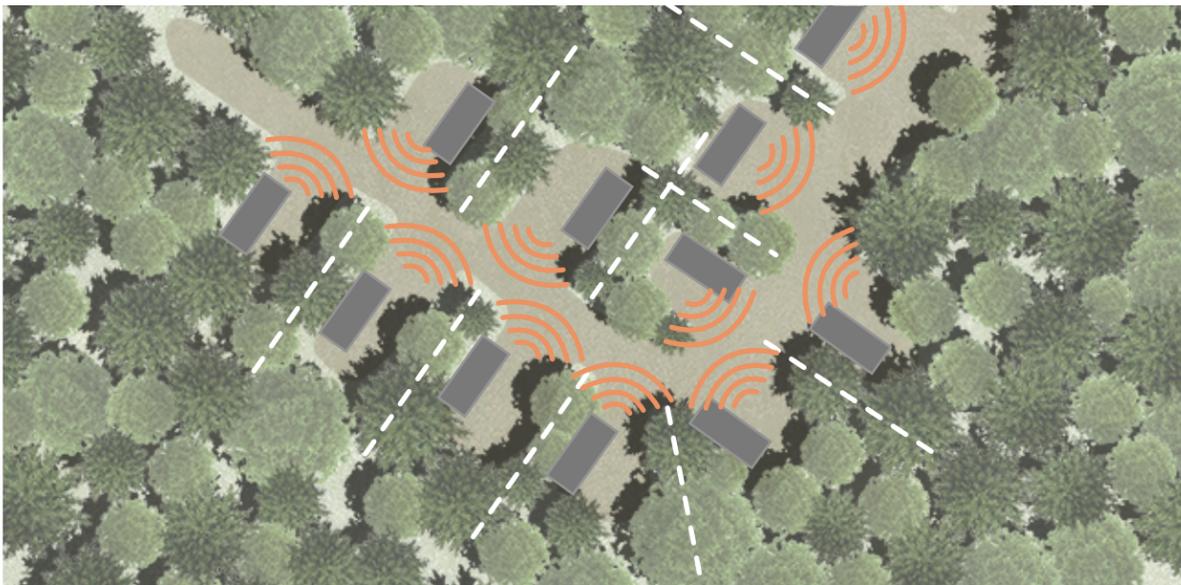


Figure 33. Campsite Boundaries

### 2.3.3 Characteristics Implemented Into Community Design

Characteristics taken from the campground that have been implemented into the community, including similar activities and amenities such as a swimming area, marina and boat launch, trails, washroom facilities, a store and check-in area, outdoor rental toys, and a variety of indoor and outdoor gathering spaces. In relation to the layout and organization of programs, trails and roads will allow for easy and efficient circulation on foot as well as when boats and ice hut trailers are being pulled throughout the community. The design of the community will be more organic in nature with the campground, nestled within the landscape, and locate residential and trails in areas that will allow for the community to expand in a more organic way in the future. A major part of a campground are the campsites themselves, as they determine how visitors will be living during their stay. In contrast to the trailers, RV’s, and tenting seen on campgrounds, the community will replace these modes of living with permanent and rental housing. With a variety of short-term and long-term rental housing, as explained further in 4.2.6. Although the housing typology will be different, the residents will still be living very similar lifestyles in the community as campers live in campgrounds.



# 3

## SITE SELECTION AND ANALYSIS

### 3.1 SITE SELECTION

A focus in choosing the site was to select a location that provides access to nearby towns, amenities, education facilities, waterfront access, grocery stores, and medical facilities. There are many towns that can provide these necessities, including Kagawong, Manitowaning, and Mindemoya, however, they are located farther from the only two modes of transportation onto the Island, the Swing Bridge and Chi-Cheemaun ferry. The town that provides the most benefits is Little Current, on the northeast side of Manitoulin Island where the Swing Bridge is located. The swing bridge is the only form of access that has cars travelling constantly on and off the Island all year long. Along with the constant marine traffic travelling in and out of the Little Current waterfront, this encourages an increased number of people to visit the nearby proposed community. Having the community closer to Little Current provides constant circulation, access to amenities, local shops, annual events and activities. Throughout the site selection process, another site was originally explored, however, during the site research, numerous issues arose that would make the site unsuitable for the project, as discussed in Appendix C. As a result, another site was chosen.

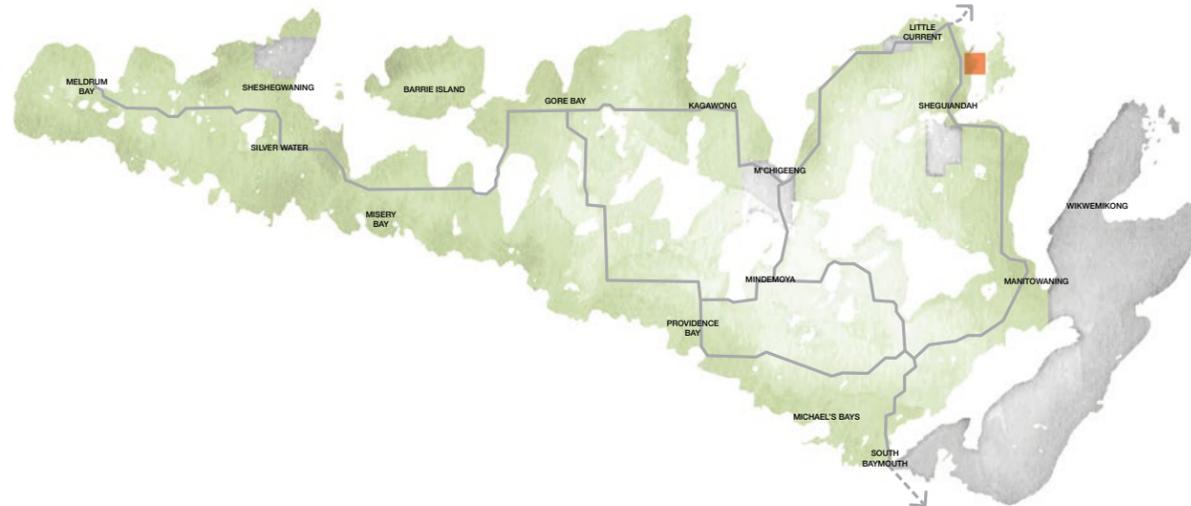


Figure 34. Site Location On Manitoulin Island

It was also beneficial to find a site that could provide elements that the community needs as well as be able to sustain and support the design of the community. Aside from being able to support a detailed list of required programs, the site must also be able to provide the elements needed to achieve and sustain biophilic design, ecosystem services, ecological and architectural sustainability. Some elements include a large plot of land with forest coverage, water access to Lake Huron, as well as shorelines that are appropriate for a marina and swimming area. Other elements that were considered when searching for a site included the topography and how accessible the site was, specifically during the winter months when snow can restrict access.

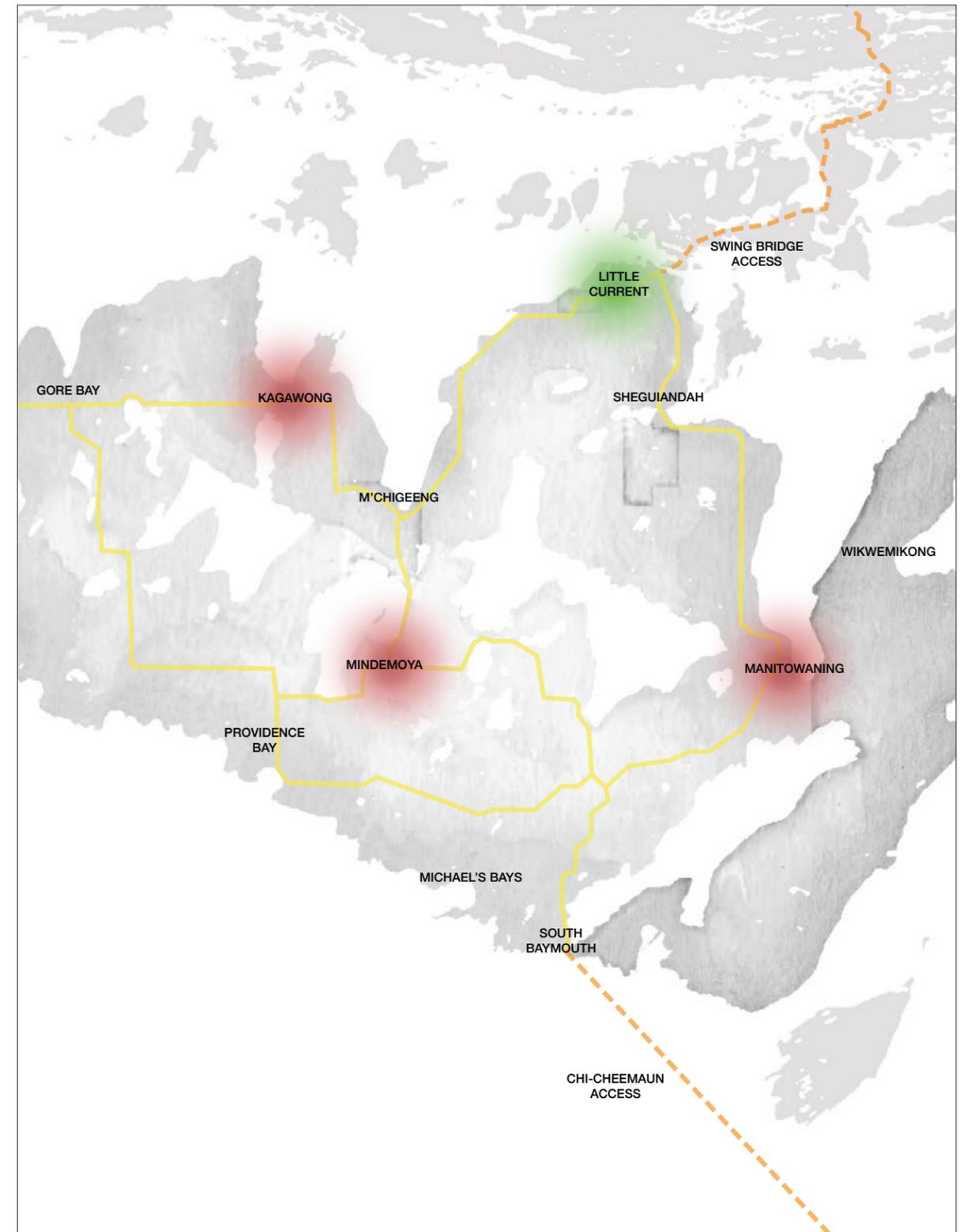


Figure 35. Site Selection Based On Adjacent Communities

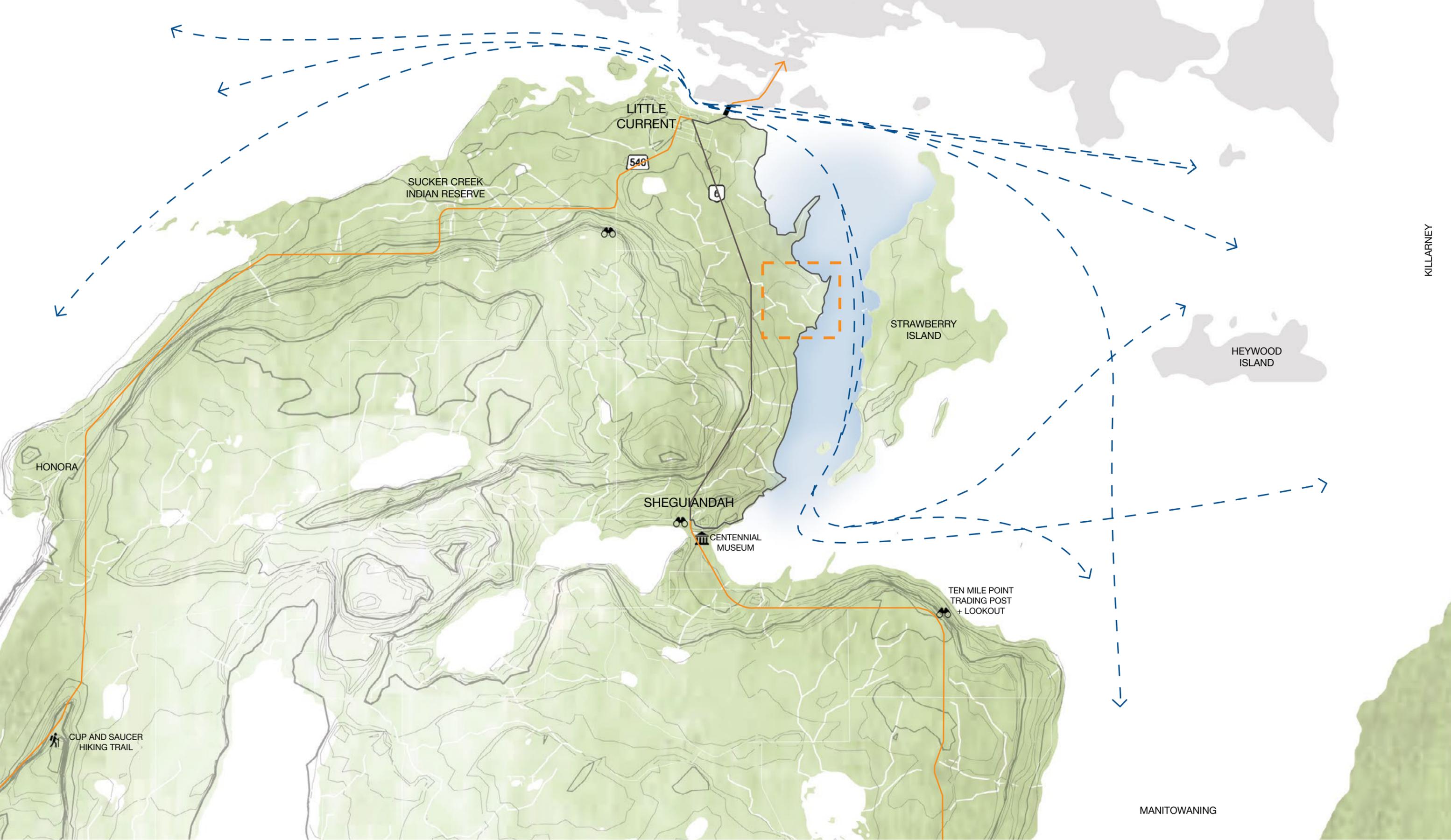


Figure 36. Proposed Site Location

### 3.2 PROPOSED SITE

The community will be located close to the previous site on a secluded piece of land between Little Current and Sheguiandah, one of the oldest indigenous reserves on Manitoulin Island, see figure 36. This site is located on the northeastern shores of the Island in strawberry channel. This area is sheltered from strong winds, providing smooth waters with safe and easy navigation for marine and snowmobile traffic in and out of Little Current, to Killarney and surrounding areas. The peninsula on the north end of the site, as shown in figure 37, creates a small bay allowing for unique opportunities in the site design. The site is set back yet easy accessible from Hwy 6 with tree coverage creating a noise buffer and allowing for a more private community. The site contains a relatively flat topography allowing for less restriction in the design and layout during the winter months, with a gradual slope to the shoreline for easy water access.

There are specific circumstances on the site that are taken into consideration in the design, as shown in figure 39, such as avoiding the disturbance of existing forest and the shore line as much as possible, which are both vital ecosystems for plants and animals. Utilizing openings in the forest area that are already cleared and sheltered against the elements, creating suitable spaces for the market and gathering spaces. In addition, water levels have risen six to eight feet in recent years, and are in constant fluctuation, therefore, this is taken into consideration in the design of programs located near any shorelines. Lastly, the use of transition spaces from land to water, public to private, and nature to architecture is also considered.

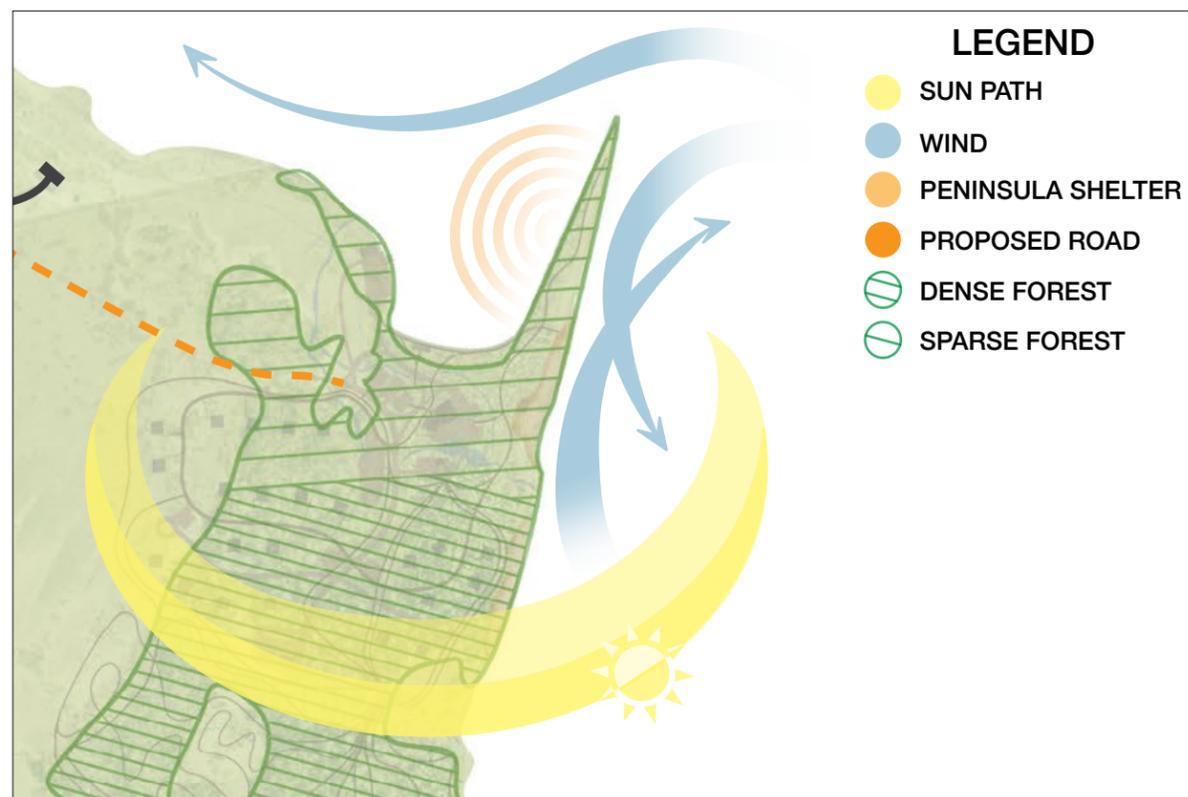


Figure 37. Site Analysis

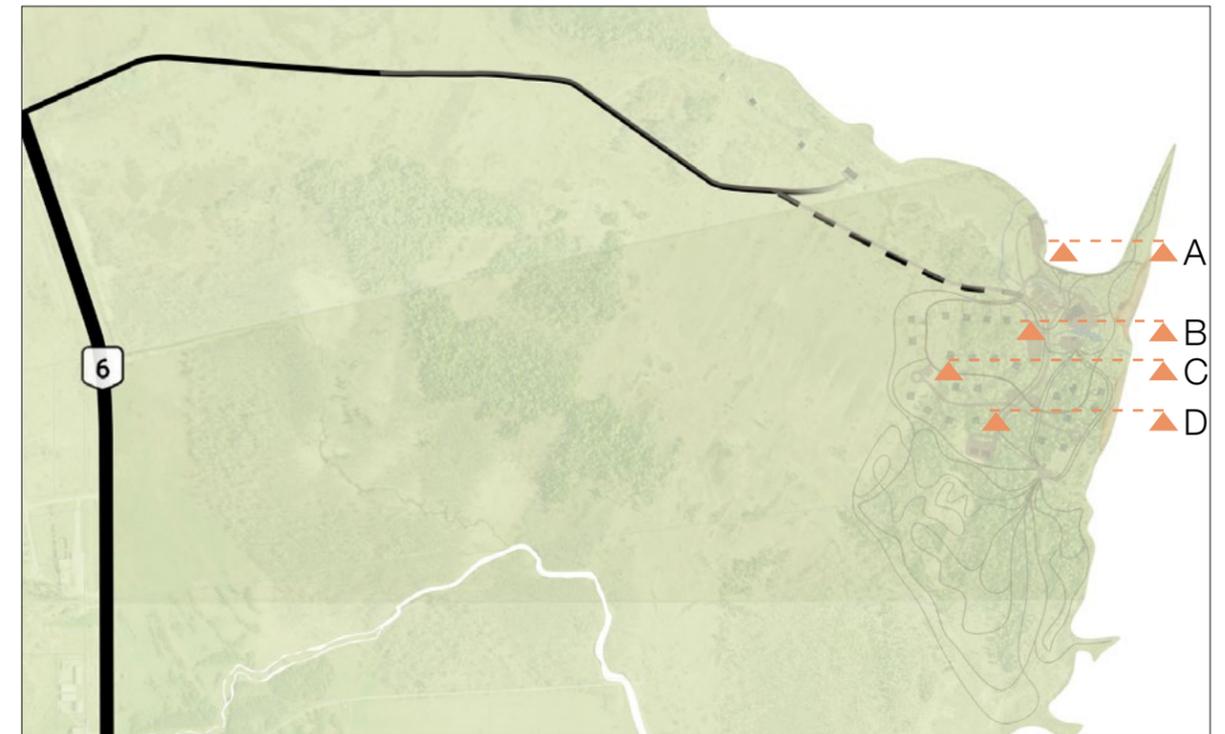


Figure 38. Site Location to Highway 6

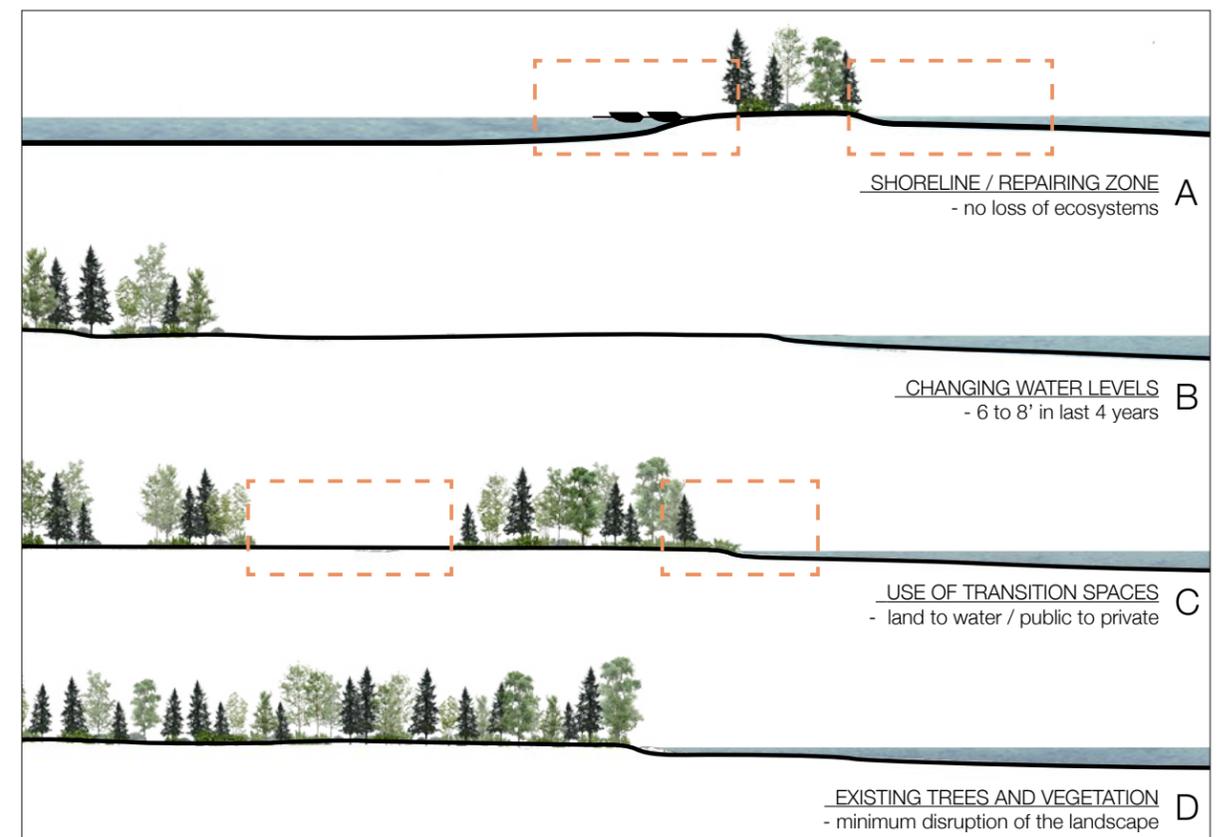


Figure 39. Sections Demonstrating Site Considerations



Figure 40. Existing Site



Figure 41-48. Existing Site Photos



# 4

## COMMUNITY DESIGN PROPOSAL

## 4.1 COMMUNITY PROGRAMMING AND INTENTIONS

The goal of this community is to provide residents with the mental and physical health benefits of nature, as well as increase the population and revitalize Manitoulin Island during winter months. Using the research presented in Chapters 2 and 3, a list of fundamentals and intentions were developed that are desired in the design of this winter community on Manitoulin Island. This includes, integrating ways that users can connect further with nature, engage in activities and stay active, and provide social opportunities with local residents and visitors from on and off the island. A key factor is for these fundamentals to be fully operational and successful during all seasons. The community aims to provide for three scales, including the scale of an individual, the middle scale of larger gatherings of people, and the community scale.

