

Natural Urbanism

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Natural Urbanism
Thesis Book
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Abstract

By designing architecture or a city while embracing the natural features of the environment it will create a community that is more in touch with the surroundings and more sustainable, economically, socially, and environmentally.

This is an investigation of how the built environment affects the natural environment and vice versa. This project studies at multiple scales the affect that the natural environment and built environment have on one another in a small town in Northern Michigan.

Thesis Paper

Introduction

This project is an investigation of how the built environment affects the natural environment, and how the natural environment affects the built environment. To explain the ideal of natural urbanism one needs to understand what “urbanism,” is and the meaning of “natural.” Urbanism is the lifestyle of a person or people that live in a city. Natural has multiple meanings, and in this project it can be view in two different ways; first, natural related to existing or caused by nature, not man-made, and secondly, the composition of natural way or how it is formed, mainly the built environment (the town or architecture).

Natural Urbanism is a way to think of how a city or town natural arises from nothing. How did that city come to be? What was there before people settled? What was the natural environment like? It can also be viewed as a way to interweave the natural environment into the built environment. This project is an abstraction of these very ideas. How can this idea of Natural Urbanism affect, develop, or help define a town?

The goal of this project is to design multiple aspects of the built environment, using the natural surrounding features to its advantage. By using surrounding natural features, the hope is that these natural features will better support the city and its citizens. By designing with the natural features, the natural environment a city or built environment should be more sustainable.

The process of this study starts with designing a city or community in balance with nature. What is a city in balance with nature? How does one become more in balance with nature? How can a city or community respect their natural environment? What are the benefits? What are the disadvantages? How does one design like this? This project will attempt to answer these questions.

Designing the built environment with the natural features of the area the community will be more economically, environmentally, and socially sustainable. This project is meant to rethink and critique the current conditions of a small, industrial-based town, while focusing on the natural conditions. By designing off the natural conditions it will create a more sustainable community, economically, humanistic (socially), and environmentally.

Site

When the selection of a site arose, the decision was tough to make. Originally, areas that were recently or likely to be destroyed by natural disasters came to mind, because starting over provided more of a potential opportunity and less confrontational. However, there was a slight problem with this, because to fully understand how a city functions, while taking the natural features of the surrounding area into consideration, one needs to be immersed in the culture and the economics. A designer should know the community he or she is designing for, and the final site selected for the decision was East Jordan, Michigan.

The city of East Jordan is located in Northwest Michigan. It is approximately a half hour drive west of Gaylord, and has a current population just over 2,000 persons. It is located on the end of a river estuary, the Jordan River, which connects to the South arm of Lake Charlevoix. Lake Charlevoix is connected to Lake Michigan by a couple of other smaller waterways. The majority of the work force is in the manufacturing industry, with the major employer in the area being the East Jordan Iron Works. The development of East Jordan started during the mid to late 19th century with the lumber boom.

When the East coast states were running out of timber to harvest, the logging companies moved west and into Michigan. They slowly moved up the peninsula, and lumber mills popped up in areas that were accessible to forests and transportation, transportation being local rivers and lakes that would carry the timber to shipping centers on the Great Lakes. This resulted with towns and cities growing at estuaries of rivers into lakes that connected to better means of transportation (such as

bigger lakes) or railroads.

One of these small settlements was East Jordan. The town and mills were located at the end of the Jordan River and at the tip of the South arm of Lake Charlevoix. After the lumber industry started to decline in the late 19th century, the town remained because of the other industries that supported the lumber industry, mainly the iron works.

The East Jordan Iron Works started by supplying the areas booming lumber industry in 1883. The foundry made machine parts, ship parts, agricultural parts, and eventually materials for the railroad. When the lumber industry left, the company shifted its manufacturing to street casting, fire hydrants, manhole covers, grates, and other items. The Iron Works was and continues to be the main economical driving factor of the town.

The areas that the lumbering facilities (mills, warehouses, docks, etc.) were located are in very unique areas of the town. These areas were on both sides of the lake and in the estuary of the Jordan River. After the lumber industry left, these areas were abandoned and had a lack of development and interest for years. Even today these areas are underdeveloped and awkwardly planned, even though they have the most interesting natural features in the area.

The town developed on both sides of the estuary of the Jordan River, with the East side being more developed and better planned. The East side has streets in a grid pattern, while the West side the roads were placed where they needed to be with what seems to be minimal consideration for anything.

Due to time, economics, and a lack of planning, these spaces became under utilized. When they were finally developed, whoever planned it did not consider the natural surroundings or impact it had on the existing built environment.

Problems that human create on the natural world.

Before attempting to answer all these questions, we have to find out what is wrong with the current planning and design of our architecture and cities. This paper is not a solution to any of these problems, but instead is using them to inform the way to design.

The major problem that arises with our current design is the automobile. This is a problem because it releases toxic chemicals into the air. It is one of the most dangerous ways to travel, and people spend a lot more time than necessary commuting to their job than they need to. Our auto-dependent society is teaching the next generation our current values and how to live. The car does not need to be the main idea that a town is designed around - it does need to be considered, but it should not be valued so highly. City planners and designers have to consider better objects to base a design of a city, to instill more sensitive values in to the next generation, with the possibility of including the area's natural landscape.

Another problem that arises from our current living conditions is the use of land. It seems that every city in the United States is larger than it needs to be. This could also be due to the automobile, but still there needs to be some restriction on the amount of land to be used for a community. If less land is used for building, the more land then can be used for natural productions and protection. Farming is an example of this - local farming is better for the local economy and better for the community. The production of timber can also be accomplished in more of a local way - forests can be cut selectively for the best logs and ten or so years later more can be cut from that same spot, unlike clear-cutting a site. If there were more undeveloped land then there would be more trees to select from, as well as more land to farm.

Using land more efficiently is better for the environment for several reasons. First, there would be better materials to select from like wood, food, natural elements like gases and minerals. The materials would be a lot closer to the building site or the local population. When materials and food have to travel shorter distances then less would have to be spent on shipping, and less overall damage to the natural environment would be induced. Less shipping materials will decrease the amount of automobile travel on the environment, which will reduce the amount of fossil fuels and the amount of toxic fumes released by burning them.

The amount of material that are current being used or through away in the environment is overwhelming. Materials are thrown away when they could be reused or recycled. Why produce a brand new object when an old one can be slightly modified to perform its original use or a different use? Why should stuff sit in a landfill for years on end when it could be remanufactured into something new? If less was thrown away, then there would be more land because the landfills would be smaller.

Humans affect the natural world so much without worrying or concern. The population forgets that the natural environment gives so much. There has to be more that designers can do to embrace the natural world for both being more respectful and more ecologically friendly.

The question arises; how could towns been designed more effectively? What could have been done? What can be done? Is it to late to reduce the affects of this lack of planning? How can it be better or more sustainable? Ideas for a more sustainable community

Humans build in the natural world and almost forget about it. We build with out considering the affect it has on the environment or even the affect it has on us. Currently, we as a society are destroying the natural environment to construct homes and buildings. There is little consideration for the locations of the buildings, or the amount affected by the built environment. What are some ways to be more respectful to the natural surroundings while creating a thriving community?

A major problem is overuse of land, also known as sprawl. Cities need to stop expanding when there is no need. If possible, there needs to be a reduction in the city's physical size. When cities are condensed, there are more natural resources available. Less tress are cut down on the site for the buildings placement, and more land is available for farming and agriculture. Fewer resources are used if the city is smaller, as well as less energy. People do not have to drive as far to work, so they would use less gasoline. If buildings were built next to each other, they would use less