### 4.1.1 Demographics

This community will be geared towards a wide demographic of age, income level, and stage in life, creating a diverse and welcome community. This community aims to attract people who are interested in engaging more with the winter environment as well as all seasons and living equally with the landscape. These may include those who may have spent summers on the Island and are wanting to move there full time but have been hesitant due to the harsh winters, or those who are moving from cities in search of a more rural and secluded lifestyle. In addition, the community encourages intergenerational living, welcoming families, couples, individuals, those entering retirement, and the elderly. Similar to the way campgrounds support different lifestyles, this community will be able to accommodate a wide variety of human needs.

### 4.1.2 Programming

The community is comprised of six primary programs, including the market centre, permanent residential, rental residential, marina, beach, and trails. The market centre is a very important part of the program that drives the community as it serves as a place where visitors, residents, and farmers can sell their produce and products, gather with friends, and host events. Along with agriculture, hobbies of making and selling handmade objects, accessories, and artwork is very popular on Manitoulin Island, therefore providing a place where these people can sell them would be beneficial.

Secondary programs include a series of smaller gathering spaces, a community garden, and other activities. A goal is to have each program interwoven with each other to encourage exercise, interaction with others, blur the line of boundaries between public and private, further the connection to the landscape, and reduce vehicular use within the site. Each program is designed to have a purpose during the summer and winter months as well.



Figure 49. Community Programs

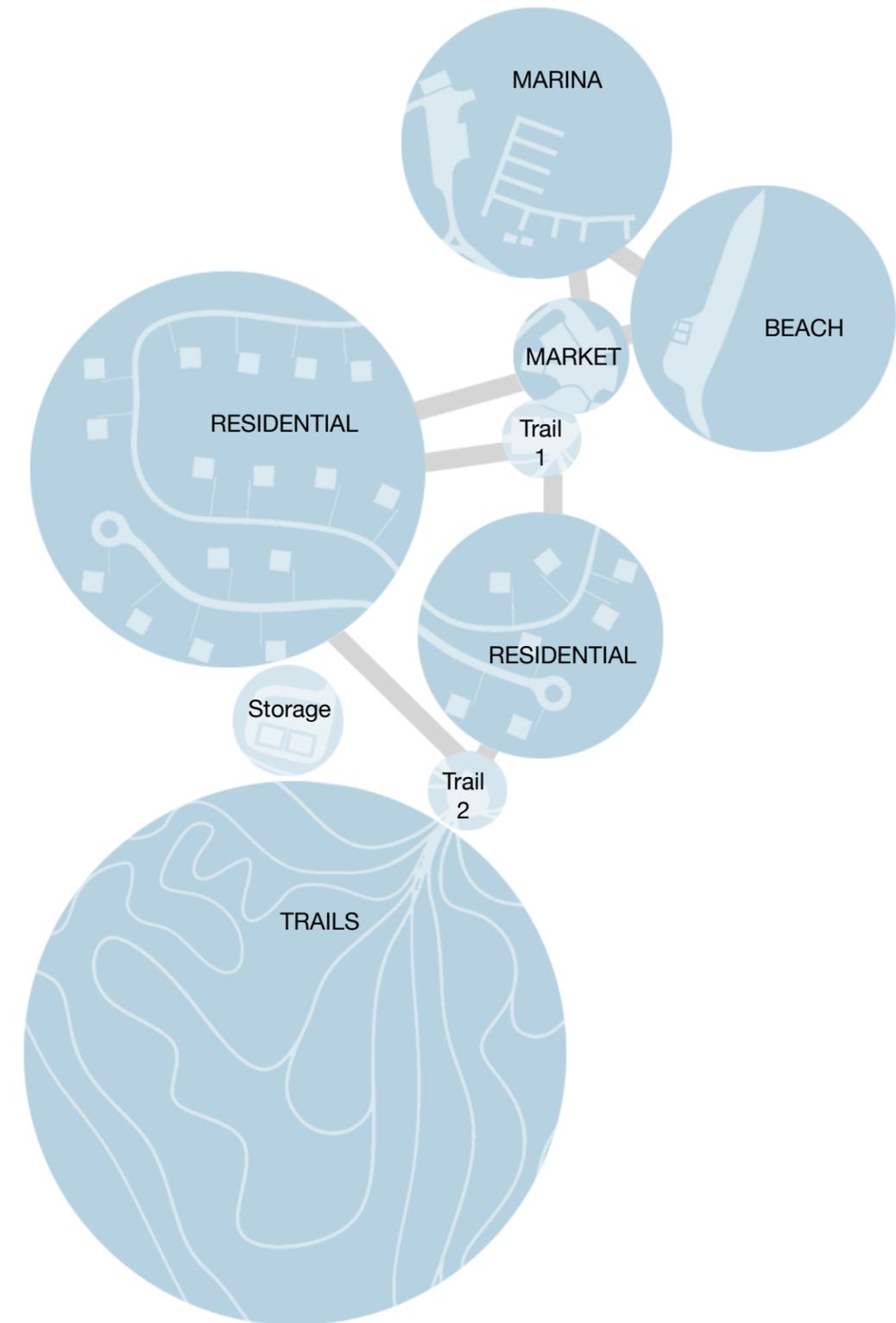


Figure 50. Primary Program Diagram

A major part of the design process was determining the programming, site layout, and design. To aid in the organization of the programs for such a large site and design proposal, a detailed program matrix was created and provided in Appendix B. The buildings and spaces are organized based on the one of six programs they are associated with. This matrix provides further details on each program and building in the community, as well as the winter and summer uses of each. The numbers on the map indicate the corresponding program in the matrix.

<span style="color: orange;">●</span> RESIDENTIAL	1 Permanent Housing
	2 Rental Housing
	3 Driveways
	4 Property/Yard
<span style="color: yellow;">●</span> MARKET CENTRE	5 Market Centre Building
	6 Market Vendor Stations
	7 Washroom Facility
	8 Store and Reception
	9 Office
	10 Staff Room
	11 Mechanical Room
	12 Janitor Room
	13 Elevator
	14 Outdoor Gathering Space
	15 Vendor Parking
	16 Skating Rinks
	17 Community Garden
	18 Pavilion
<span style="color: blue;">●</span> MARINA AND BEACH	19 Docks
	20 Main beach
	21 Secondary / Dog Beach
	22 Boat Launch
	23 Water Rentals
	24 Rentals Shed
	25 Fish Cleaning Hut
	26 Washroom Facility
	27 Ice Huts Rentals / Storage
<span style="color: green;">●</span> TRAILS	28 Trails Heads
	29 Washroom Facility
	30 Biking Trails
	31 Snowshoeing
	32 Cross-Country Skiing
	33 Skating Path
<span style="color: grey;">●</span> OTHER	34 Maintenance Shed
	35 Boat Storage
	36 Bench Series
	37 Parking Lots
	38 Playgrounds

**4.1.3 Seasonal Design**

This community is designed to easily adapt to a different lifestyle during each season, therefore a winter site and a summer site were designed, as shown in figures 52-53. With some programs having one purpose in the warmer months and another purpose during the colder months, including the trail types offered during each season and the design of the market to allow it to also function efficiently during each season. Design elements specifically based on the transition of seasons are explained further in each program description.

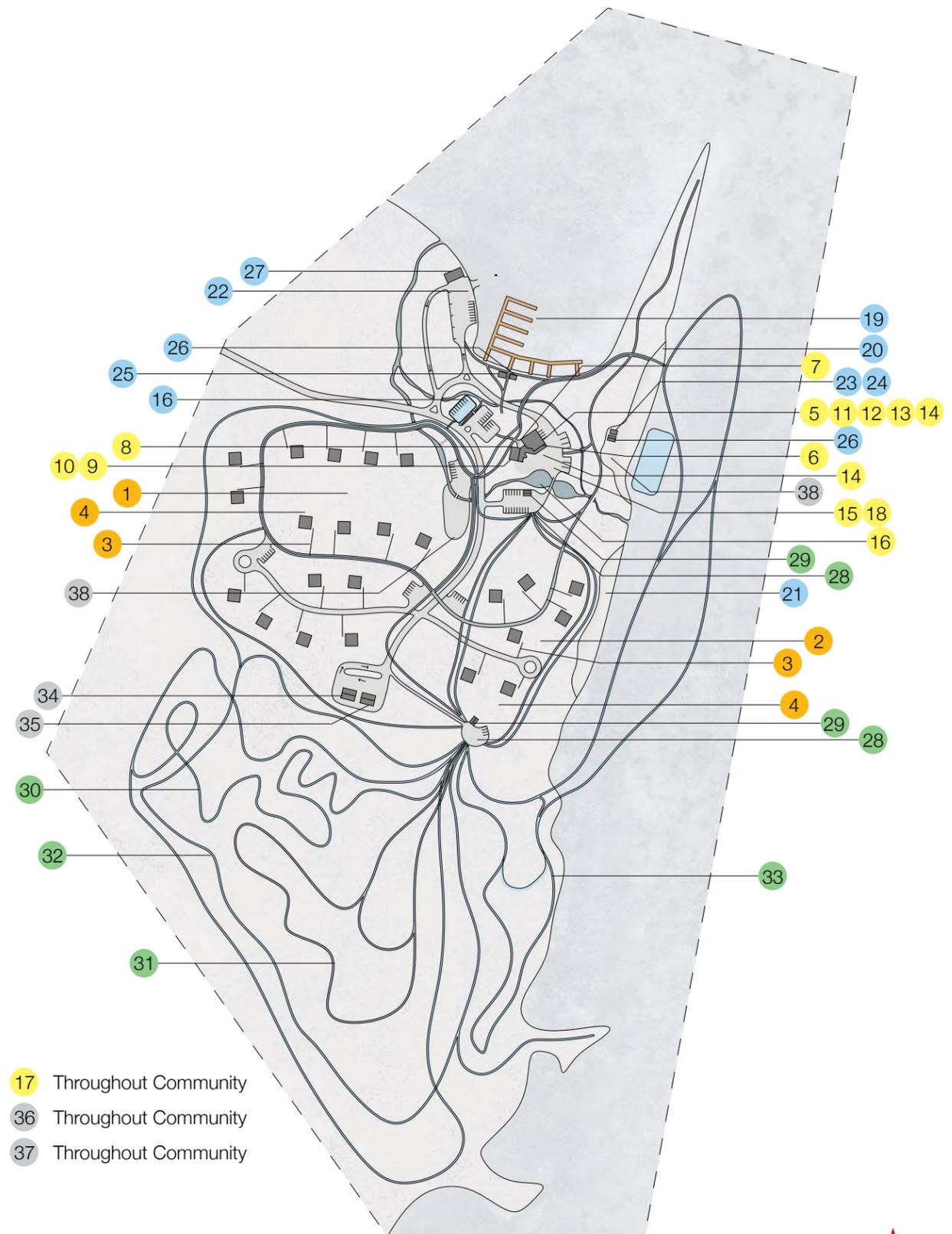


Figure 51. Program Locations On Site

Scale N/A



### 4.1.4 Organization of Public and Private Space

Although an emphasis was placed on designing a community that has a strong social dynamic and blurs social boundaries, it is also important to develop public and private spaces at both the human scale and community scale. The majority of the community is considered public space. Although the permanent residence is still accessible to the public and visitors, it was designed to have some distance from the center of the community to provide the residents with a space away from visitors. The community was designed into the landscape with very little disturbance of the landscape. The majority of these rentals are located in the forested area to provide privacy from the public. In relation to public and private living spaces, the community is designed similarly to campgrounds. Campgrounds such as Batman's Cottages and Campgrounds. As documented in Appendix D, is laid out with the seasonal sites and short-term sites in more divided clusters, allowing a more private space for the seasonal campers.

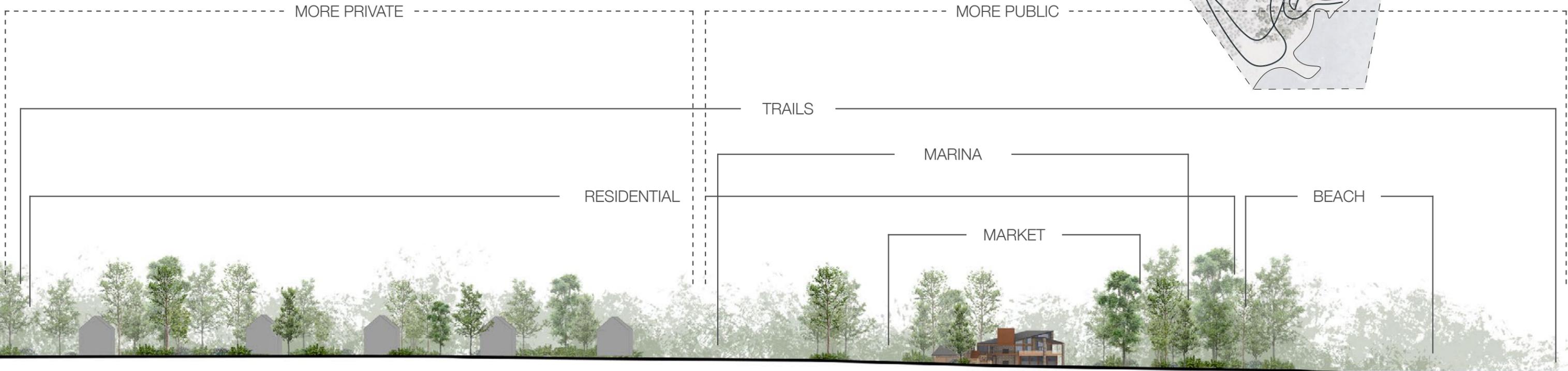
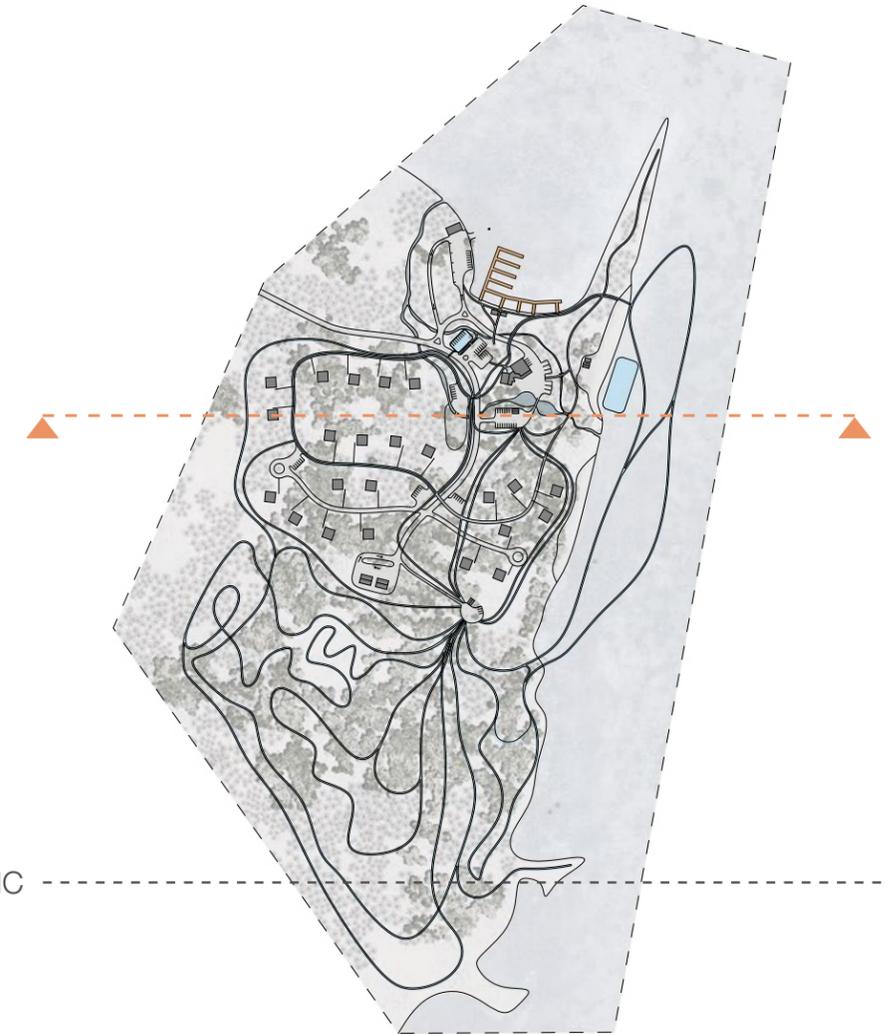


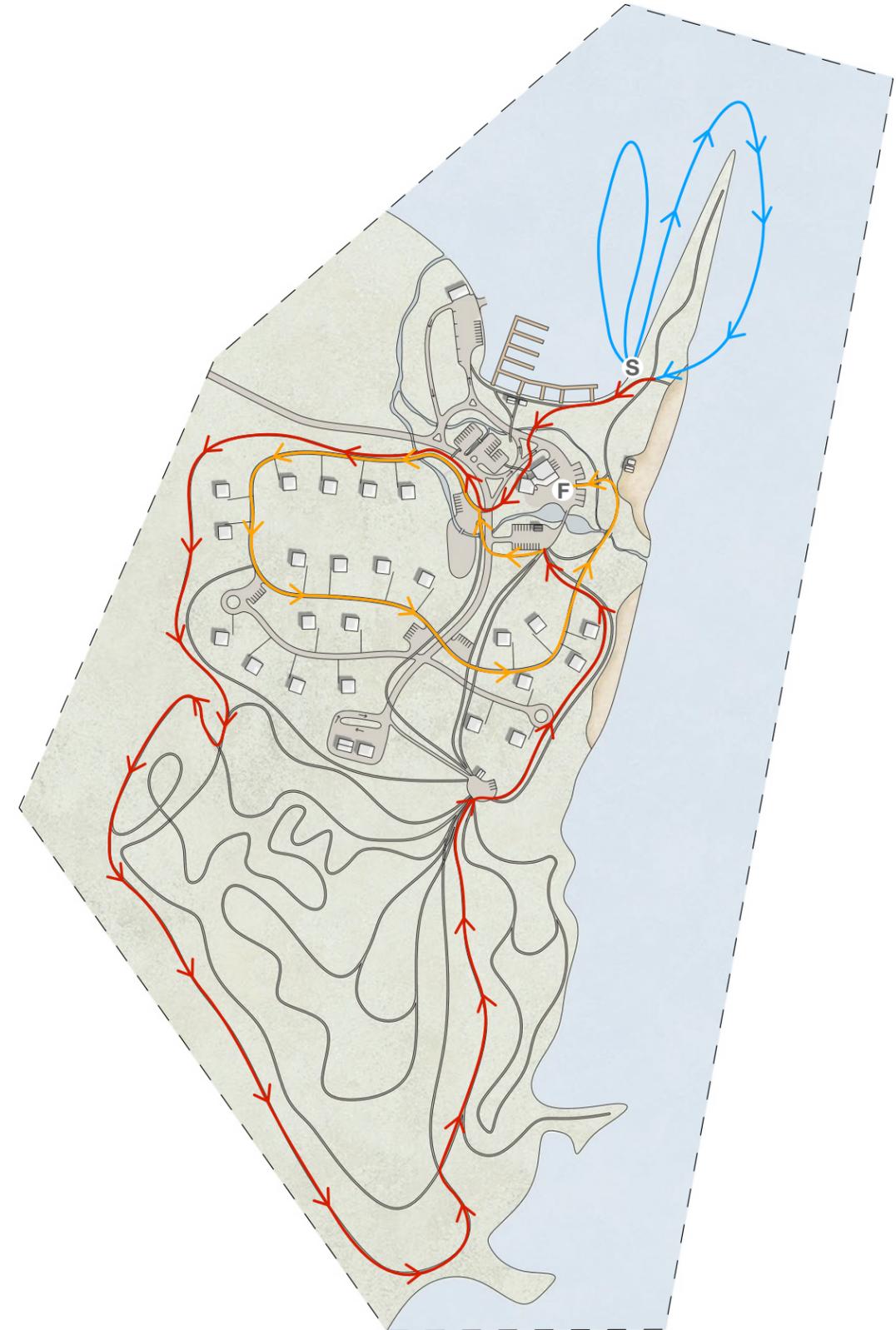
Figure 54. Site Section - South

Scale 1:1000 0m 5m 10m 20m

**4.1.5 Proposed Events and Collaborations**

To further improve the success of the community, it would be beneficial to strengthen its connection to the rest of Manitoulin Island. As previously mentioned, tourism, activities and events are very popular on the Island, therefore having this community get involved with other programs, events, and surrounding communities will build a stronger connection and network. There are many events that are hosted in Little Current as well as other areas on the Island that the community could collaborate with by hosting additional activities on the site, such as getting involved with local music festivals, Haweater or Canada Day Weekend, as well as hosting guests that are involved in these events, as well as weddings. A large event that this community can get involved with is the Manitoulin Passage Ride, an annual cycling event that spans two days of bicycling Manitoulin Island. This community can provide food and sleeping accommodations for the cyclists. These collaborations will not only strengthen the community’s connection to other towns and organizations on the Island, but to surrounding cities and areas as well.

In addition to collaborating with existing events on Manitoulin Island, this community can also host its own. With the many activities, large network of trails and programs provided in this community, this increases the potential to host a variety of triathlons and other sporting activities. A triathlon consists of a swim, bike and run. As shown in figure 55, the triathlon would begin at the marina where athletes will swim out to the peninsula and back to the beach shore. They would then transition to biking, taking a longer route through the network of trails. The athletes will then finish the race by running a shorter route through the residential areas and to the finish line at the market centre.



**Figure 55.** Proposed Triathlon Route

## 4.2 COMMUNITY DESIGN

The following design proposal carefully considers the voiced opinions of residents and the current issues of winter living on Manitoulin Island, as documented in interviews and discussions in Appendix A. In response to these issues, the design also caters to the understanding of how to live with the landscape, taking into consideration its needs as well as the residents. The design of this community and how people operate through it is directly influenced by the specific characteristics of the site. As explained in the following programs, the site provides opportunities in the landscape for the specific primary and secondary programs, as touched on in the site analysis.

### 4.2.1 Materiality

The choice of materials for the community is highly important. Manitoulin Island has a very unique landscape, therefore geological and design features including rock formations and existing debris from trees, vegetation, and historical buildings, are all just as important as Manitoulin’s human history. To acknowledge history and the landscape, predominantly local materials will be used in the design and construction of the community, thus providing a greater connection to the Island as a whole. To aid architectural and ecological sustainability, natural resources that are readily available on the island will be used including local cedar and Manitoulin’s local limestone, dolomite, and shale. There are several lumber mills and quarries located on the Island that can provide these materials, therefore supporting locally while reducing transportation cost.

The choice of materiality focused on how it weathers and shows the passing of time through colour and physical appearance. The three primary materials used in the community are the local cedar, local stone, as well as Corten Steel. A common characteristic of these materials is how they weather over time. Over the years each of these materials will be to weather and age, the cedar will fade and turn grey, the stone will become darker and stained by rain water, and the Corten steel will rust and darken. The use of these materials will result in a constantly changing building as it ages. Similar to architecture, the environment surrounding these buildings is also constantly changing, therefore they will continue to change together.

Cedar will be used on the façade of the buildings as well as the wood slat screens and railings on the exterior of the market centre building. This cedar will continue to age as well as show how the weathering is influenced by the elements. Areas where rainwater flows and where snow collects will cause the cedar to weather and grey more drastically than other areas. The local stone is used on the façade of the building as well as the columns. The stone will weather similar to cedar by showing where water and snow have increased the weathering process. The stone can also begin to grow algae and other organisms as well as develop cracks.<sup>41</sup>

41 “Geological Society - Chemical Weathering,” accessed April 26, 2021, <https://www.geolsoc.org.uk/ks3/gsl/education/resources/rockcycle/page3564.html>.

Additional materials being used throughout the community that are not local include Corten Steel. Corten Steel is a durable and heavy weathering steel that requires very little maintenance. Over time the steel will weather, developing a patina that continues to darken as it ages. This will provide an interesting change in the overall look of the buildings over the years (Figure 56). The Corten Steel is used as an accent material on the interior and exterior of the market centre, including on the fire places, columns, and cladding details.

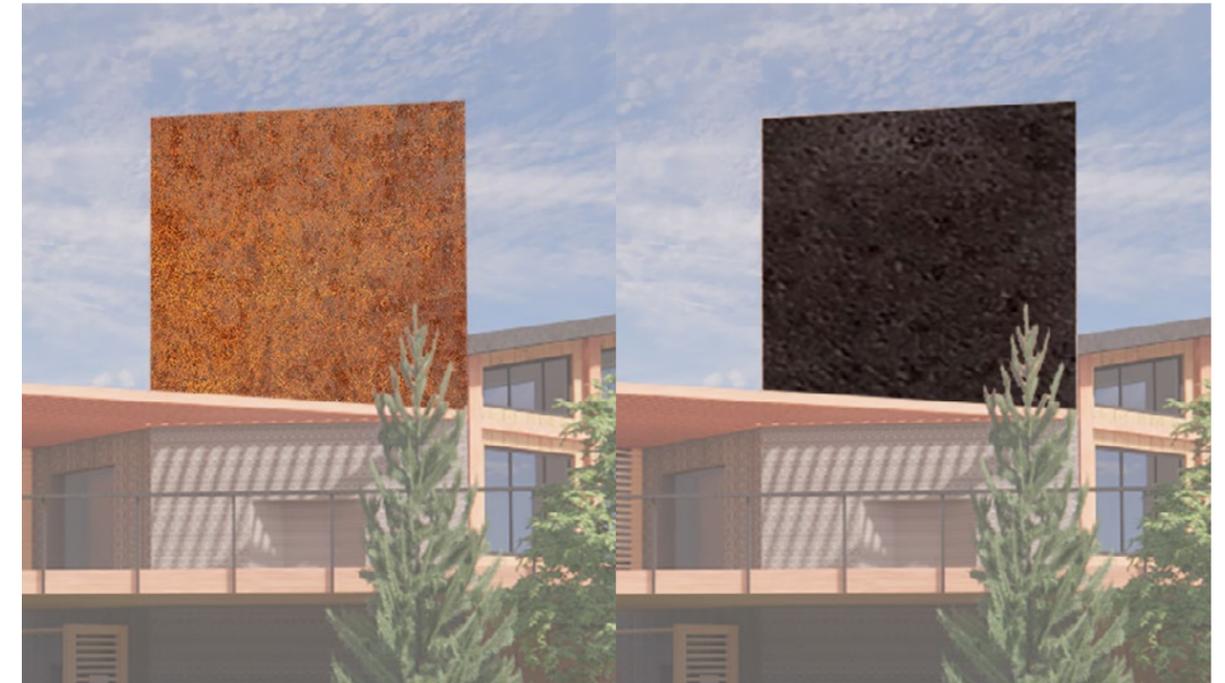


Figure 56. Corten Steel - Months After Installation to Years After Installation

Permeable pavers are located at entrances, along pathways, and in parking spots near the market centre building. These pavers will be used to enhance the transition from nature to architecture and create a stronger connection to the landscape in comparison to asphalt or pavement being used and dominating a space. Permeable pavers have many benefits, including:

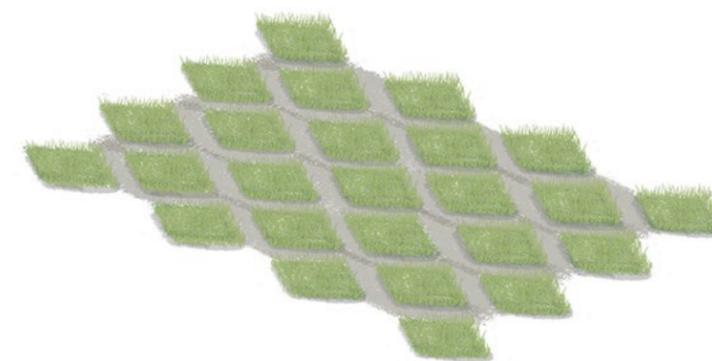
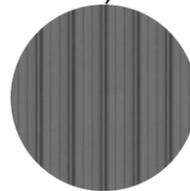


Figure 57. Permeable Paver Benefits

#### **PERMEABLE PAVER BENEFITS**

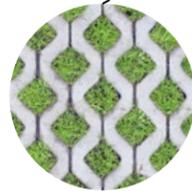
- Sustainable and cost efficient
- Temporary
- Erosion control
- Retains Water
- Reduce tracking of dirt indoors
- Durable and long lasting



METAL ROOFING



VEGETATION



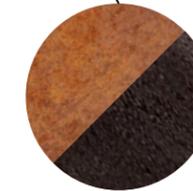
PERMEABLE PAVERS



BLACK STEEL



MANITOULIN STONE



CORTEN STEEL



MANITOULIN CEDAR CLADDING

Figure 58. Market Centre Material Uses - South East Elevation

### 4.2.2 Parking

An important part of the design of the community is to preserve the natural context of the site. Parking, although very important can have a negative effect on the environment. To solve this problem, in replacement of larger communal parking lots, the design contains several areas of cluster parking distributed throughout the site, as shown in figure 60. These parking clusters will be made primarily of permeable pavers, making it more sustainable, natural, and low maintenance. Any slightly larger clusters have been placed in open or less dense forested areas to decrease the amount of forested area being destroyed. All roads throughout the site will remain as gravel roads. To keep the narrow and less invasive roads as seen in campgrounds, a series of one-way streets have been integrated into areas adjacent to the marina (4.2.5) and market centre (4.2.7), also allowing for efficient circulation.

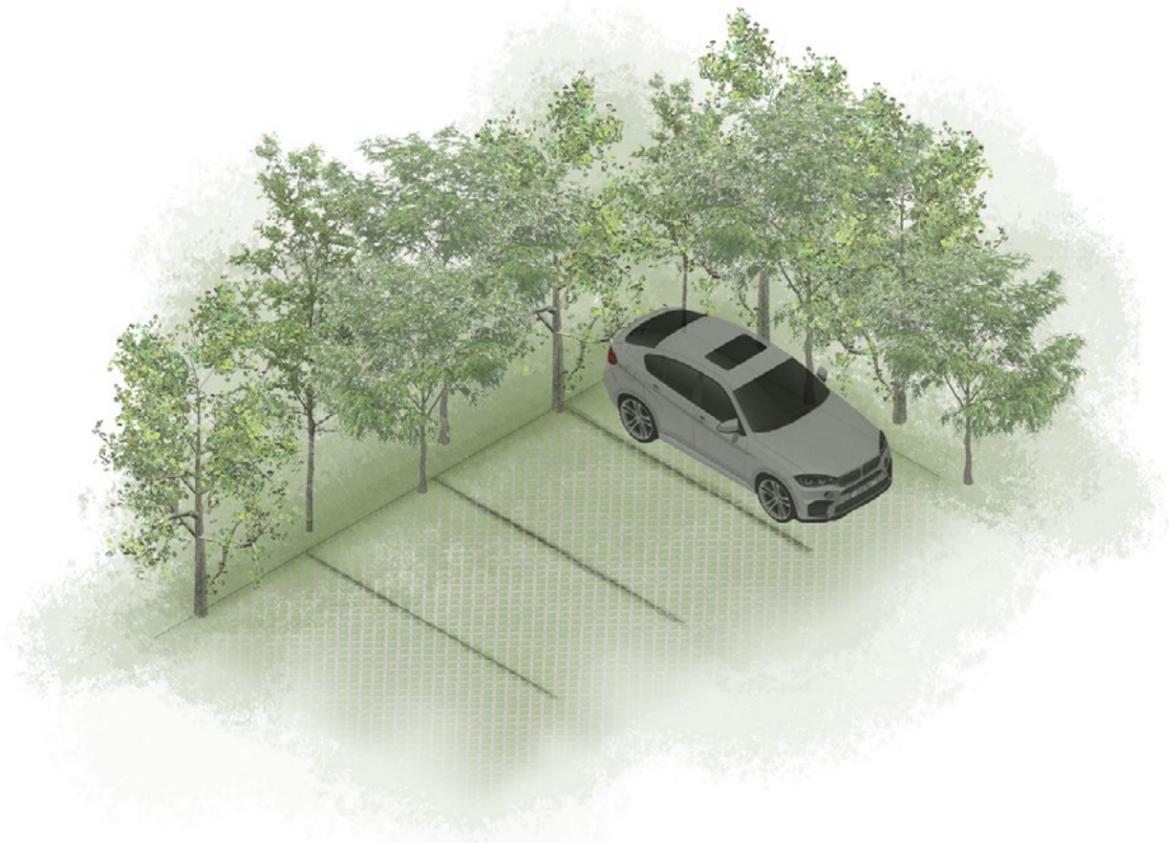


Figure 59. Cluster Parking Diagram

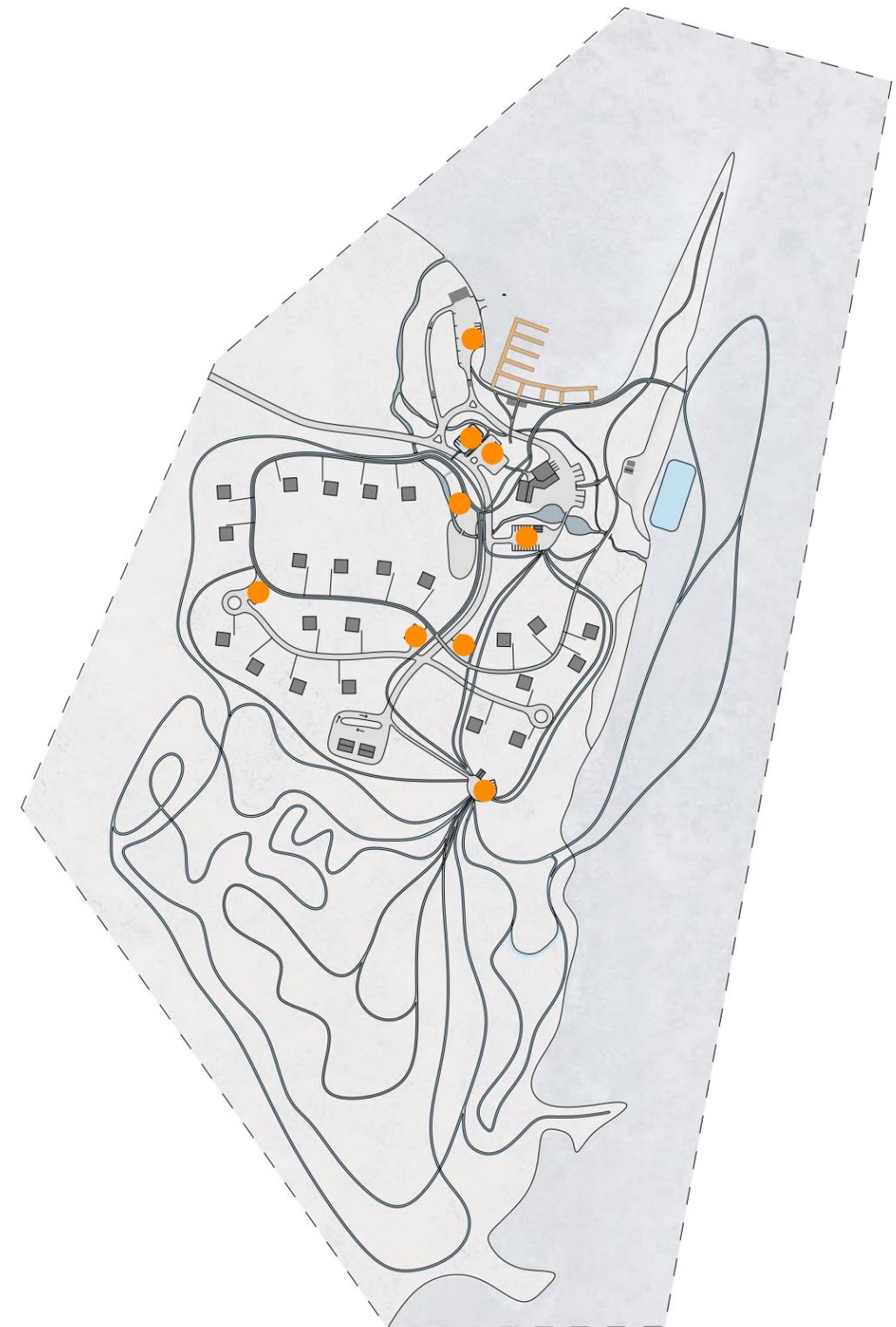


Figure 60. Cluster Parking Locations (Orange)

### 4.2.3 Trails

One of the first steps in designing this community was to determine a network of trails, paths, and roads that would connect users and each program in the community. The result is a network of trails that circulates throughout the community while encouraging an active lifestyle. In addition to being located throughout the entire community, these trails will continue into a large cluster on the south end of the site. These trails are located deep within the forest with minimum disruption of the landscape, while providing users with a stronger experience in the natural landscape of Manitoulin Island. The location for the main cluster of these trails was chosen to allow for future expansion away from the community. Two main trail heads are provided with paths leading to them as well as vehicle access.

A variety of trails have been provided to accommodate for a variety of ability and activity level. During the colder months these trails include biking trails, snowshoeing, cross country skiing, and a skating path. Snowshoe trails have been implemented to use as walking or snowshoe trails throughout the entire community as the main means of circulation and easiest difficulty level for anyone to use. The cross-country ski trail is the longest trail on the site to accommodate for the faster speed and provide a longer run. The skating path will run from lake to land with trails throughout the forested areas. The skating path will also have secondary entry points at both beaches. The biking trails will allow for mountain biking and fat biking during all seasons. During the summer and warmer months, these trails will be used as walking, hiking, and biking trails.

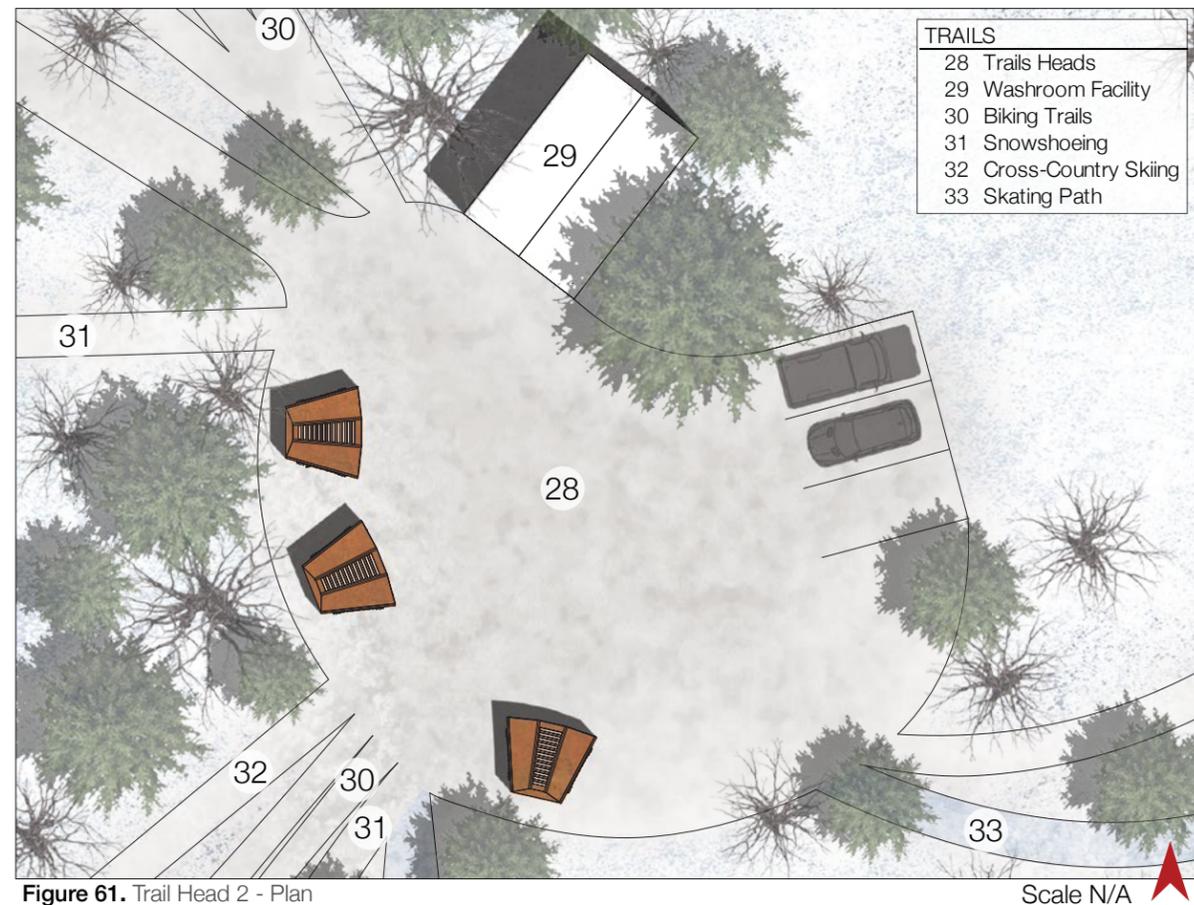


Figure 61. Trail Head 2 - Plan



Figure 62. Trail Head 2 - Render

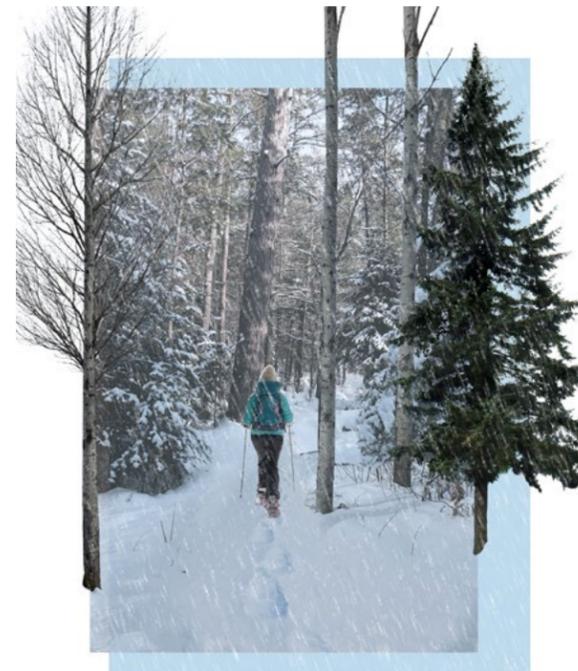


Figure 63. Snowshoe Trail - Vignette



Figure 64. Cross Country Ski Trail - Vignette

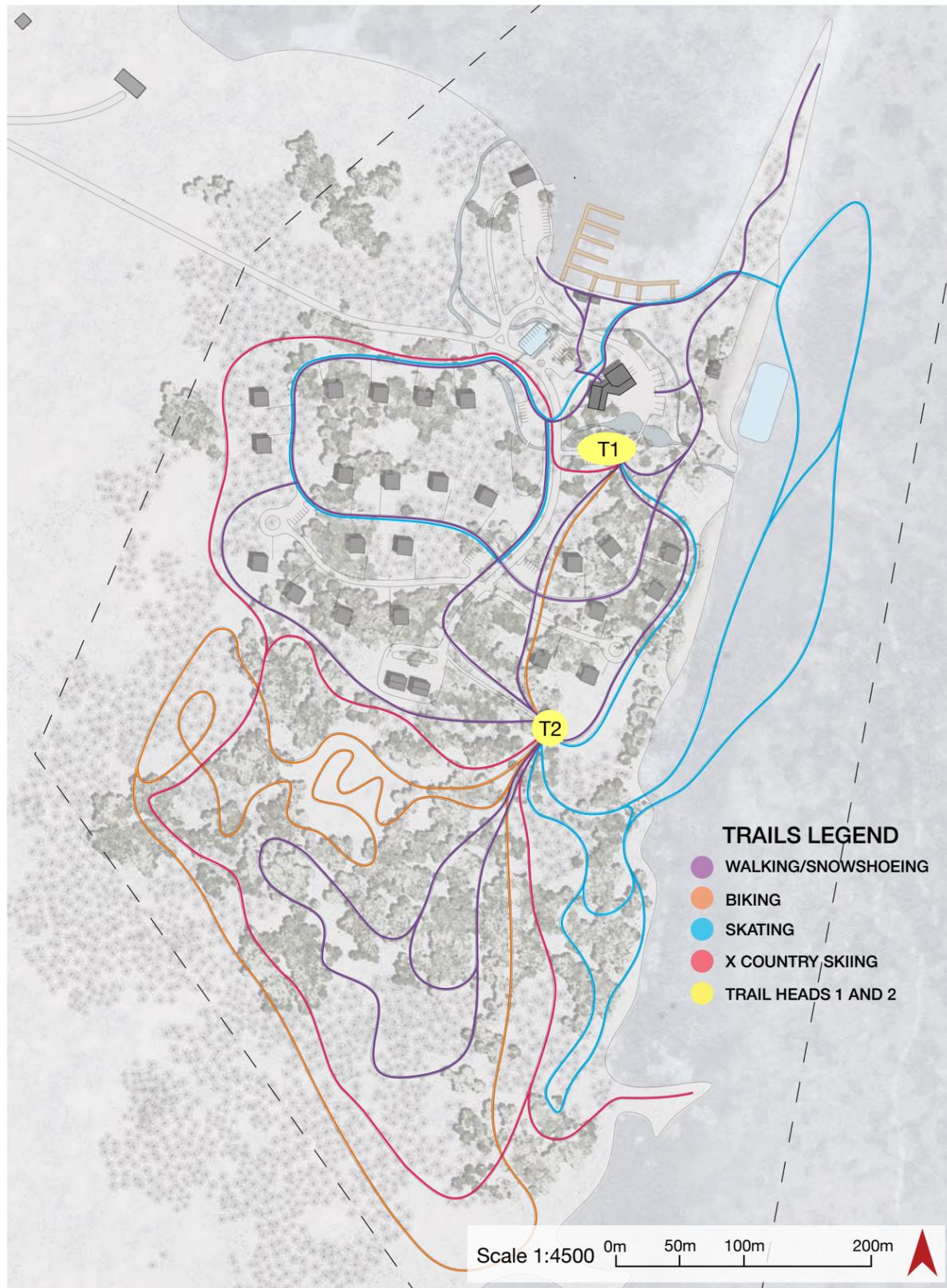


Figure 65. Winter Community Trails - Plan

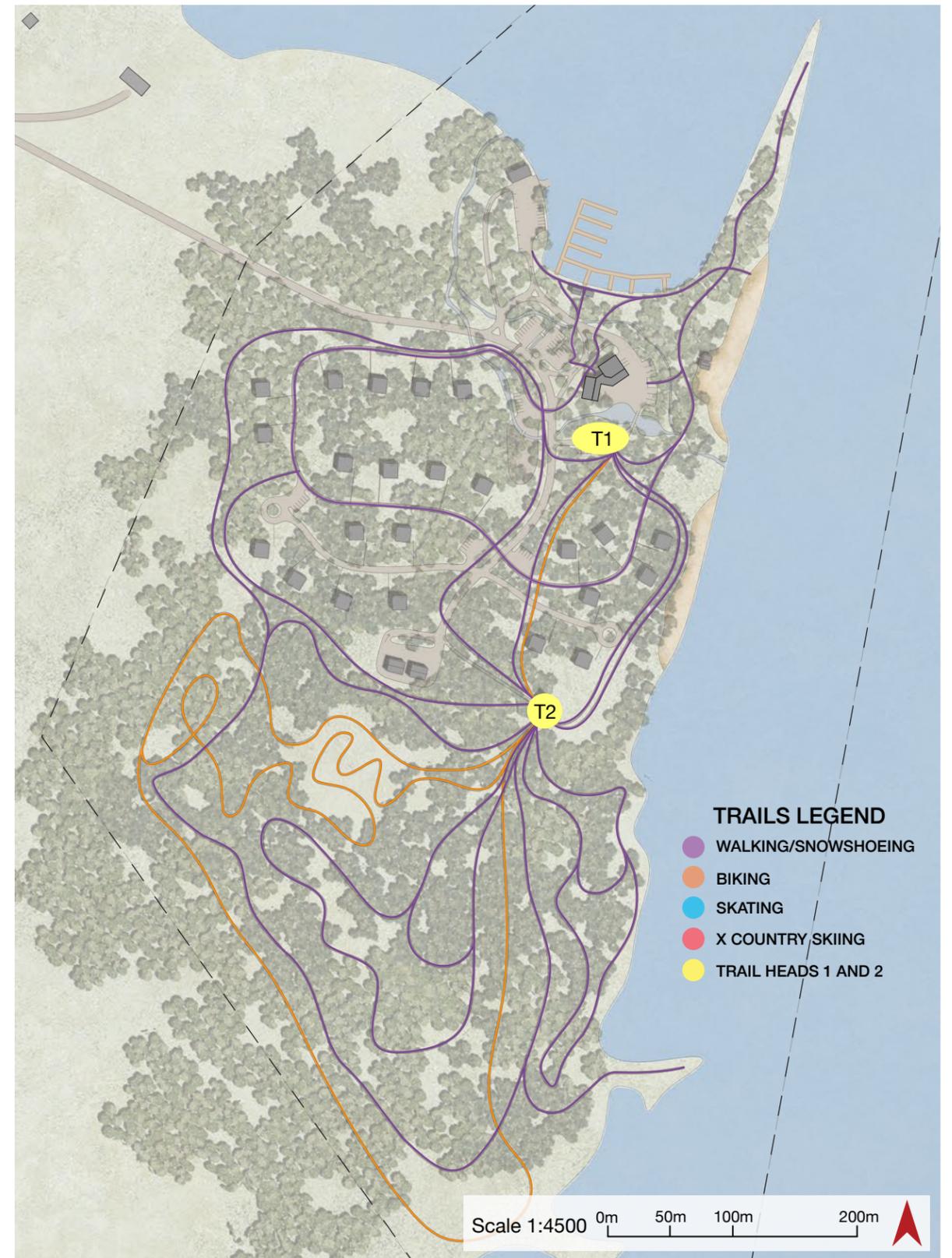


Figure 66. Summer Community Trails - Plan

**4.2.4 Bench Artifact**

Each program in the community is geared towards creating a strong social atmosphere while interacting with the surrounding landscape of the community. Contributing to this is the proposal for a bench design that is located in different areas throughout the community, in proximity with each program. The primary purpose of this bench is to locate them near the trails where users can have a place to store and put on their gear before going out on the trails, rest and socialize, take shelter, or simply pass through. The bench will consist of four design principles that provide the best experience for the users of the community, including a social gathering space, seating, storage, and the use of local materials to create a stronger connection to the landscape.

The shelter is created to block wind, rain, snow, and other elements. There are cut-outs in the steel panel walls to provide air flow and natural lighting. The steel panels directly above each bench remain solid to ensure shelter from rain and snow. The seating of the bench is curved to allow for users to sit facing each other in a more social context, or sit near the edge as the bench faces outward for a more individual and private experience. The design of the wood seating is carried up the structure to act as backrest to avoid the transfer of rust from the steel onto the users. For the exterior storage, one side includes shelves and small lockers to safely store shoes and other belongings, while the other side contains a mix of shelves and racks for skis, poles, and snowshoes.



Figure 67. Vignette Of Benches on Trails - Render

The design process consisted of creating a series of iterations that each served different purposes. Some iterations only included seating, some with seating and storage, while others were primarily for shelter and storage. The final bench resulted from a combination of each iteration. In addition, two of these iterations that will also be used in the community. The rectangular bench will be used primarily on the deck platforms of the market centre as they have a more simplistic design for smaller social areas. The hinged bench will be used near the market centre along paths where it can follow the same curves of the path.

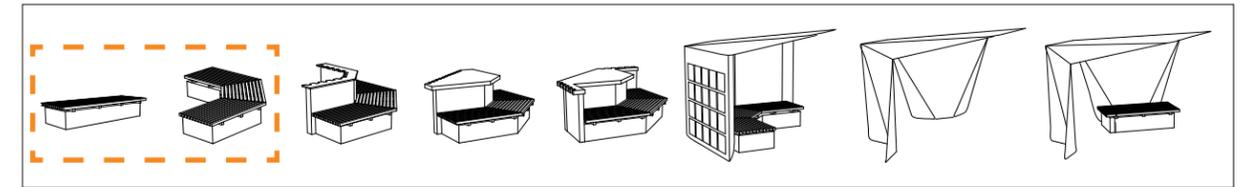


Figure 68. Preliminary Bench Iterations and Process

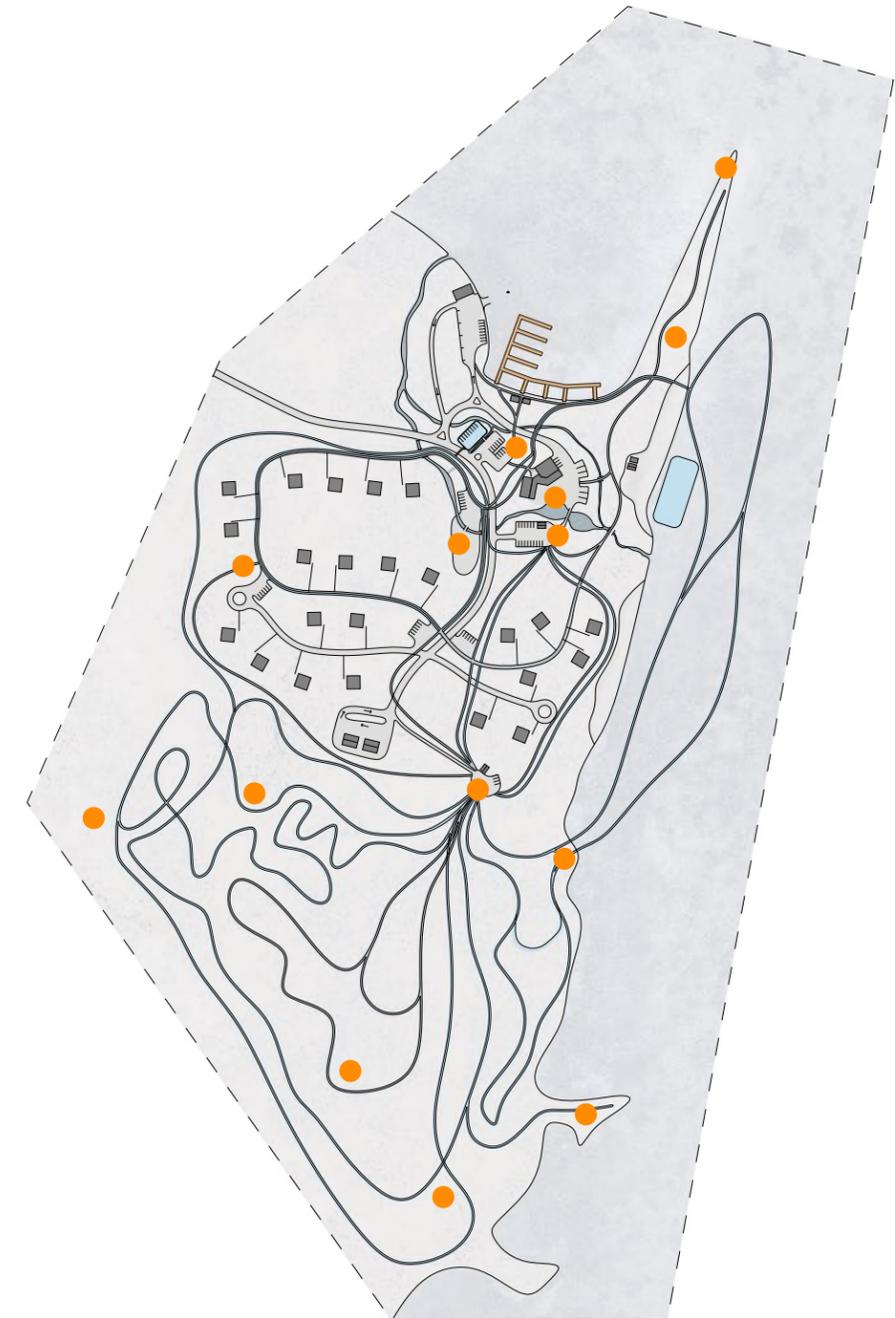


Figure 69. Bench Locations Throughout Community (Orange)

Scale N/A

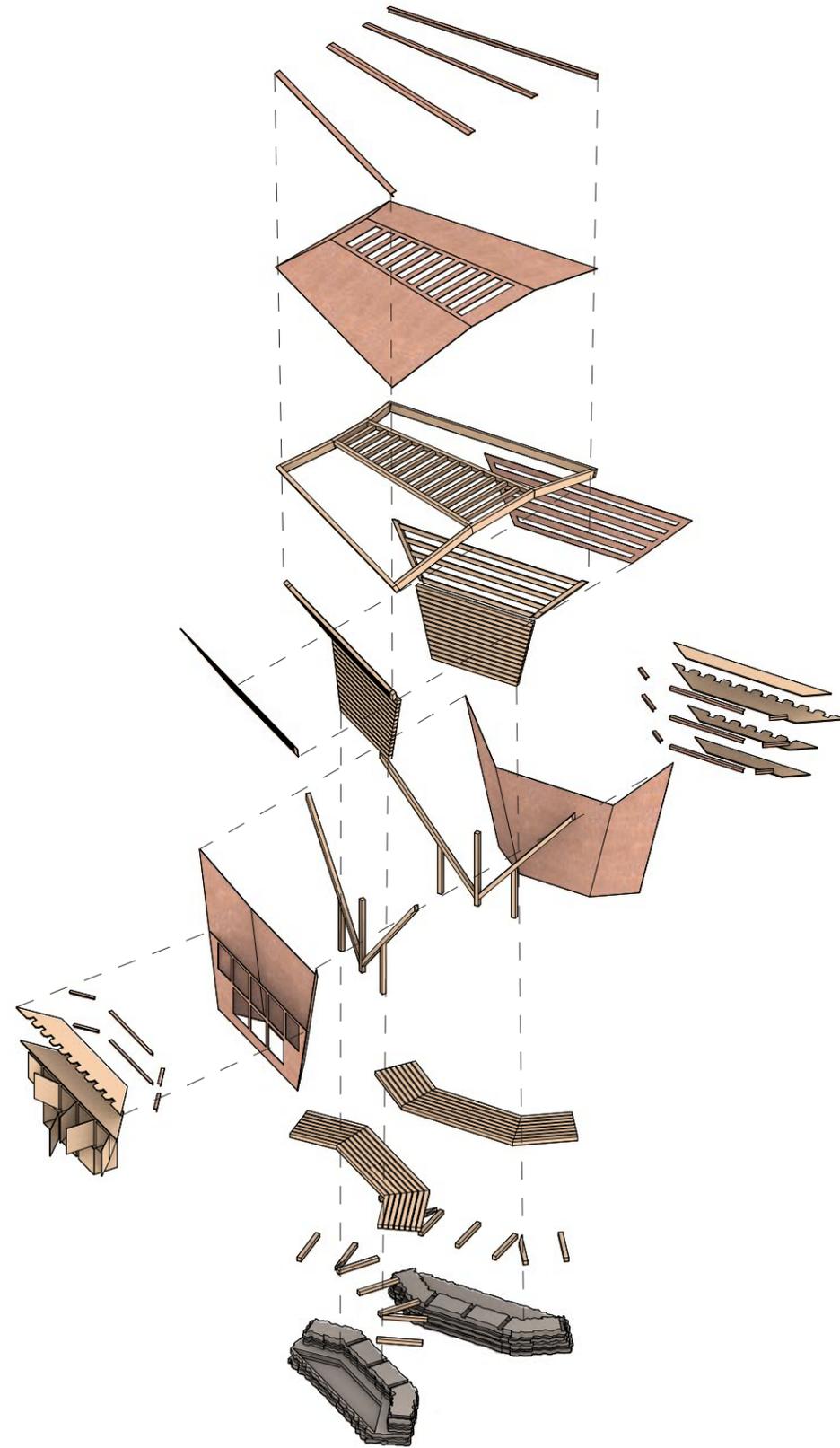


Figure 70. Bench Exploded Axo

The same local cedar, Manitoulin stone and Corten Steel as used in the community design is used for the bench design. The bench design will then have a greater connection to the community as a whole as these materials are being used in both designs. The fabrication of the bench will be comprised of 2" x 2" and 2" x 4" cedar, 4' x 12' Corten steel panels, and cut Manitoulin stone. Cedar 2" x 2" will serve as the seat and back rest surfaces as well as the structure of the bench itself. In order to connect the wood seating to the stone base and prevent the wood from moving, the seating is placed into horizontal cutout slots in the stone base. The Corten steel structure is comprised of a series of panels at different angles for maximum stability. These panels are constructed using welded angles customized to the specific angles in the structure, with a cedar wood structure of 2" x 2" and 2" x 4" for added stability. Supporting the framed structure of the shelter are four 2" x 2"s which run from the base of the back rest to the beneath the frame of the shelter. To provide further support to the Corten steel that contains the cutouts, a series of 2" x 2"s will be placed within the frames of each steel panel between each cutout. The shelves and lockers are constructed using cedar boards and connected to the Corten steel using steel 90-degree angles. In order to stabilize the entire structure, the stone base of the bench will serve as an anchor for the entire structure.

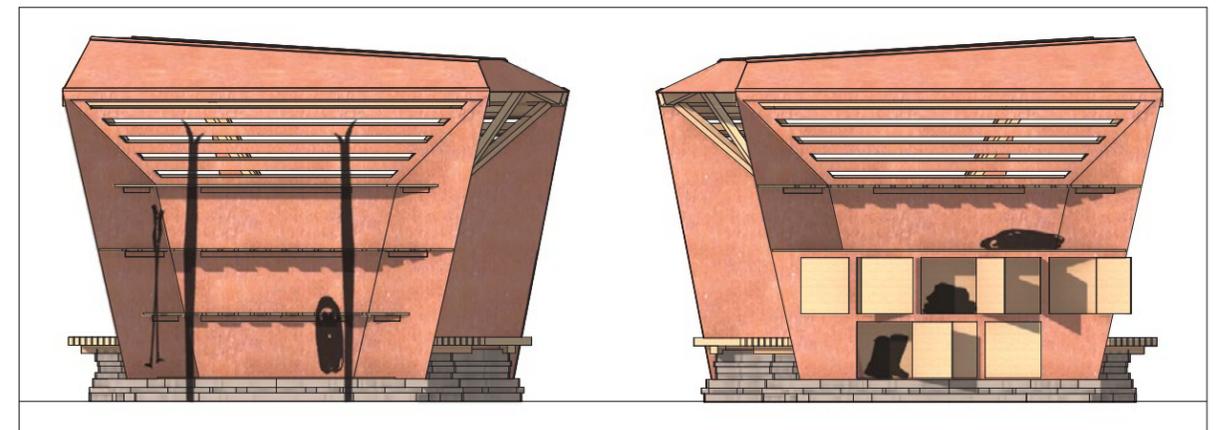


Figure 71. Bench Storage Uses - Elevations

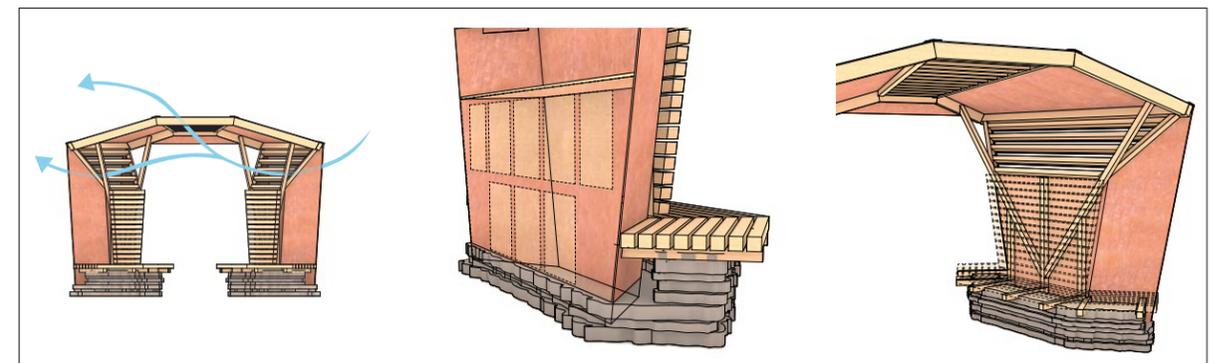


Figure 72. Bench Details

**4.2.5 Marina and Beach**

On the north end of the site are a marina and swimming area, which includes a boat launch, marina, playground, washroom facilities, docks with rental spots, fish cleaning hut, a parking lot, and a peninsula lookout point. The beach and swim area will be located on the north end of the site. The small peninsula creates a small bay, ideal for docking boats as it is more sheltered from strong winds and rough waters, in comparison to the east side of the shoreline. The east side of the shoreline will be used as a swimming area as it provides a clean beach with less weeds and marshland. A secondary beach is located on the east shore that is pet friendly and provides a more private space. During each season, residents and visitors will have the opportunity to rent ice huts, as well as kayaks, canoes and rentals for other water activities.

A primary goal of this community is to preserve as much of the natural landscape as possible. The Shoreline Classification system, as discussed further in the Ramsey Lake precedent in Appendix D, will be implemented into this design to identify the most ideal shorelines. The majority of the shoreline will be categorized as green meaning it will remain untouched and natural. The beach and swim area will be yellow as it has some human disturbance and less of a buffer zone. The marina area will be classified as orange as it contains the built structure of the docks.



Figure 73. Shoreline Classification Used On Site

The docks are located further out from the shoreline due to the fluctuating water levels. These decreasing water levels can prevent boat access to the docks. If the docks were closer to the shore the water would most likely be too shallow to dock. During the winter months this marina will be used for ice fishing. This area contains an ice fishing hut storage building to accommodate for residents' huts and rental huts. The boat launch will then be used to launch snowmobiles and vehicles and well as easily pull ice huts on and off the ice.

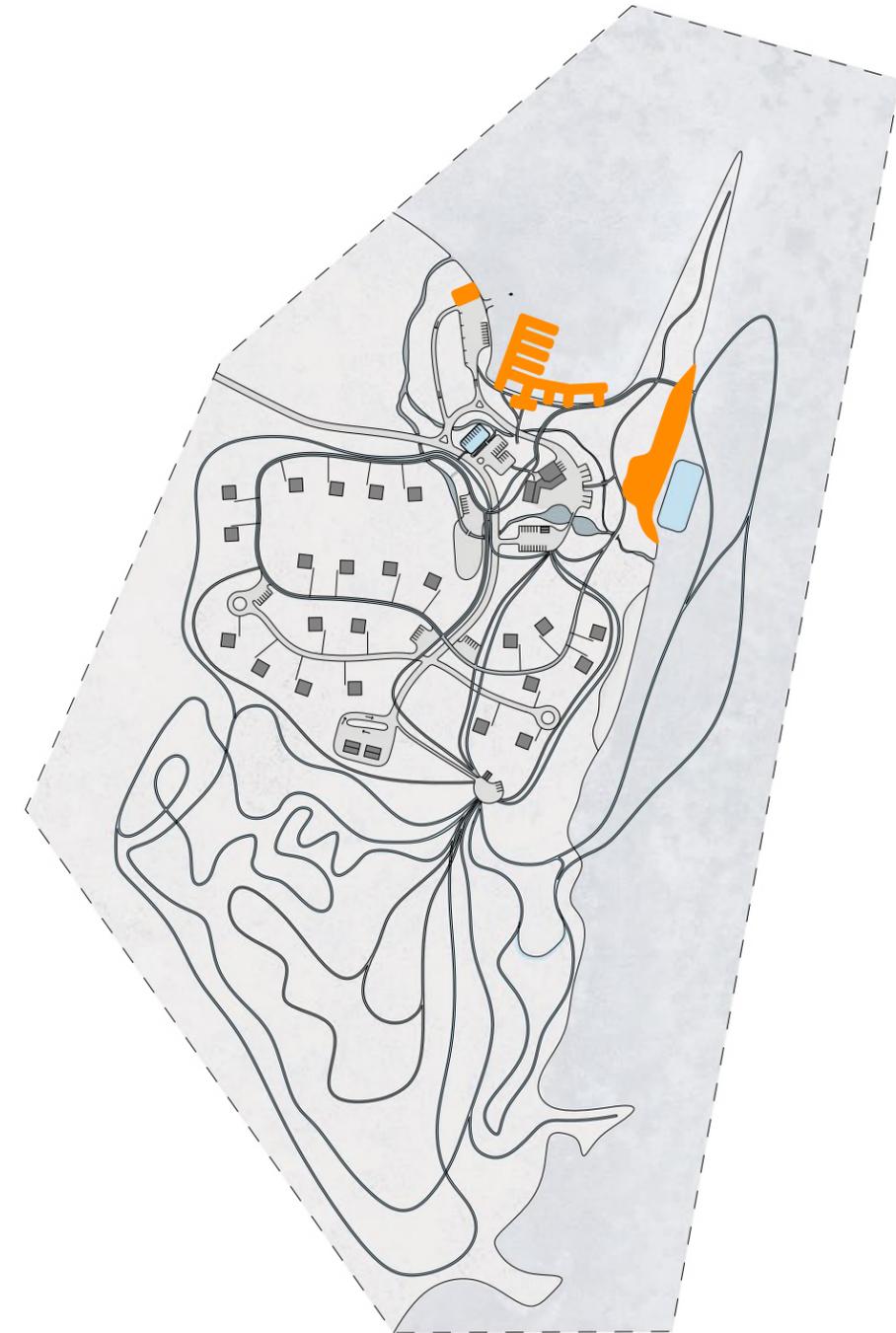


Figure 74. Marina and Beach Location In Community (Orange)

Scale N/A



Figure 75. Ice Fishing And Skating Path On Lake Off East Shoreline - Render



Figure 77. Marina - Render

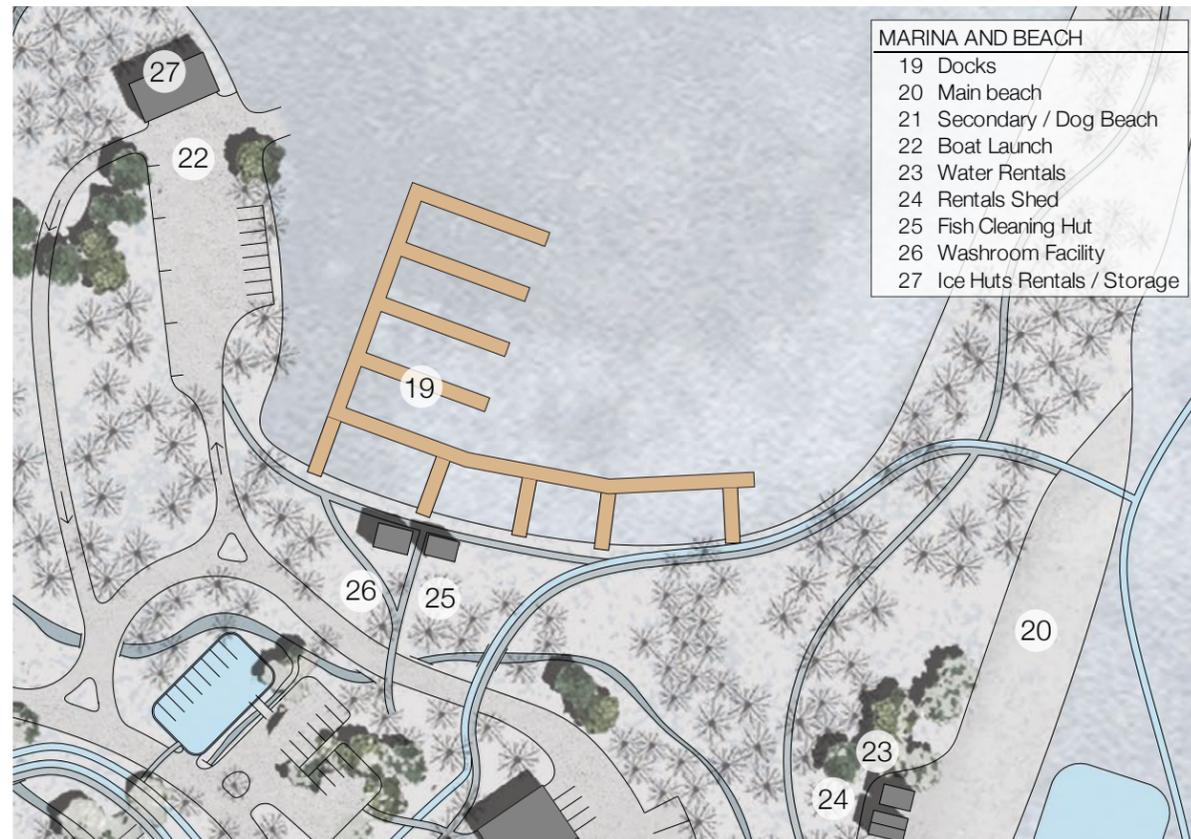


Figure 76. Marina And Beach Site Plan - Winter

Scale 1:1500 0m 10m 50m 100m

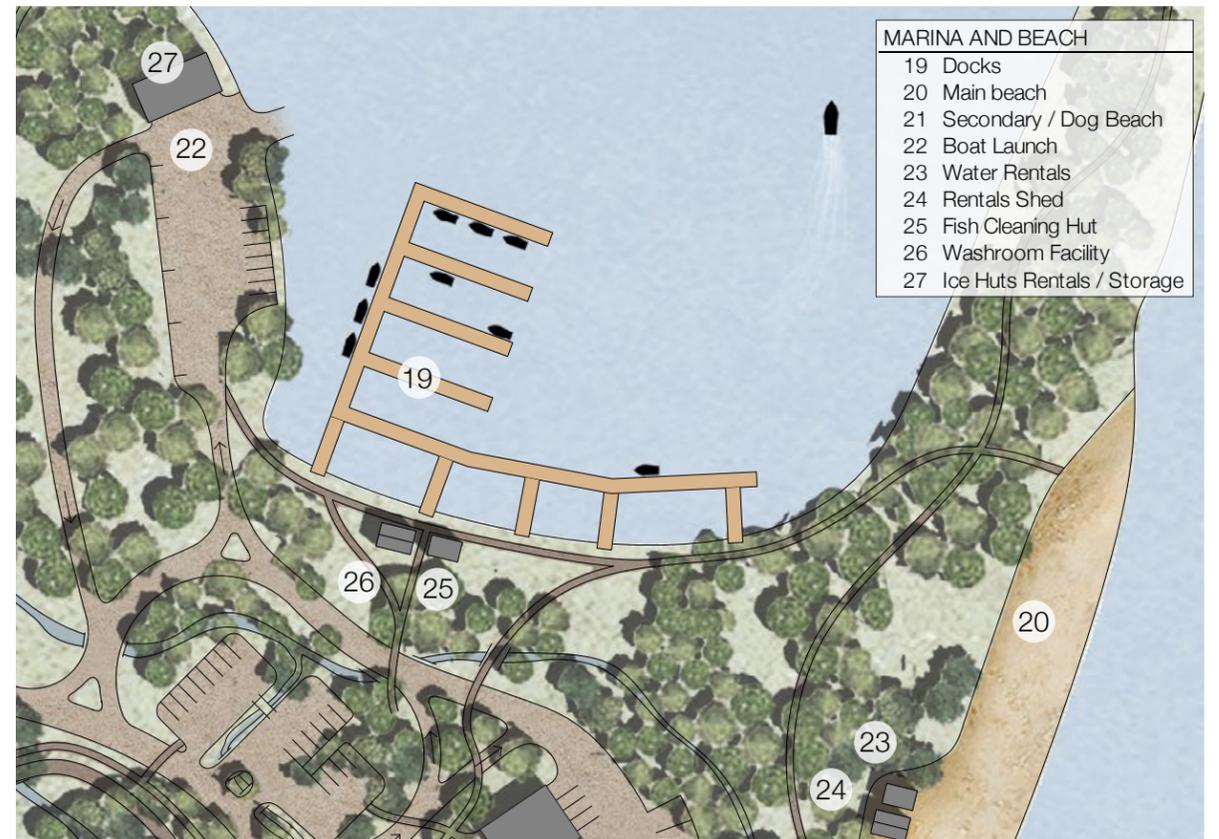
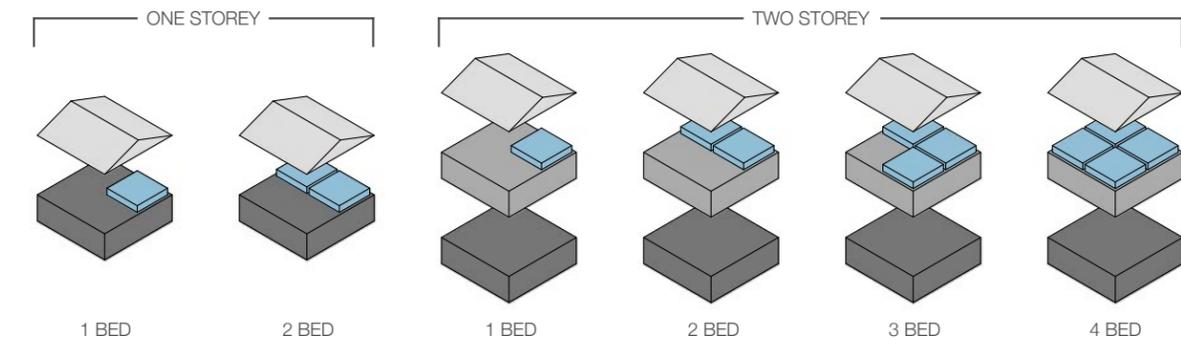


Figure 78. Marina And Beach Site Plan - Summer

Scale 1:1500 0m 10m 50m 100m

**4.2.6 Residential**

The residential design of this community is very important, in that it determines who is able to live here. As previously mentioned, this community is geared towards a wide age demographic and income level. As a result, the residential housing of this community will contain a variety of housing typologies to suit a variety of living situations and household sizes, including families, couples, individuals, and seniors. These typologies include one and two stories with a variety of 1 to 4 bedrooms, providing housing for a wide demographic. Of these housing typologies, 65 percent will be permanent housing situations, while 35 percent will be rentals. Of these rentals, 50 percent will be available as short-term rentals to rent from as short as a week, while the other 50 percent will be available as long-term rentals for maximum of a year-long lease. These rentals provide housing for residents with lower income levels who are unable to afford the cost of owning a home, individuals renting together with roommates, students, people looking to try out this lifestyle, or anybody else looking for a more flexible living situation.



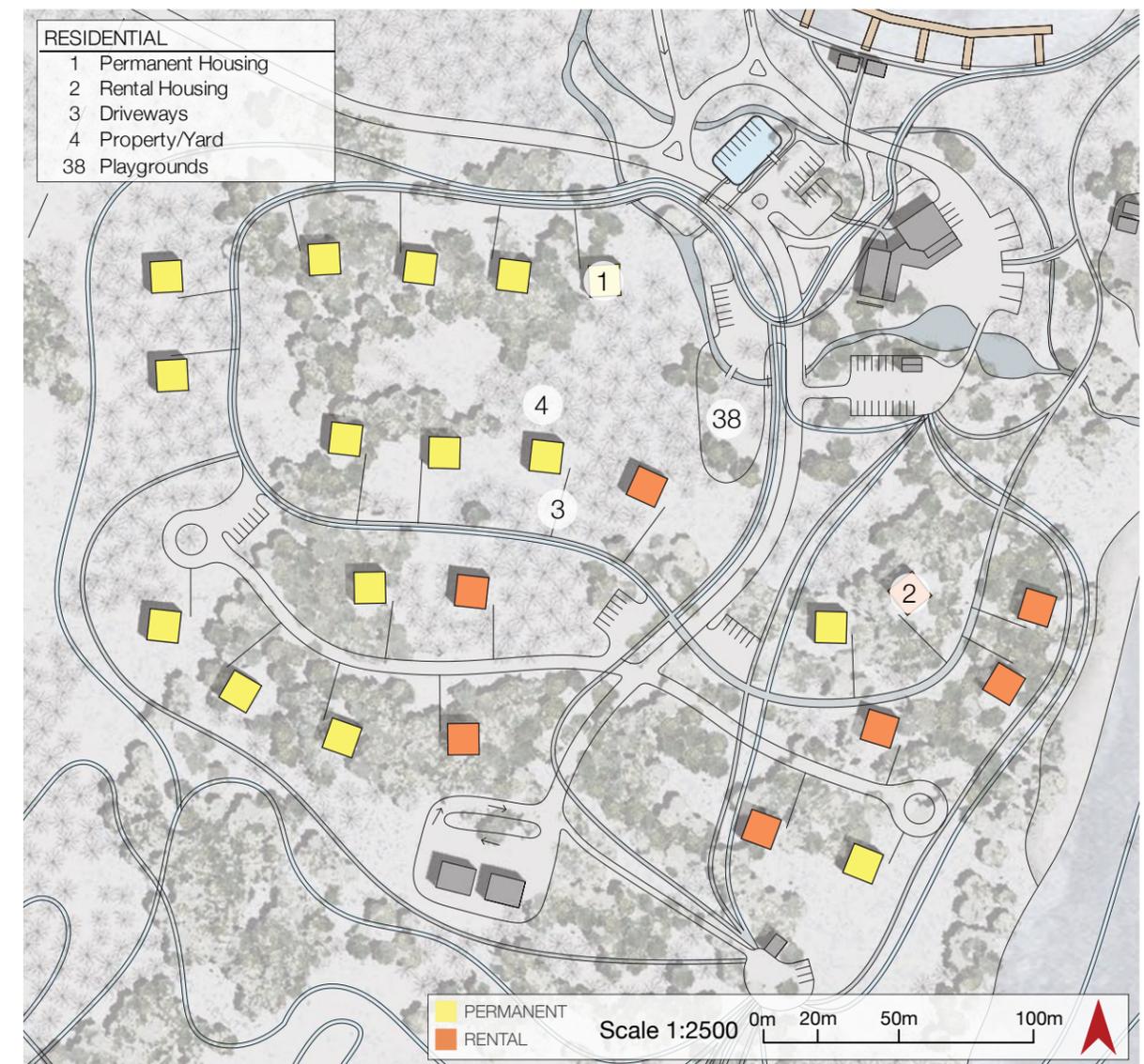
**Figure 79.** Residential Housing Typologies

In addition to providing for a variety of living situations, the payments of these rentals will aid in the expenses of maintenance and services of the community itself, including maintaining the market place, the trails and activities throughout the community. With this community being geared towards many different residents and housing typologies, a report on Exploring Innovation in Housing Typologies supports that,

*“A more broad-based systems view considers the value that housing can bring to a community by providing for a diversity of community members, encouraging community engagement and sense of place, and valuing and supporting social entrepreneurialism. In addition to housing, a systems approach should consider supporting social and physical support systems as part of the larger housing ecology and essential for successful and self-sustaining communities. These, at a minimum, include such as transportation, community amenities, schools, markets, and commercial and cultural facilities.”<sup>42</sup>*

<sup>42</sup> Bowes, Desai, Prabhu, Gao, Rahman, and McCulloch. “Exploring Innovation in Housing Typologies.” 7.

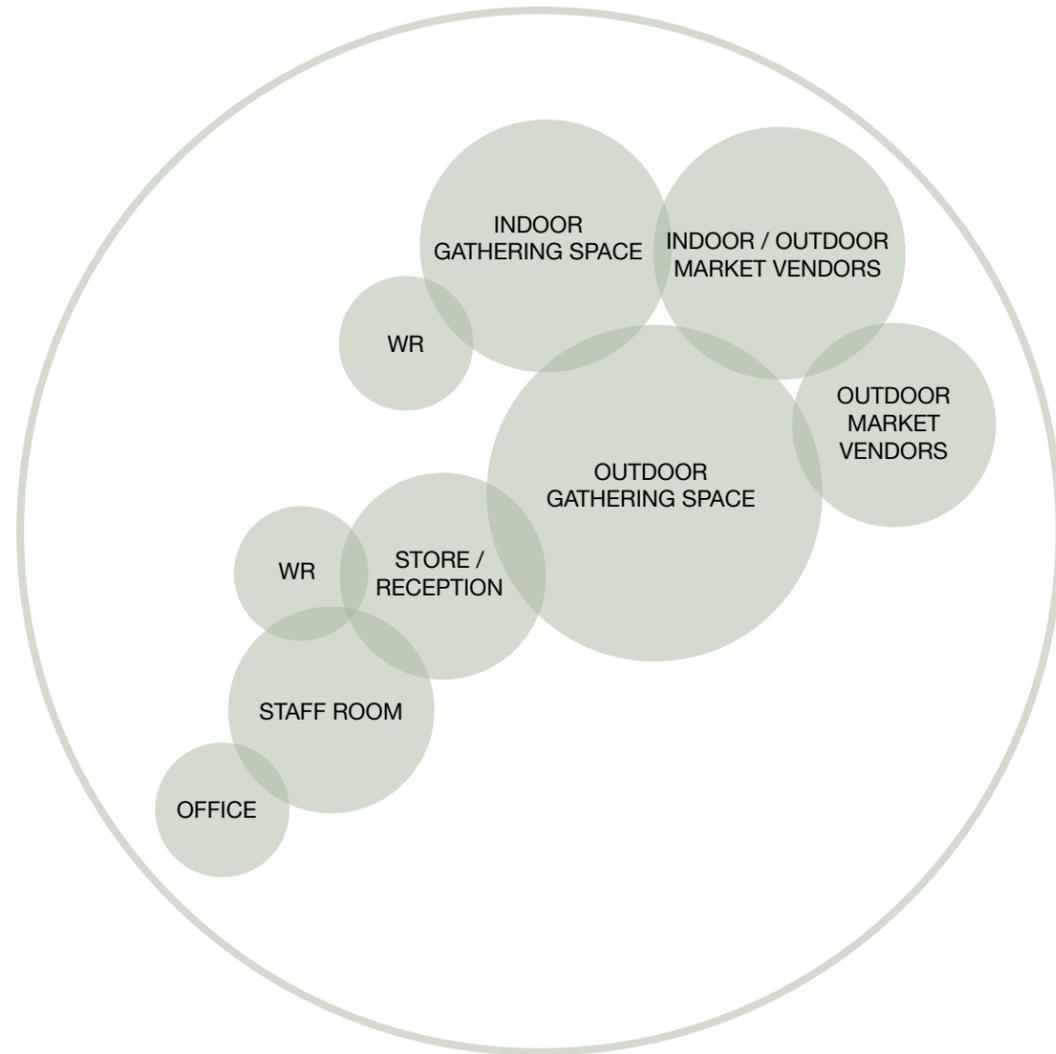
As previously mentioned, the residential area was designed to have some distance from the center of the community in a thicker forested area to provide residents with privacy and space away from visitors. Located within the residential area is a community garden and playground. Narrow roads and parking clusters provide easy access for residents. During the summer these roads are mainly for walking with some vehicular access when needed. During the winter these roads include a walking and snowshoe path side-by-side with a skating path that take the users through the community. The parking clusters relate similarly to campgrounds, in which, a rule is often established that limits one vehicle per site to avoid a cluttered campground. The remaining vehicles are then parked in smaller parking areas. In continuing with the campground as a precedent, it is important to keep in mind how the design of the community develops over time, as a result, this location for the housing was also chosen to allow for future expansion and development of more residences in an organic manner.



**Figure 80.** Permanent and Rental Housing

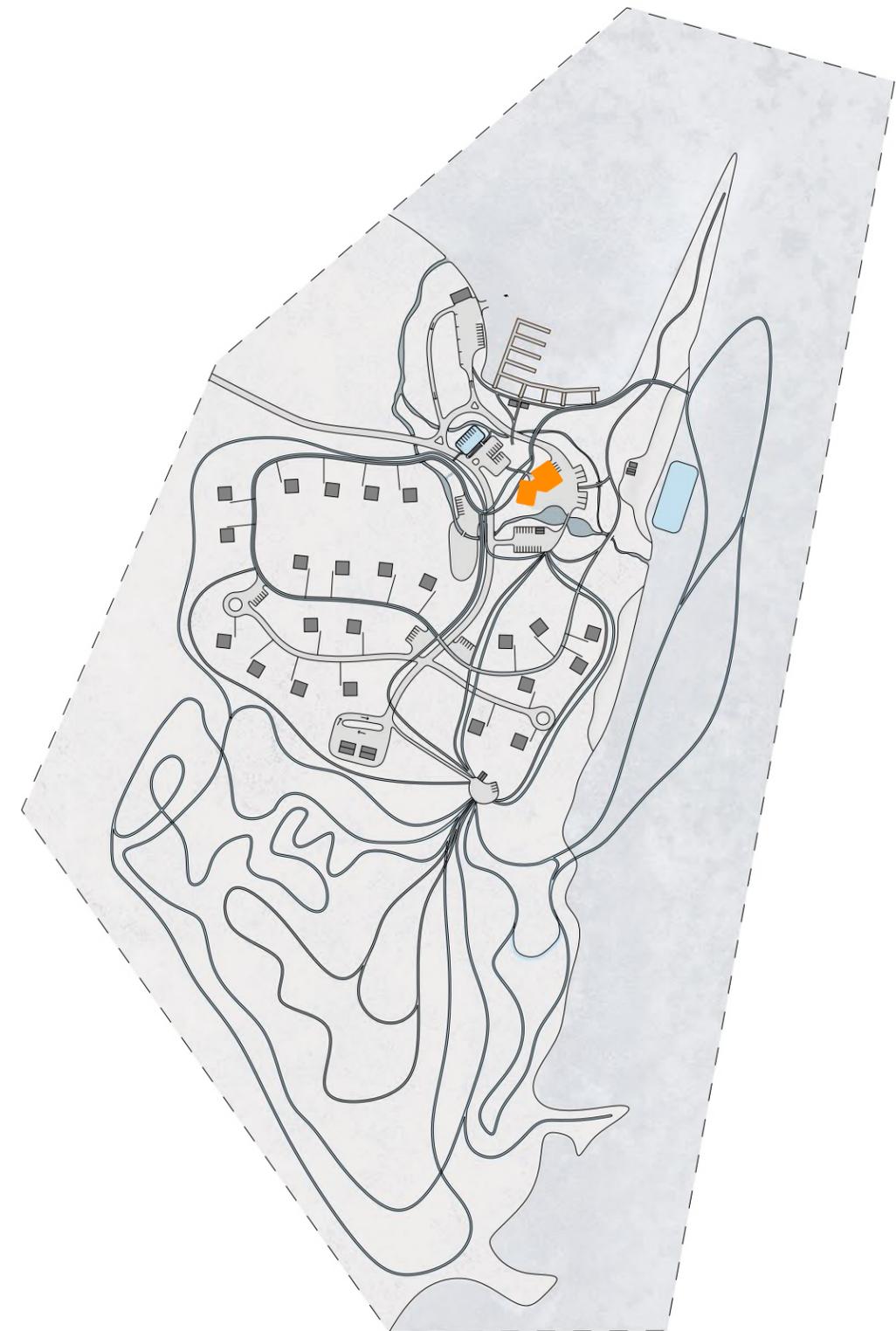
**4.2.7 Market Centre**

The market centre is designed as the central point of the community, serving many needs for the community, including a market, store and reception area, a pavilion, several gathering spaces and social areas as well as a skating pond. The building will be located in a small clearing surrounded by forest, where it is sheltered by the trees from strong winds and climatic elements from Lake Huron, with close proximity to other programs. The market centre is split into two buildings in relation to program and accessibility. The west building is more private, being designed primarily for employee use as well as sales. The east building is primarily a public building designed with a focus on social gathering.



**Figure 81.** Market Centre Programs

In continuing to design for winter, consideration was taken into how the roads and pathways will perform during the winter months. Surrounding the market centre are a network of roads, trails, and pathways, which can often become very busy. To continue and maintain efficient circulation, the road on the south west side of the market building will be closed during the winter months and replaced with a path, giving pedestrians full use of this space during the winter, see figure 83-84.



**Figure 82.** Market Centre Location In Community (Orange)

Scale N/A 



Figure 83. Market Centre Site Plan - Winter

Figure 84. Market Centre Site Plan - Summer

**4.2.7.1 Hinge**

The market centre is divided by the hinge and pathway that separates the buildings into two, each having specific functions. An important design element of the market centre is the pathway between the two buildings, making the divide between functions more evident. It also is a way to connect the buildings and users with the natural environment, in which they must walk along this path and through the hinge to enter the building. When the users enter the path on the north side, the path widens as they exit on the south side into the primary gathering space. This outdoor gathering space is the center of the entire community where visitors and residents can gather for events. This outdoor gathering space includes space adjacent to the building for market vendors, a pavilion for large groups of people, a pond with skating during the winter months, outdoor fireplaces, as well as a series of smaller social spaces. In order to reconnect the buildings and provide circulation between the two, a deck is designed to guide the users throughout the building. The deck contains several platforms and gathering spaces to create more seamless transition from the ground level to the second level.



**Figure 85.** Market Centre Material Uses - North West Elevation Scale 1:300 0m 2m 5m 10m



**Figure 86.** Market Centre Hinge Separating Buildings By Function - Render



**Figure 87.** Market Centre Hinge - Axonometric Diagram

**4.2.7.2 Market Centre Ground Level**

**East Building: Market Centre**

The east building contains the primary public programs including the market centre itself. This market will allow people to sell produce as well as homemade products year-round. A portion of the ground level contains a series of spaces designed to function as market vendors. As shown in figure 90, these vendors will function as indoor-outdoor spaces with large operable doors on the interior and exterior for an adaptable space depending on weather and circumstances. During the summer the market will have the ability to be fully open from exterior to interior. These doors also contain large operable windows for a more comfortable space that adapts to different seasons as well as weather and social conditions. The interior of the building also includes an open gathering space with an area of tables and seating, as well as a large fireplace that runs from the exterior to the interior and from the ground level to the second level. A washroom facility is also provided on the ground level, with a closed off hallway to allow for access to the washrooms from the exterior when the rest of the building is closed.

Included on the exterior of the market centre are, outdoor vendor stations for people selling produce directly from their vehicles, parking for visitors and employees, and several outdoor gathering spaces. On the exterior of the building and adjacent to the vendor stations, there is an operable cedar slat screen designed to allow for vehicles to drive up and drop off produce, see figure 91.

**West Building: Staff, Store and Reception**

The west building includes a private employee space with a staff room and office on the ground level. This employee area is designed to be more separate from the remainder of the building to provide a more private space. The staff room contains a large window that is shielded by the cedar screen to provide privacy while still allowing natural daylight from the south east. Included on the ground level is a reception and store as a place to check-in to the community, rent equipment, or purchase any essential items.



Figure 88. Reception and Store - West Section

Scale 1:300 0m 2m 5m 10m



Figure 89. Market Centre Floor Plan - Ground Level



Figure 90. Interior Market Vendors Ground Level - Render



Figure 91. Exterior Market Vendors - Render

### 4.2.7.3 Market Centre Second Level

#### East Building: Gathering Space

The interior second level of the east building is primarily open space, similar to the ground level, to allow for gatherings around the fire and a variety of events, with an elevator for accessibility. Located adjacent to the fireplace and mezzanine is a more private social space divided from the rest of the room by a Corten steel screen, which also ties in materials from the exterior. The materials of the fireplace are carried from the exterior to the interior, with the Manitoulin stone improving the connection of the building to the landscape. The exterior fireplace is located on the deck connecting the two buildings, encouraging a social atmosphere. This large deck platform also creates a shelter and shading for the market vendors below.

#### West Building: Storage

The west building contains smaller mezzanine space for storage from the store, reception, and staff area. A stair case is included to provide access to the exterior deck spaces.



Figure 92. Market Centre - North East Section

Scale 1:300 0m 2m 5m 10m



Figure 93. Market Centre Floor Plan - Second Level

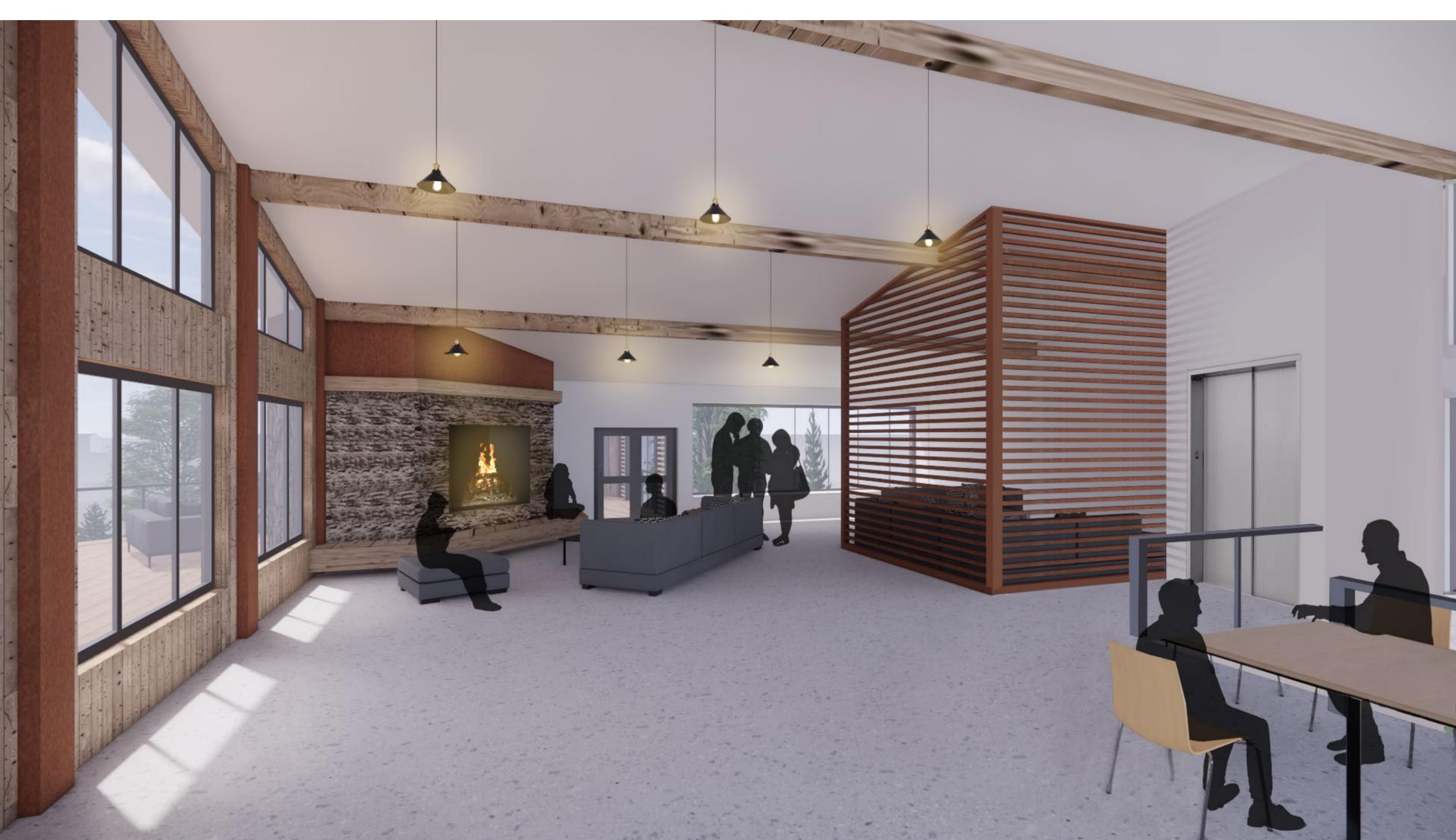


Figure 94. Interior Market Centre Second Level - Render



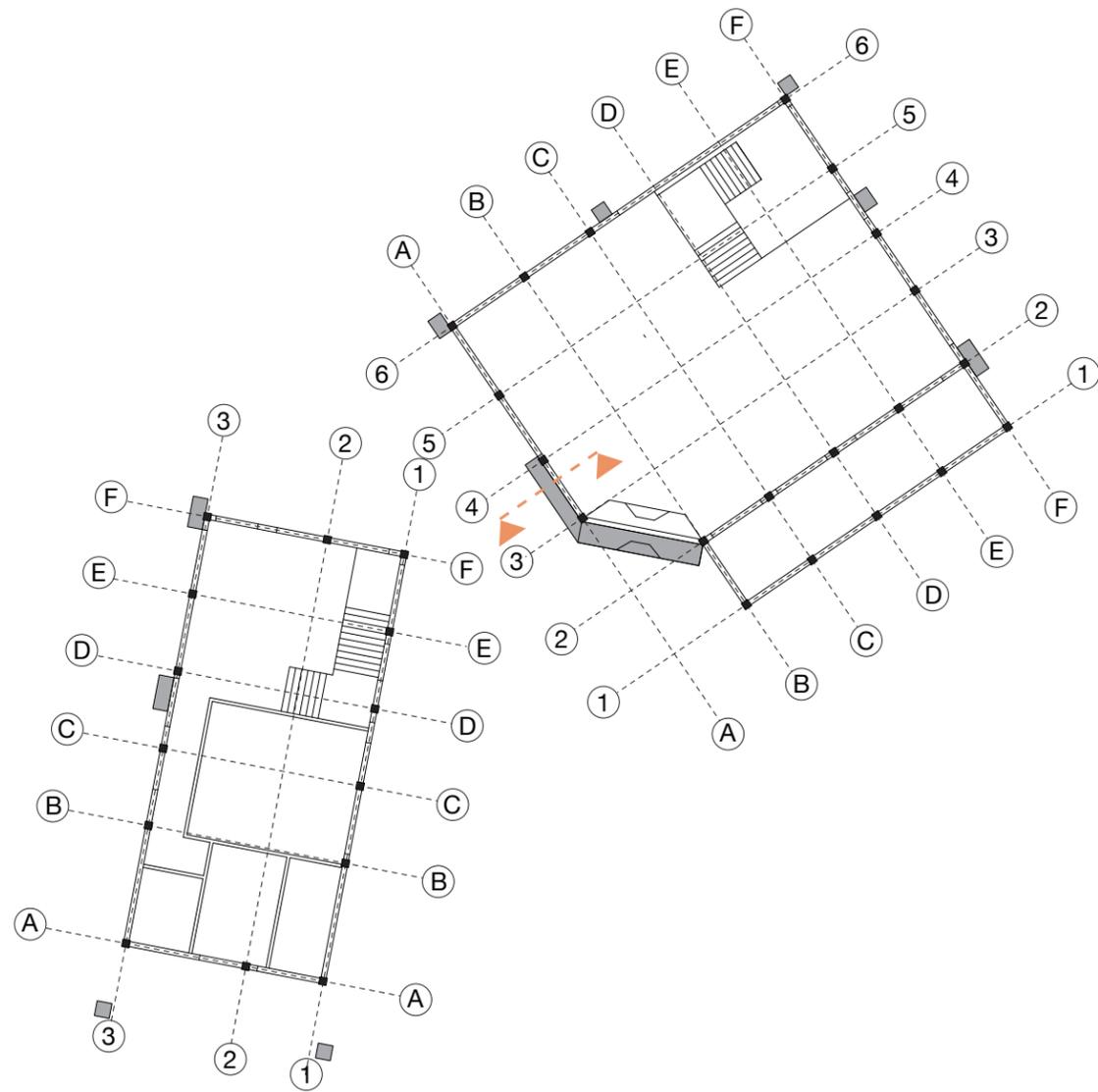
Figure 95. Exterior Fireplace, Seating, and Shading From Corten Steel Pergola - Render



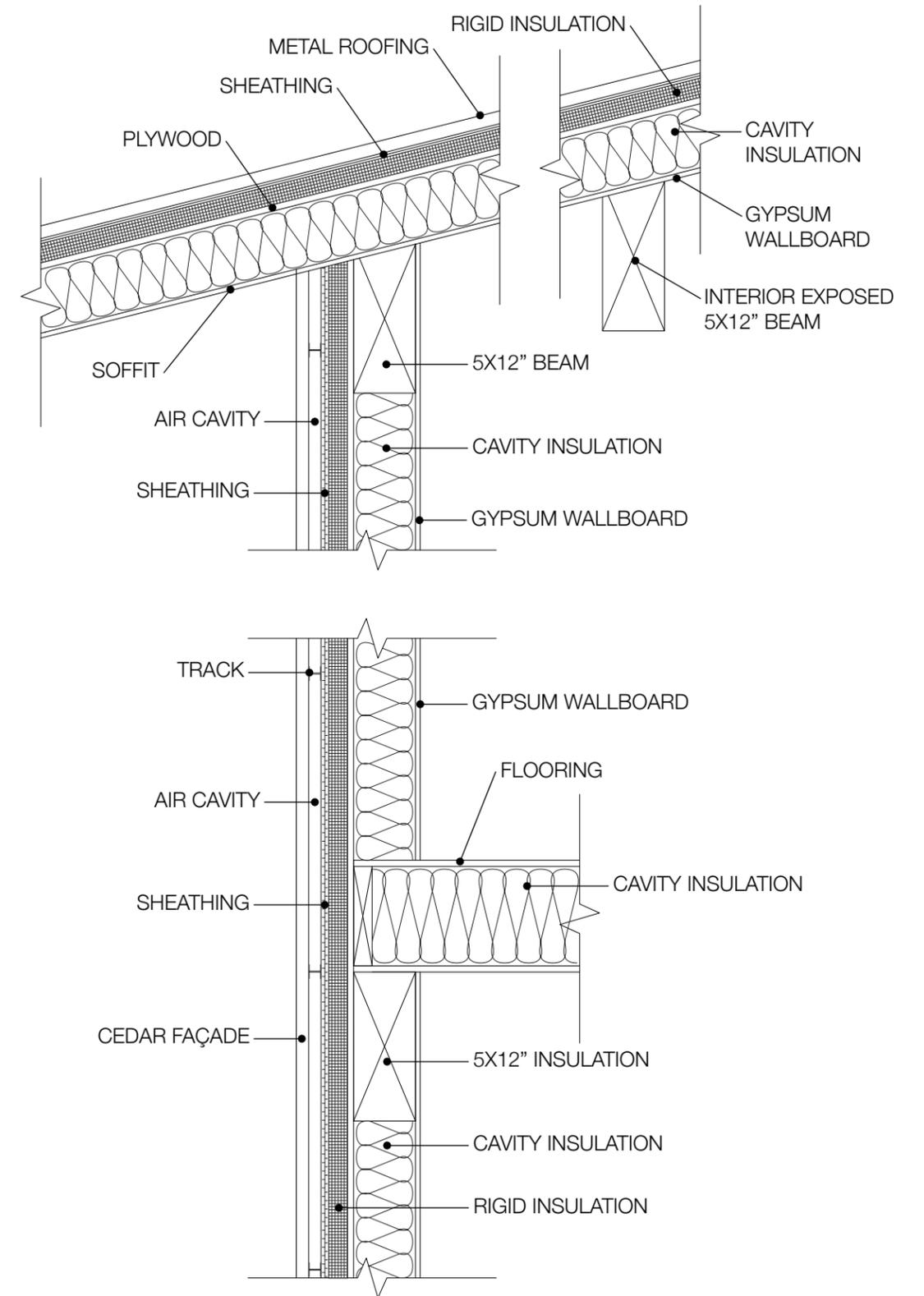
Figure 96. Exterior Fireplace, Seating, and Shading From Deck Above - Render

**4.2.7.4 Structural**

The market centre building as well as other facility buildings on the site are constructed from a wood glulam post and beam system on a grid of 10'6" on center. Figure 98 illustrates the roof, wall and floor assemblies as well as their connections. The core structure consists of 5x5" columns with 5x12" beams exposed on the ceiling.



**Figure 97.** Market Building Structural Grid - Plan



**Figure 98.** Market Building Wall, Roof and Floor Assembly - Section

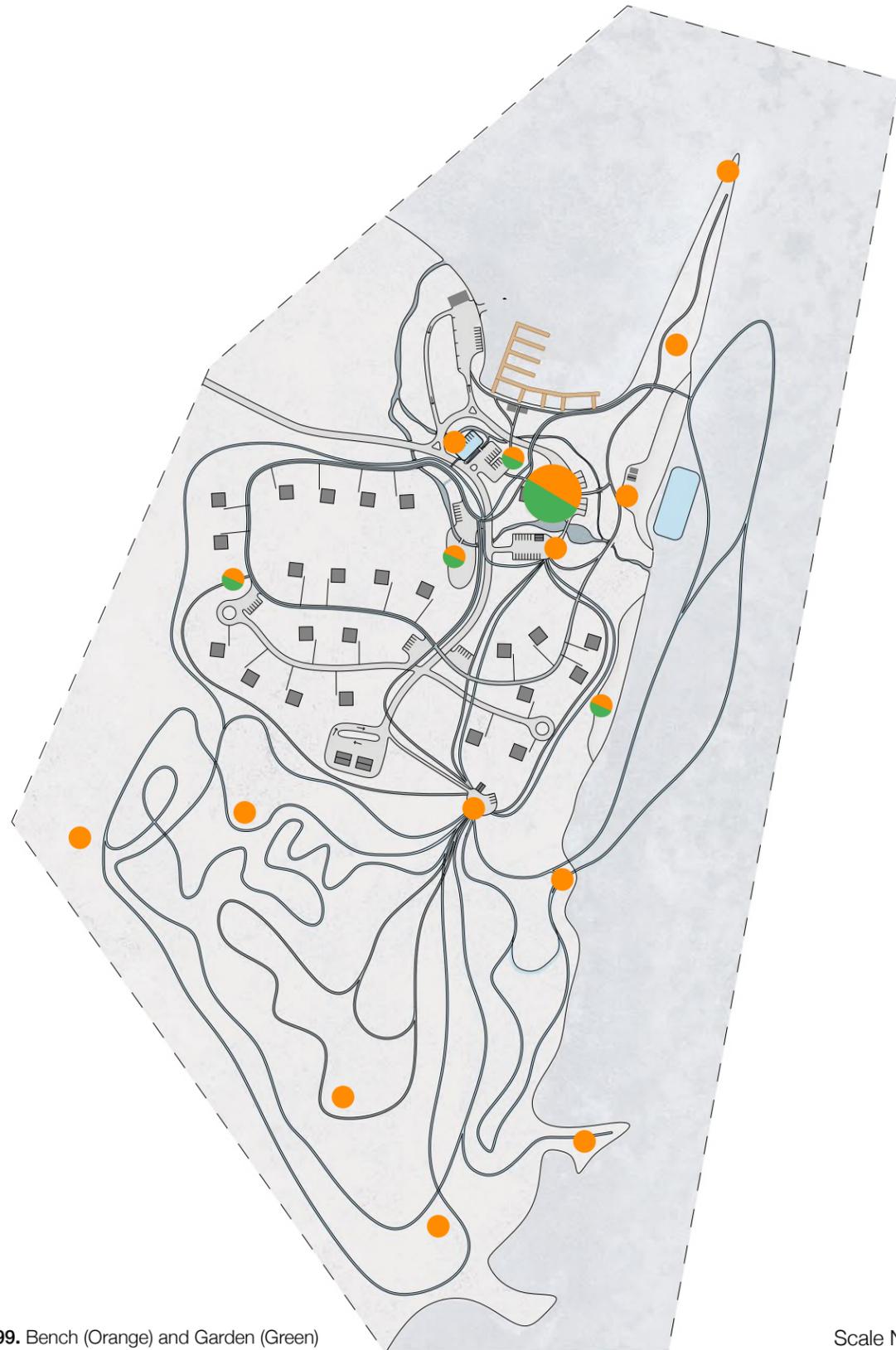


Figure 99. Bench (Orange) and Garden (Green) Locations Throughout Community

Scale N/A 

#### 4.2.7.5 Community Garden

The community gardens will be located near and throughout the residential area and market centre, growing along the cedar slat screens and railings of the building as well as flower beds and raised boxes. These gardens have been included in the design of the community as part of the market centre to provide and sell produce. Specific areas on the site have been designed to sustain these gardens, including railing and façade details that allow the produce to grow on the market centre building itself. Design iterations were done to the benches located near the parking. The shelving and locker storage design of the bench can be replaced to grow produce. Not only is this providing benefit to the community but it is also increasing the connection to nature.

The intention for the garden is that it provides for the community as a part of designing using ecosystem services. Not only is it bringing nature and architecture together, it is also providing provisioning services, which is the obtaining of natural elements such as fruits, vegetables, and water from the landscape.

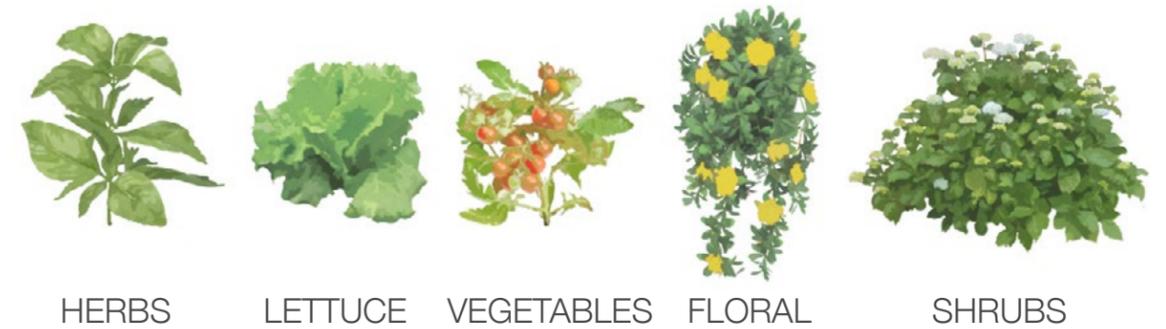


Figure 100. Community Garden Vegetation



Figure 101. Community Gardens

**4.2.7.6 Pavilion**

In continuing to design for the human scale, middle scale, and community scale, a pavilion was included to strengthen the middle scale in the community. The pavilion is located on the north side of the pond adjacent to the outdoor gathering space of the market centre. This allows the pavilion to be used for large gatherings and events that are taking place at the market centre and allows people to use it at the pond during summer and for skating in the winter as shown in figure 105. The pavilion is designed with the same materiality and aesthetic as the bench and the market centre building. This includes using stone for the columns, metal roofing, and cedar for the structure and slat screens. As shown in figure 102, the slat screens, located on both ends of the pavilion provide additional shading and privacy, as well as provide another place for the community garden to grow.



Figure 102. Pavilion Garden - Side Elevation

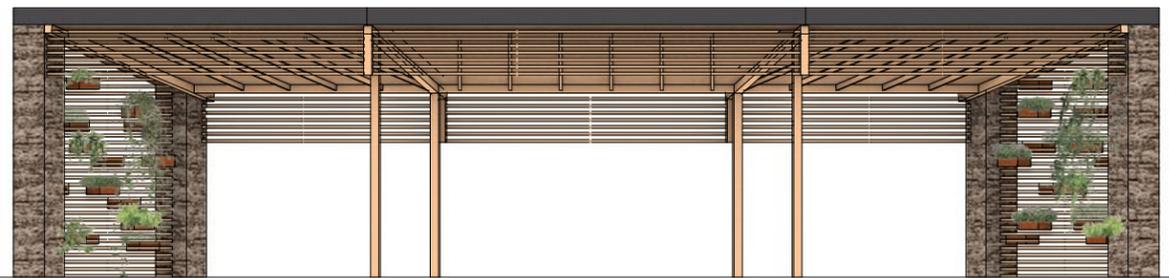


Figure 103. Pavilion - Front Elevation

**4.2.7.7 Man Made Stream, Skating Pond, And Ice Rinks**

On the site of the market centre, a man-made pond and stream was created that runs from the northwest side of the shoreline to the east side. The pond was designed to improve the ecosystem and allow for skating in the winter. In addition to the pond there is also a skating rink that will take the place of a parking cluster during the winter for use when the pond and lake have not frozen over yet. The stream also relates to ecosystem services as it will be used to provide water to the site, gardens, keep the pond full, and flood the skating rink at the start of each winter.

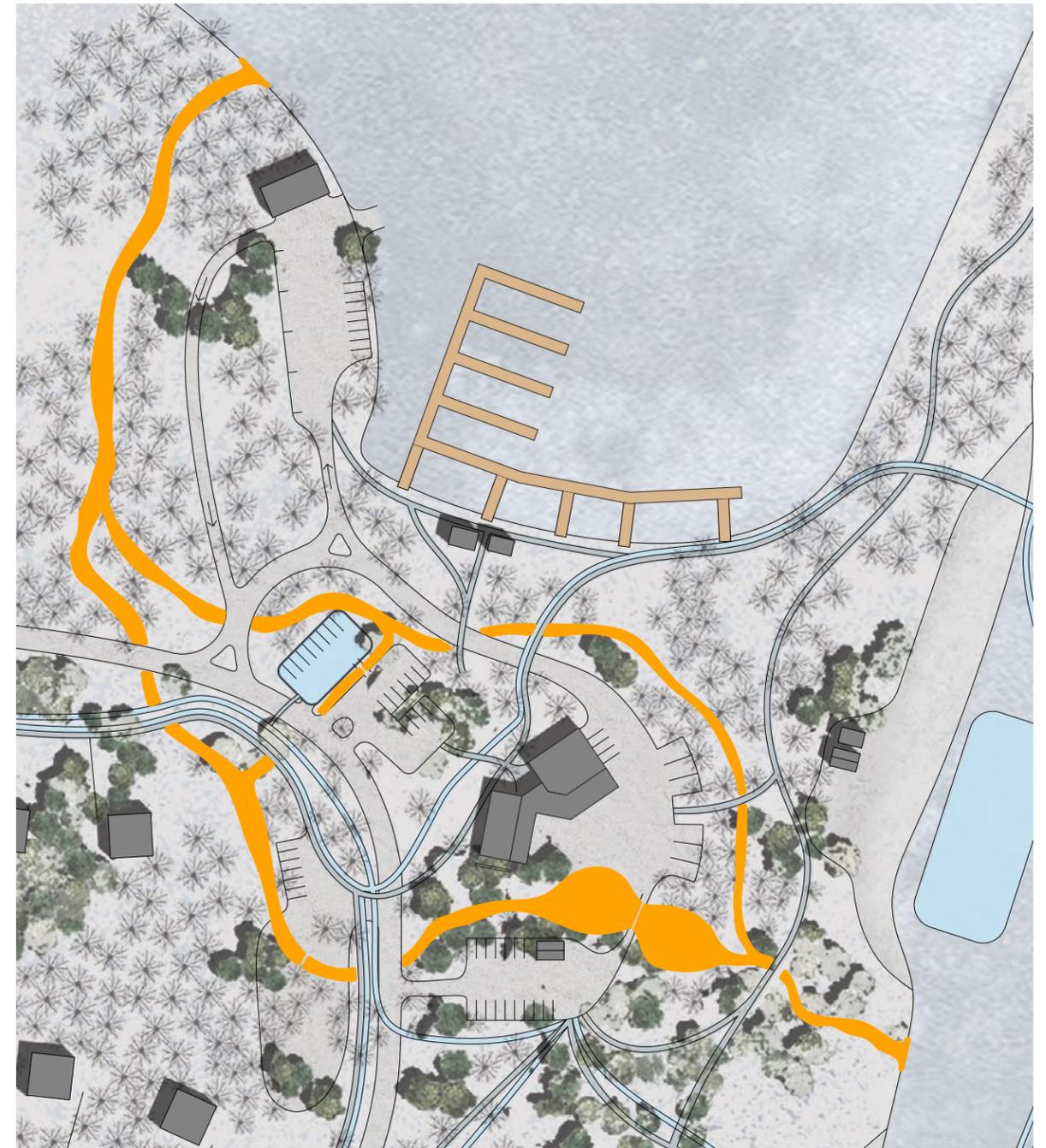


Figure 104. Pond and Stream Location (Orange)

Scale N/A



Figure 105. Skating Pond - Render

## CONCLUSION

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This thesis began with recognizing that although Manitoulin Island is very successful during the summer and has a busy tourism industry, it is the very opposite during the winter. The residents and tourists are provided with very few activities, experience less tourism, see a decrease in population and an overall lack of designing for the winter months. This creates a variety of social and living challenges. Although Manitoulin Island is currently lacking in these areas during the winter, it does contain natural landscapes that provide opportunities for the proposed solutions. A large and successful part of the Island is its communities, therefore a solution to these issues is to propose the design of a community that is focused on architecture, nature, and winter living as well as adapting to each season. In addition to the direct benefits at the human scale, this community hopes to also begin reversing the decrease in winter population, keep businesses open longer into the winter season as well as all year long, and revitalize the Island during the winter months.

This raised the question of, How can the design of a community aid in improving the social and living challenges faced by residents and tourists, and revitalize Manitoulin Island during the winter months? This community implements the research and understanding, as presented in this thesis, of human needs, living with the landscape, ecosystem services, biophilic design, human needs, landscape needs, and ecological, social and architectural sustainability.

From this fundamental research, a list of primary programs that would be beneficial in achieving the goals of this community was created. These programs will determine the overall success and feasibility of the community and how it is used over time. The final community proposes a list of programs geared towards providing specific benefits to the users. A main feature of any community is the residential component. This community proposes permanent residential housing as a way to attract people who want to move to the Island but have been faced with the restrictions of winter living, as well as provide rental housing to those looking for temporary living accommodations during the winter months. The market centre is designed as a central point in the community for gatherings and to encourage architectural and social sustainability between the users as well as surrounding Manitoulin communities. The network of year-round trails, marina, beach, skating pond, bench, and community garden all play a major role in connecting the residents with the surrounding landscape and the benefits they offer. The overall design and layout of the community has followed the campground model. A very strong and successful element of Manitoulin Island is its campgrounds. By using campgrounds as a primary design model, it not only implements all the characteristics that this community desires, but it contains a sense of familiarity to the Island residents.

Manitoulin Island, which is lacking a lively winter atmosphere, would greatly benefit from a residential community that provides year-round enjoyment, as well as solutions to the social and living challenges faced during the winter months. The design decisions in this thesis proposal are all geared towards achieving ecological, social and architectural sustainability, as well as the mental, physical and spiritual health benefits that they provide. The design of this community presents ways in which each of these elements and fundamental characteristics can be combined into one successful network, which provide and depend on each other to sustain a strong winter community for the residents and visitors. A goal for this community is that it is highly adaptable and can become a model used for other Northern communities facing similar seasonal challenges.



Figure 106. View of Proposed Site

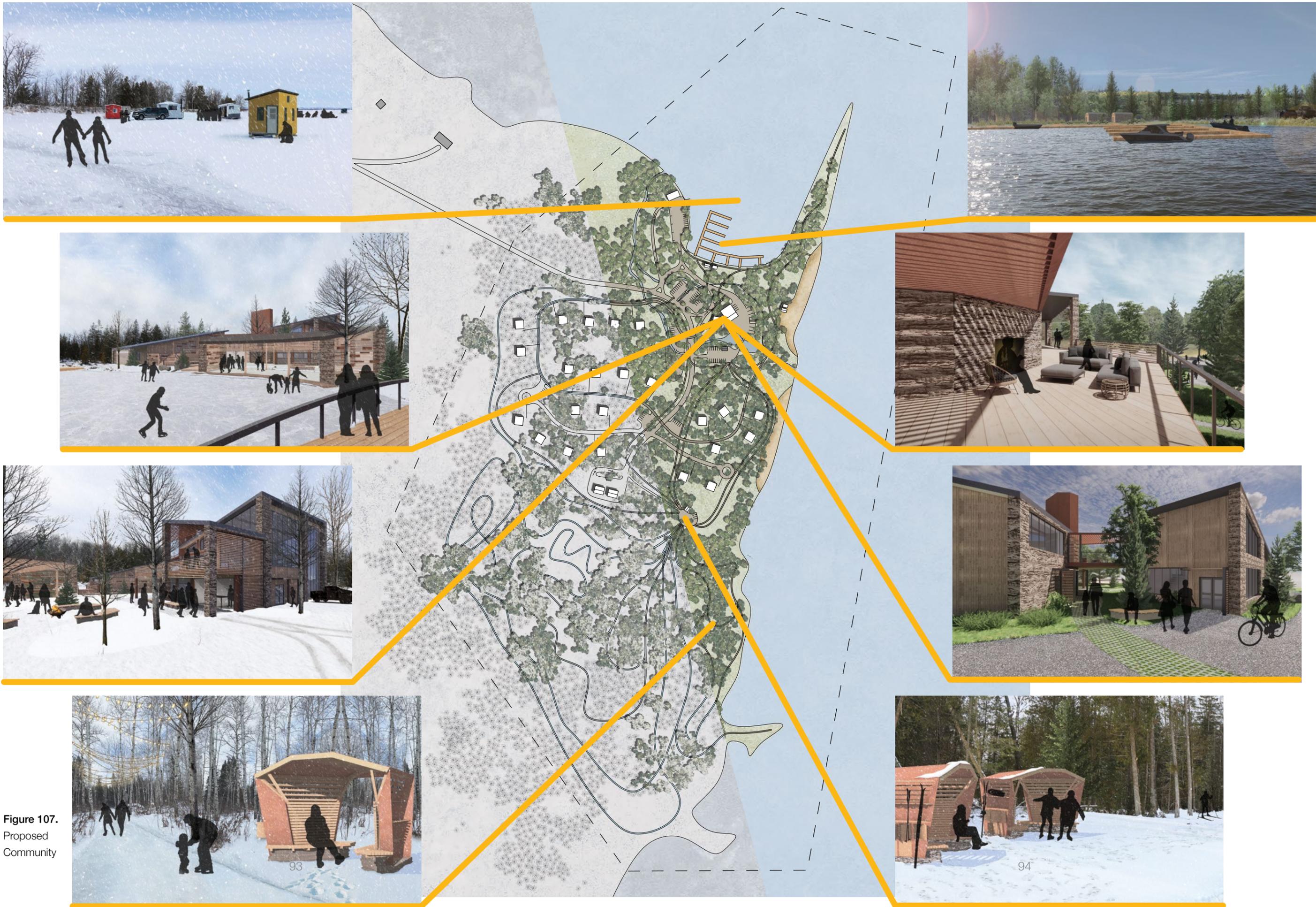


Figure 107.  
Proposed  
Community

93

94



# 5

## APPENDICES

## APPENDIX A: QUESTIONNAIRES, INTERVIEWS, AND DISCUSSIONS

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Manitoulin Island has a small number of issues during the warmer months experienced by residents. If there are issues during the summer months, they are often weather related and thus uncontrollable by man. Completing a series of interviews and questionnaires gave a better understanding of the seasonal likes and dislikes, any social challenges presented by the winter months, and common lifestyles. In explaining this thesis proposal, they agree that Manitoulin Island is in need of a community that would revitalize the Island and increase population during the winter months. They also feel that the community will encourage and bring people together and create a stronger connection to the indigenous reserves, as well as, reduce the divide between the Islands residents and tourists.

In conducting discussions and questionnaires with Manitoulin locals, there was a fair percentage of respondents who moved to Manitoulin Island in the last 20 years. Some owning a summer cottage and then deciding to become full-time residents. When asking "How would you compare summer and winter on Manitoulin Island?", many explained that the summer is very busy and lively with plenty of activities to partake in. The few complaints that were received included the high summer temperatures and the amount of bugs. Many respondents stated that they enjoy watching wildlife, photography, hiking, and swimming.

They also mentioned that winter on the Island is very peaceful and quiet, however, they feel there should be more opportunities for socialization, and that there is a lack of restaurants open during common dining hours. Having this issue during colder months makes it harder to socialize as the colder temps provide less opportunities to gather outside. The respondents stated that the most popular winter activities currently include walking trails, snowshoeing, snowmobiling, and ice fishing, such as the Wikwemiong Ice Fishing Derby. For children, popular winter activities include figure skating and hockey. With the popularity of sports and outdoor activities on the island, there are very few locations for these events, as a result, some requested that there should be more outdoor rinks.

In conclusion, Manitoulin locals had less of a negative perception about winter on the Island than expected, however, they do feel that steps should be taken to provide more winter activities and engagement, during the winter months and create spaces that can adapt and be used during all seasons.

**APPENDIX B: PROGRAM MATRIX**

PROPERTY	#		DESCRIPTION
RESIDENTIAL			
	1	Permanent Housing	Permanent housing will be provided for people to buy and live year-round. The housing will consist of single and two storey homes, with a variety of two, three, and four bedrooms
	2	Rental Housing	Rental housing is provided to visitors who can rent a home for a week up to a year lease. The housing will consist of single storey housing with two or three bedrooms
	3	Driveways	1-2 vehicles permitted (if residents have more than one vehicle they are provided with additional parking spots in the adjacent parking lot)
	4	Property/Yard	Each property will have a front and back yard with a wrap around yard

QUANTITY	AREA (Square Feet)	PUBLIC / PRIVATE	SEASONAL USE	SECONDARY USES
	77 Acres			
15 (65%)	1400 sqft	Private	YEAR-ROUND	
8 (35%)	1400 sqft	Private	YEAR-ROUND	
45	N/A	Private	YEAR-ROUND	
45	0.2 acres (8850 sqft)	Private	YEAR-ROUND	

MARKET CENTRE			
5	Market Centre Building	The market building will be used for the indoor/outdoor spaces on the farmers market, as well as provide an indoor space for events and gathering purposes.	
6	Market Vendor Stations	The market vendor stations will be designed to have an indoor and outdoor design to easily function during warmer and colder months.	
7	Washroom Facility	This washroom facility will be located in the market centre building with access from the interior and exterior of the building through a corridor. This will still allow access to the washrooms when the building is locked during closed hours	
8	Store and Reception	The reception and store will be used to check-in to the community, provide information, and sell basic food essentials. The store will be located on a split-level floor with additional storage underneath	
9	Office	The office will be provided to the managers of the community	
10	Staff Room	The staff room will be available to employees as a kitchen and meeting space	
11	Mechanical Room	Mechanical rooms will be provided in both market centre buildings	
12	Janitor Room	The janitors closet is provided in both market centre buildings	
13	Elevator	The elevator is located in the east market centre building to provide accessibility to both buildings	
14	Outdoor Gathering Space	An exterior gathering space will be located adjacent to the market building to provide a space for gatherings throughout the year, while people attend the market, go to the beach, on trails, and skating	
15	Vendor Parking	These larger parking spots will be primarily for market vendors who are selling large amounts of produce or product directly from their vehicles	
16	Skating Rinks	Two skating rinks will be available during the winter. The first is the pond located adjacent to the markets outdoor gathering space. The other will be transformed from a parking lot in summer to a rink in winter. This guarantees the opportunity to skate if the pond and lake ice do not freeze in time	
17	Community Garden	This community garden will be available for use by residents and the market to grow their own produce and plants to sell at the market or for their own resources. These gardens will be scattered throughout the market and residential area	
18	Pavilion	The pavilion is located adjacent to market centre, outdoor gathering space, and pond. This pavilion is located in the center of the community as a place for large gatherings and events.	

1	6660 sqft *** Includes 6,7,8,9,10	Public / Private	YEAR-ROUND
10	100 sqft - 4 indoor vendors 100 sqft - 6 additional outdoor gathering spaces or vendors	Public / Private	YEAR-ROUND
2 (1 M, 1 F)	80 sqft	Public	YEAR-ROUND
1	700 sqft	Public / Private	YEAR-ROUND
1	150 sqft	Private	YEAR-ROUND
1	375 sqft	Private	YEAR-ROUND
2	N/A	Private	YEAR-ROUND
2	N/A	Private	YEAR-ROUND
1	N/A	Public	YEAR-ROUND
1	N/A	Public	YEAR-ROUND
1	450 sqft - 6 outdoors vendors	Public	YEAR-ROUND
2	N/A	Public	WINTER
N/A	900 sqft - greenhouse 1470 sqft - outdoor garden	Public / Private	SUMMER
1	1460 sqft	Public	YEAR-ROUND

MARINA AND BEACH			
19	Docks	The marina docks will be available for residents and visitors who wish to buy a boat slip and reserve a spot for a maximum of one summer per purchase or their desired number of days	
20	Main beach	This beach will be available for public use	
21	Secondary / Dog Beach	This beach will be available for public use as well as a dedicated swimming area for dogs	
22	Boat Launch	The boat launch will be available publicly to anyone who needs a location to launch their boat. This includes the use of the docks	
23	Water Rentals	Water rentals including kayaks, canoes, paddle boards, and paddle boats will be available for rent to the community and visitors	
24	Rentals Shed	The rentals shed will store the accessories including life jackets, paddles, safety kits, fishing gear, and fishing bait, etc.	
25	Fish Cleaning Hut	The fish cleaning hut will be available to the public to when fish when returning from fishing and ice fishing	
26	Washroom Facility	The washrooms facilities will contain water closets, showers, and change rooms to accommodate for visitors going to the beach or out on the boat	
27	Ice Huts Rentals / Storage	During the winter residents and visitors can rent out ice fishing huts for short periods of time. These huts will be stored near the shoreline for easy access	

7+	N/A	Public	SUMMER	During the winter these docks can be used as platforms to ice fish off of
1	500 ft shoreline	Public	YEAR-ROUND	This beach will be used in the winter as 1 of 2 entry points to the skate path
1	490 ft shoreline	Public	YEAR-ROUND	This beach will be used in the winter as a private entry point to the skate path
1	20 ft wide	Public	YEAR-ROUND	The boat launch will be used to allow snowmobiles access to the ice during the winter months
N/A	N/A	Private	SUMMER	
1	200 sqft	Private	SUMMER	
1	150 sqft	Public	YEAR-ROUND	
2 3 water closets 2 showers 2 change rooms 6 lockers per facility	300 sqft	Public	YEAR-ROUND	
1 Storage - 6 ice huts for rent	1000 sqft - Storage	Public	WINTER	

TRAILS			
	28	Trails Heads	Each trail head will include the starting point of each trail, trail map, washrooms facilities, and a series of benches
	29	Washroom Facility	These washroom facilities will contain water closets, showers, and change rooms to accommodate for visitors using the trails
	30	Biking Trails	This trail will be used for mountain biking and fat biking
	31	Snowshoeing	The snowshoe trails are located throughout the community for a more leisurely activity as well as throughout the trees
	32	Cross-Country Skiing	The cross country ski trails are located on the outer edges of the site to allow for less disruptions while at a faster pace
	33	Skating Path	The skating path will have two entry points, one at the trail front and one at the public beach. The trail will run on land and ice
OTHER			
	34	Maintenance Shed	The maintenance shed will house any tools and equipment that is needed to maintain the community, as well as tools that can be rented to residents for small jobs in their home
	35	Boat Storage	Residents and the public can rent a spot to store their boat for the winter and colder months
	36	Bench Series	Throughout the site are a series of benches designed with storage units for gear while users are out on the trails
	37	Parking Lots	Small parking lots will be located throughout the site for permanent residents, visitors, and employees. These locations will be designed specific to the adjacent program allowing for quick and easy access to those areas in the community. In addition, providing these small clusters of parking will also reduce the amount of vehicles cluttering driveways and the streets
	38	Playgrounds	The playgrounds will be accessible to the public to provide a safe place for their children to play and a more private outdoor gathering space sheltered from the rest of the community

	2	N/A	Public	YEAR-ROUND	
	2	3 water closets 2 showers 2 change rooms 6 lockers per facility	Public	YEAR-ROUND	
	1 (varying lengths and directions)	2.5 km	Public	YEAR-ROUND	
	1 (varying lengths and directions)	3.5	Public	WINTER	These trails will be used as walking and hiking trails during the summer and warmer months = 11.5 km
	1 (varying lengths and directions)	2.2 km	Public	WINTER	
	1 (varying lengths and directions)	3.2 km	Public	WINTER	
	1	1200 sqft	Private	YEAR-ROUND	
	1	1200 sqft	Private	WINTER	
	N/A	N/A	Public	YEAR-ROUND	
	1	70+ parking spots	Public	YEAR-ROUND	
	2	N/A	Public	YEAR-ROUND	

## APPENDIX C: SITE SELECTION CONTINUED

### Previous Site

The previous site was originally located slightly closer to Little Current. This site was located adjacent to the Manitoulin Country Fest, a popular local event on the Island. This would be a prime location to allow for collaboration with the country fest as well as many other local events, however, the noise of these events would also be a major con for the residents of the community. A change in site location was made due to these cons as well as a major physical flaw in the previous site choice. The site proved to be mostly marsh land with weeded shoreline.



Figure 108-110. Previous Site



Figure 111. Previous Site Location

### Community Scale

One of the first steps in designing this community was to determine its physical scale. The design of the community has three different scales, including individual human scale, middle scale for larger gatherings of people, and the community scale. An understanding as to what was to be included in the human and middle scales had already been established.

To better understand this larger scale, research on the scale of campgrounds and communities was completed. The scale of a selection of campgrounds was taken into consideration and compared to the proposed site to estimate a scale for the community. This included looking at the overall area of the property, the number of living accommodations that different campgrounds provide, as well as the appropriate distance between programs.



Figure 112. Proposed Site



Figure 113. Batman's Cottages and Campgrounds



Figure 114. Green Acres Tent and Trailer Park

### LITTLE CURRENT RESIDENTIAL



Figure 115-120. Little Current Residential Housing

## APPENDIX D: PRELIMINARY DESIGN PROCESS

### Preliminary Site Design

From the initial community design to the current design, the areas that were in need of improvement that have been addressed in the design include, the parking, residential layout, blend and integration of programs throughout the community, and more focus on the winter season. A challenge during the design process was determining a roof design that met the proportions of the building design, see figures 126-129. As shown in figures 123-125, the design of the floor plan focused strongly on the use of public and private spaces, which resulted in the building dividing into two in further iterations.

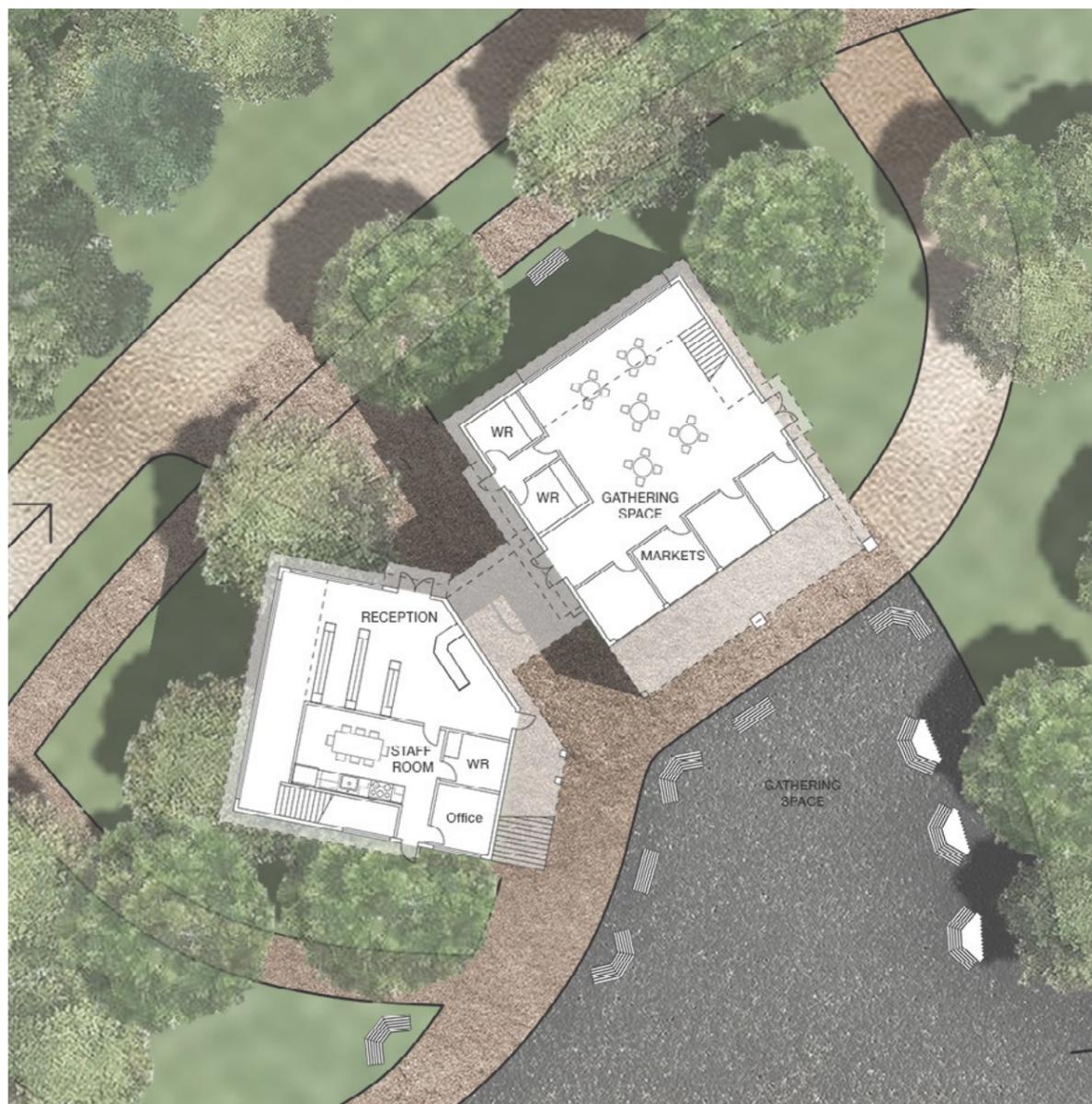


Figure 121. Market Site Iteration



Figure 122. Community Site Iteration

Preliminary Market Centre Design

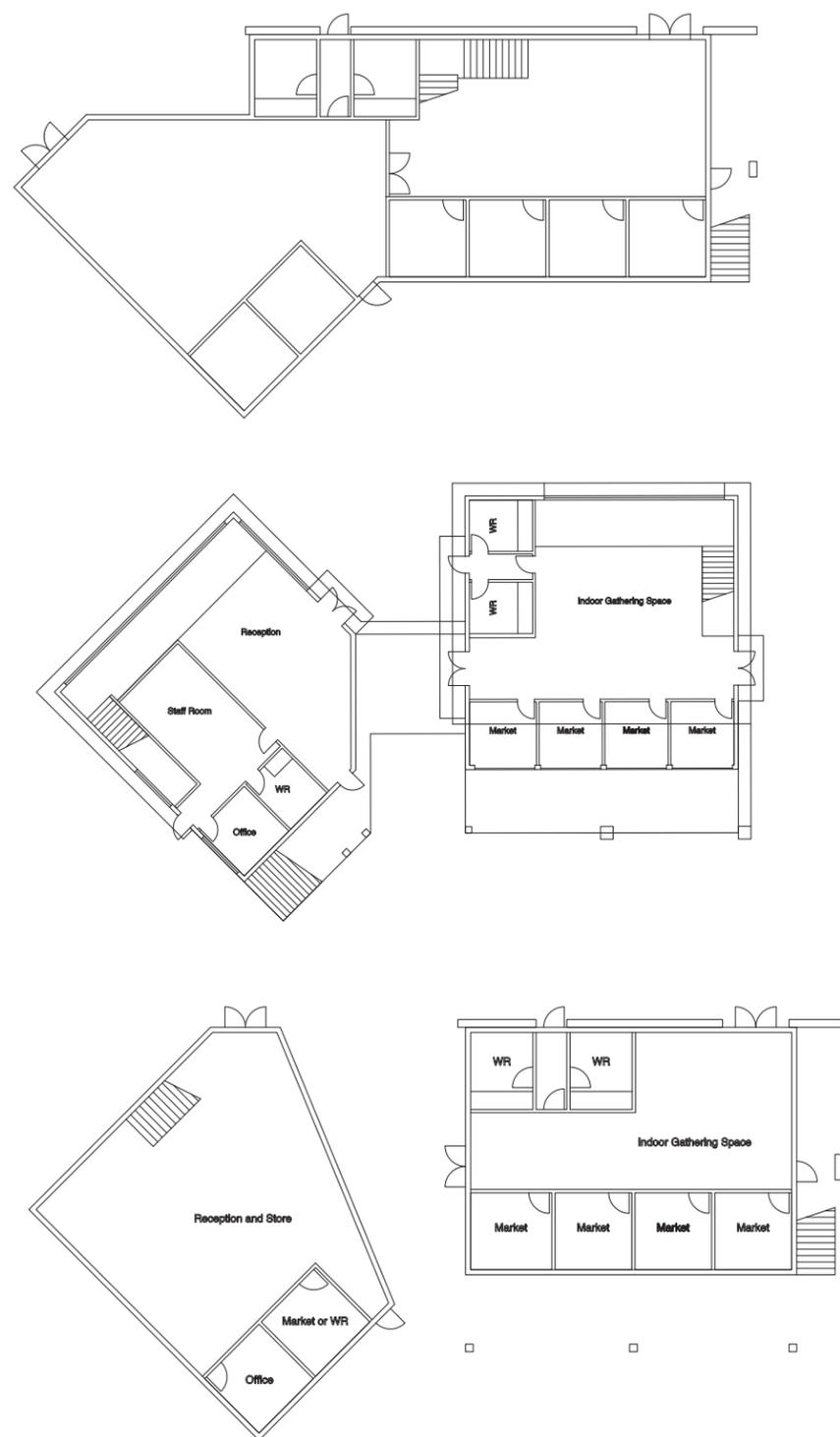


Figure 123-125. Market Centre Floor Plan Iterations

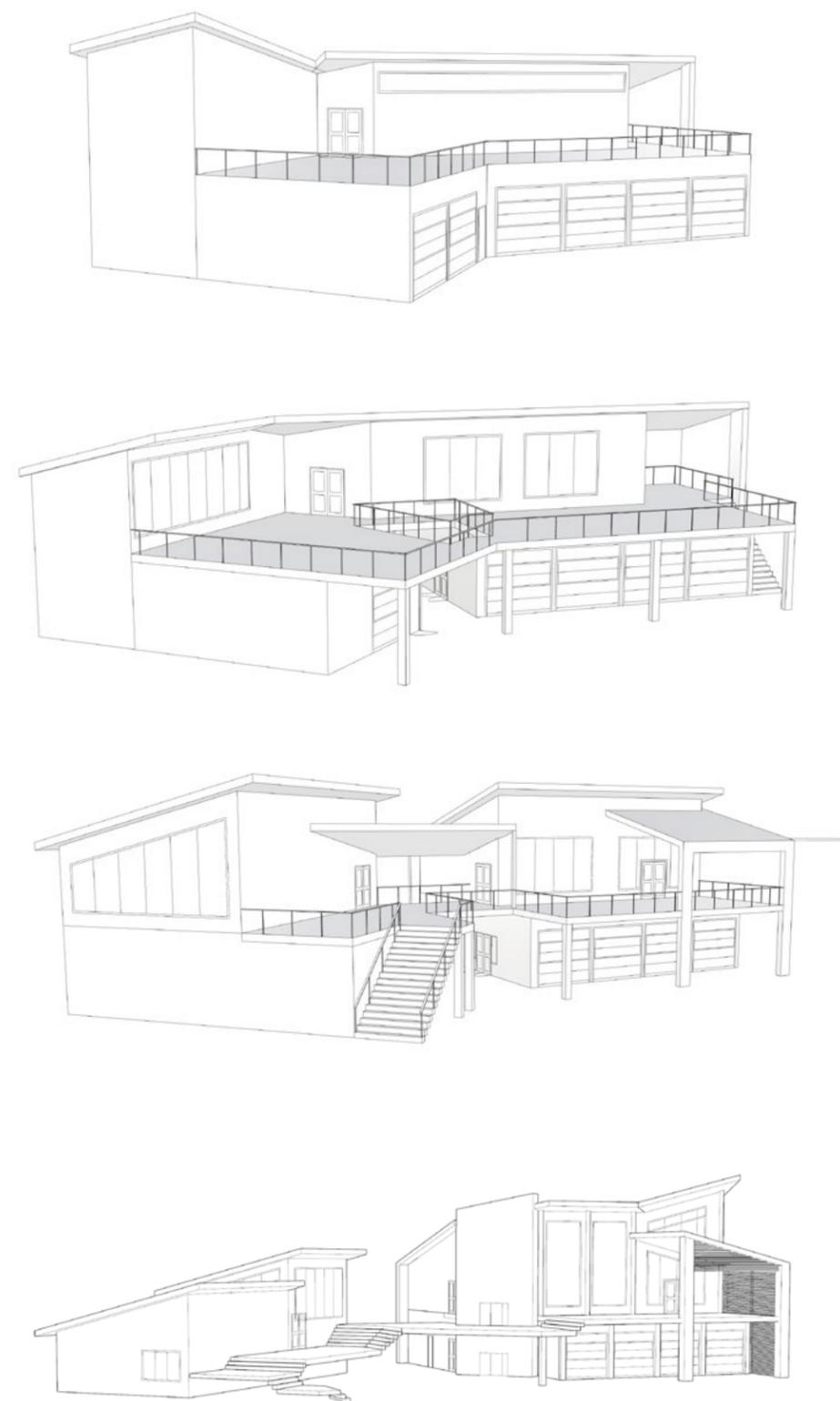


Figure 126-129. Market Centre Iterations

**APPENDIX E: CASE STUDIES**

Mapping studies of campgrounds and residential areas aid in examining patterns, boundaries, and layouts that can assist in understanding what they are lacking and what they need to operate during the harsh winter months. The best precedent to study is Manitoulin Island itself, which included studying Batman's Cottages and Campground and Green Acres Campground and RV Park, located minutes from the proposed site.

**Batman's Cottages and Campground, Manitoulin Island**

Batman's Cottages and Campground is a family-owned campground founded in 1969.<sup>43</sup> It began to grow and develop adding individual sites over time throughout the park, resulting in the sites being laid out in a more organic way. The campground contains 142 sites with an even amount of short term, long term and seasonal sites. There are shortcut trails throughout the park which provide quick and easy access to the beach and bathroom facilities. This can be implemented as a design approach for the community, to keep it in a more natural and inviting state.



**Figure 130.** Batman's Cottages and Campground Mapping Study ■ PERMANENT ■ RENTAL

43 Batman's Cottages and Campground. "Batman's Cottages and Campground."

Although this campground is very successful it is also subjected to the effects of winter, and having to close down. Batman's is a seasonal campground and closes during the winter, as shown in figures 131-136, compared to the active summers, the park is already closed down as of Thanksgiving weekend in October. During the summer the campground hosts many events and activities, including the pig roast and fish fry, sports tournaments, the triathlon, and fishing derby's.



**Figure 131.** Batman's Fish Fry - Summer



**Figure 132.** Batman's Beach - Summer



**Figure 133.** Batman's Roads - Fall



**Figure 134.** Batman's Marina - Fall



**Figure 135.** Batman's Entrance - Winter



**Figure 136.** Batman's Sites - Winter

**Mindemoya Court Cottages & Campground, Manitoulin Island**

Mindemoya Court Cottages & Campground, located on Mindemoya Lake is a very unique campground due to its drastic changes in topography, with trailers and cottages situated on the rock and looking over the campground. Although the campground has a smaller number of sites and cottages, the campground sits on over 18 acres of property.<sup>44</sup> Similar to Batman's Cottages and Campground, the layout of the sites is more organic. The campground offers many different activities for a wide variety of people, including a picnic area, bonfire area, softball diamond, volleyball court, horse shoes, playground, as several hiking trails. These campgrounds create a diverse and strong community environment, which can act as a strong precedent towards multigenerational living.

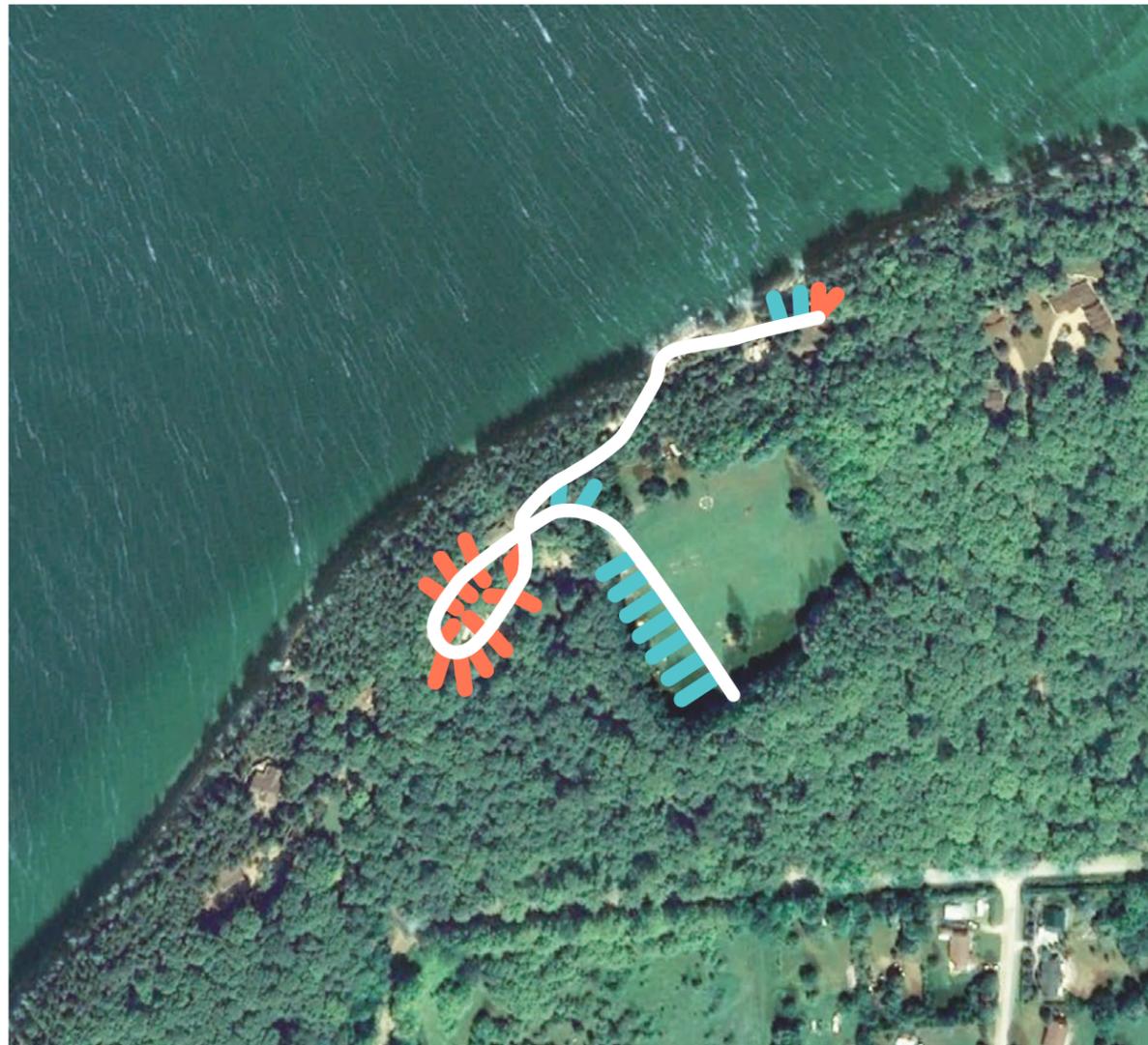


Figure 137. Mindemoya Court Cottages and Campground Mapping Study

44 Mindemoya. "Mindemoya Court Cottages and Campground,"



Figure 138. Mindemoya Court Cottages & Campground Campsites

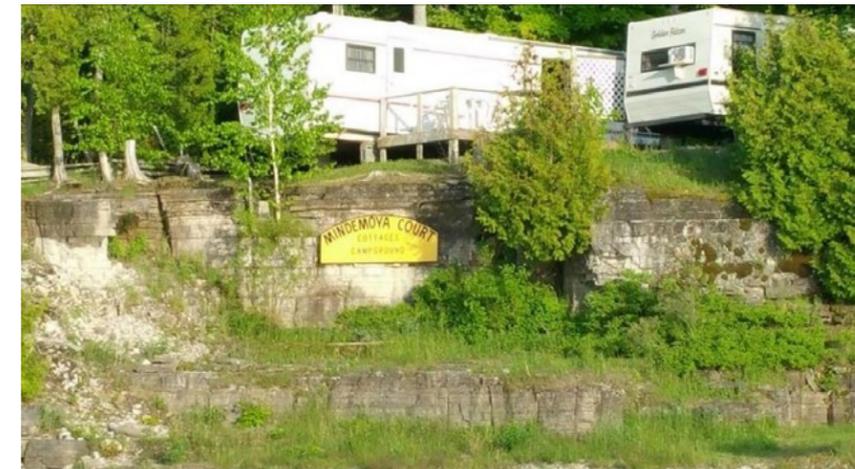


Figure 139. Mindemoya Court Cottages & Campground Trailers



Figure 140. Mindemoya Court Cottages & Campground Cottage

**Mattawa River Resort, Mattawa, Ontario**

The Mattawa River Resort is a year-round family-owned business located on the shores of the Mattawa River. The resort offers a variety of activities, including swimming, boating and fishing, water rentals, snowshoeing, horseback riding, a spa, and a restaurant.<sup>45</sup> A unique feature of the resort is the topography. Due to the rough topography, several of the cabins are built on pillars with a raised boardwalk for access, as shown in figure 146-147.



**Figure 141.** Mattawa River Resort Mapping Study

<sup>45</sup> "Mattawa River Resort-Home," Mattawa River Resort, accessed November 8, 2020, <https://mattawariverresort.com/>.



**Figure 142.** Resort Waterfront Winter



**Figure 143.** Resort Waterfront Summer



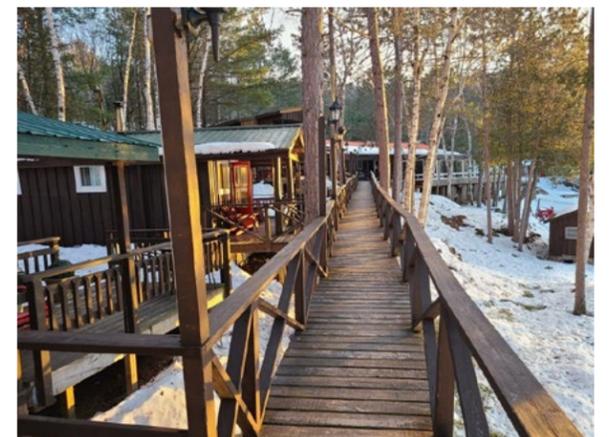
**Figure 144.** Cottages Boardwalk



**Figure 145.** Resort Cottages



**Figure 146.** Cottages Boardwalk



**Figure 147.** Cottages Boardwalk

**Naramata, British Columbia**

Naramata is a small community located on the shoreline of Okanagan Lake in British Columbia, with a population of over 2000 people.<sup>45</sup> The community is covered with a constantly changing topography with farmland and vineyards. This community has very similar characteristics to Manitoulin Island. Both communities have a strong connection to being popular with tourists, however, they remain quiet and have not been taken over by the tourism industry. People enjoy going to Naramata and Manitoulin Island for what the landscape has to offer. The community offers a variety of activities to meet anyone’s needs, including many beaches, parks, trails, and other summer and winter outdoor activities, as well as many events and shops, and galleries for artists and creators.

In addition to the growth of tourism in the community, a very important element of this communities culture is the agriculture and community market. The community market provides a place for people to buy and sell produce, products, and art while enjoying music and performances. A focus for this market is to encourage social interaction and reduce food miles spent on transporting food from one destination to another to be sold.<sup>46</sup>

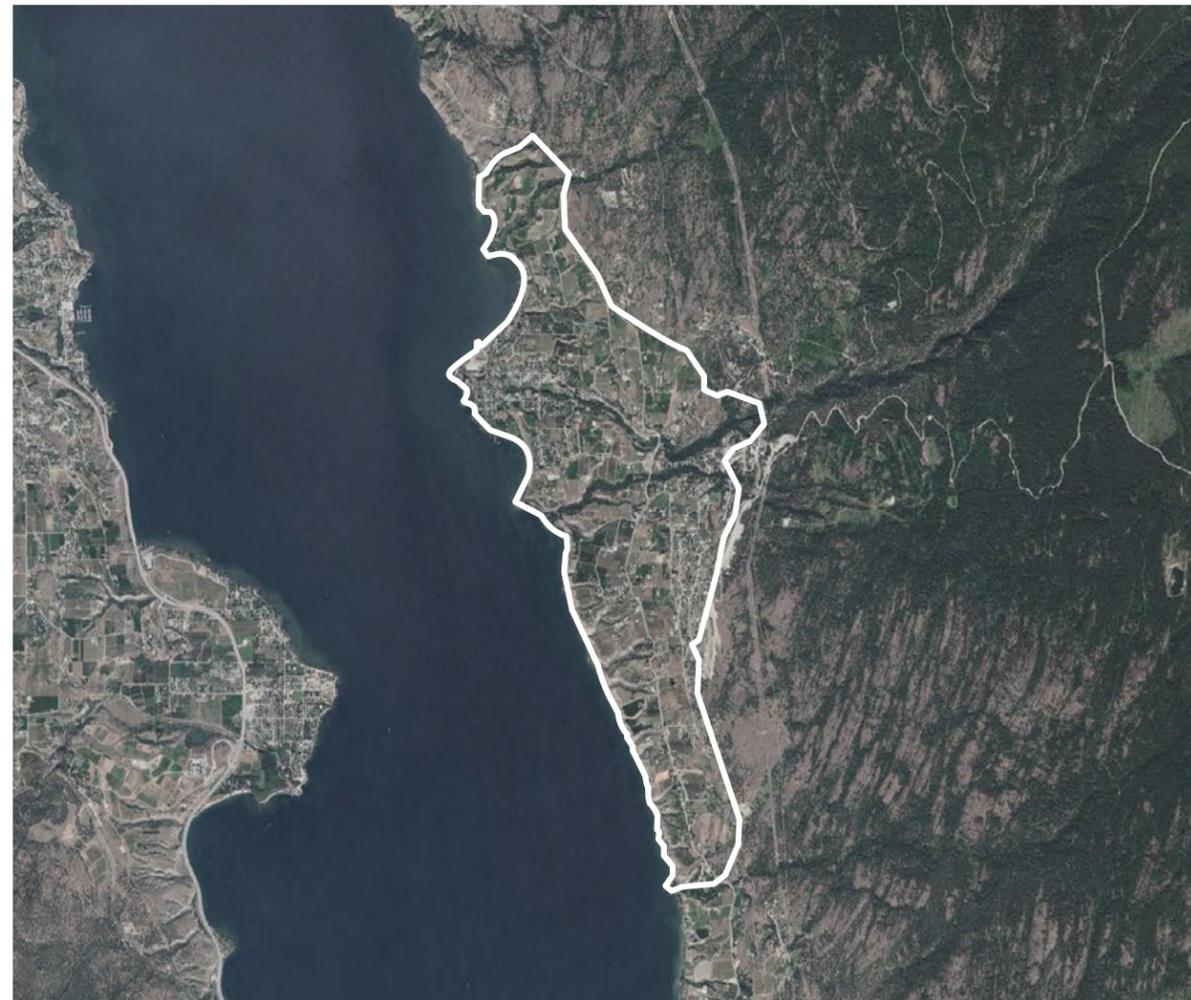


Figure 148. Naramata, BC Location

- 1 “Visit Naramata BC | Okanagan Vacation Guide.”
- 2 “Naramata Community Market — Discover Naramata.”



Figure 149. Naramata Community Market



Figure 150. Naramata Community

**Ramsey Lake, Sudbury, Ontario**

Ramsey Lake is located in the city of Greater Sudbury, Ontario. Ramsey Lake is a very unique precedent as it is one of the very few places in a city that successfully shows the transition of seasons and public and private areas, as well as many different facilities and activities available in one place during every season. Ramsey Lake is surrounded by Sudbury’s downtown, the New Sudbury area, the South End, Laurentian University and the Hospital, as well as residential areas, in which there are 851 permanent residents and only 31 seasonal residences on the lake.<sup>47</sup>Ramsey Lake can be divided into three main categories, including private residences, natural forested area, and public facilities. The majority of the public facilities and activities are located along the west end along the shoreline in a relatively natural landscape, as shown in figure 152. Some of these include Bell Park, Canoe Club, Science North, many boardwalks and trails, public boat launch, and annual events.

The most drastic change at Ramsey Lake from summer to winter is the lake itself. The lake serves as a versatile public space that offers different activities for each season. During the summer it is used for water activities, sports, and programs. During the winter the Ramsey Lake skating path is opened, running from the Canoe Club to Science North. This creates an opportunity for other programs and institutions to get involved, including the McEwen School of Architecture annual warming huts, attracting daily visitors. Another winter activity that is situated in this area is the Festival of Lights outside Science North. Bell Park is also a convenient public space for year-round use, when the lake is transitioning from ice to water during the spring and fall and uses are limited. It contains many walk and bike paths as well as annual events.

Ramsey Lake is a geological feature that has existed with or without humans, however, with the arrival of humans came the manipulation of the landscape. Over time the landscape was disturbed to suit human needs, including the building of residential areas, transportation routes, and public spaces, which results in different types of shorelines and affected ecosystems. The City of Greater Sudbury uses a Shoreline Classification system which ranks “shorelines based on their relative naturalness or absence of human disturbance.<sup>48</sup> There are four colours, green, yellow, orange, and red, with green being the more desirable and natural shoreline, while red in the lowest ranking with human disturbance and built structures.<sup>49</sup> Although the majority for the residential areas are classified as a red shoreline, a large percentage of Ramsey Lakes shoreline is in the green, with healthy ecosystems and hardly any human disturbances, see figure 153. This shoreline classification system will be later used in the design of the community to ensure the best health of the shoreline and surrounding ecosystems.



Figure 151. Bell Park on Ramsey Lake



Figure 152. Ramsey Lake Public Space

47 Greater Sudbury. “Ramsey Lake.  
 48 Shore line classification – The City of Greater Sudbury uses a Shoreline Classification  
 49 Ibid.

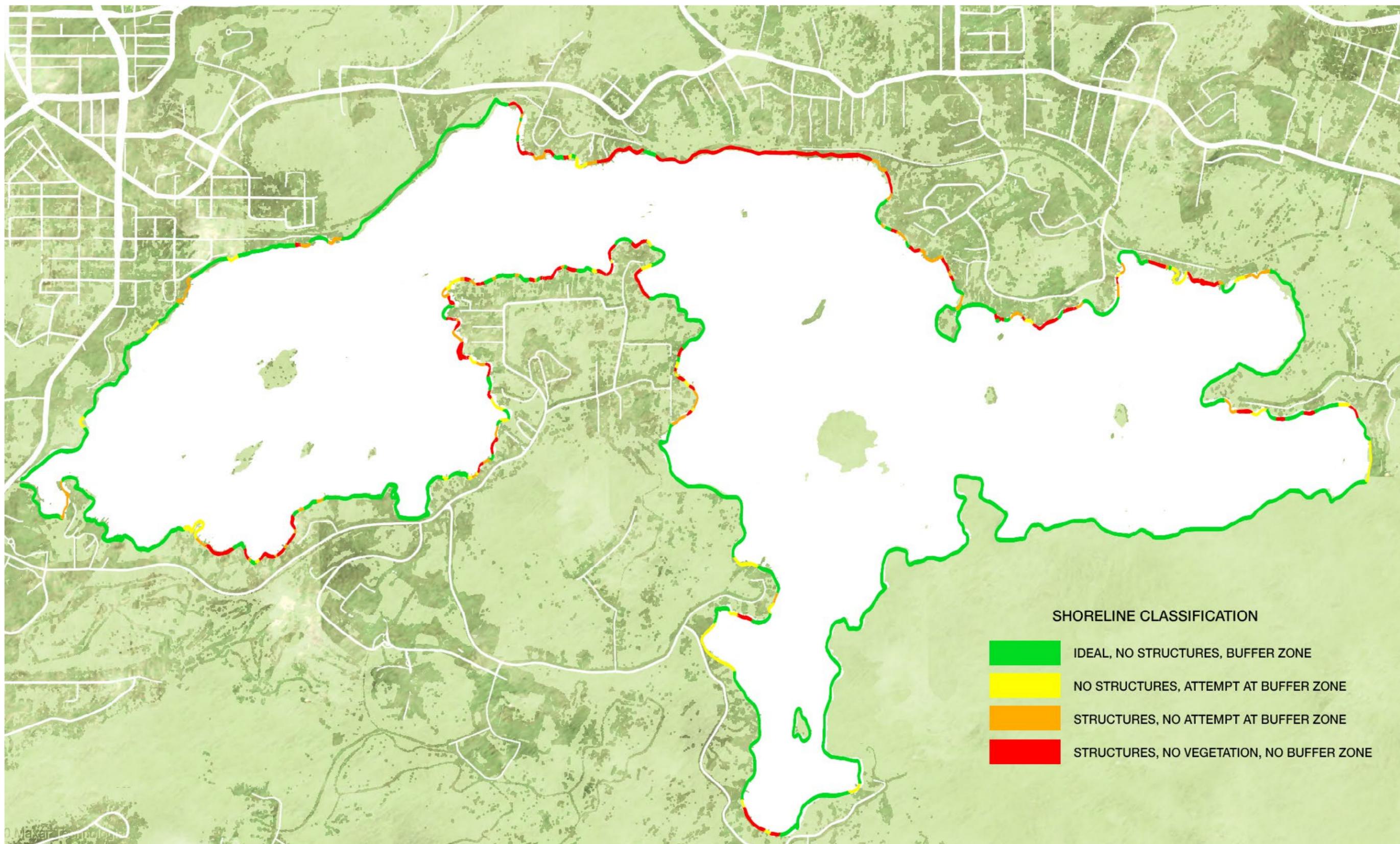


Figure 153. Ramsey Lake Shoreline Classification

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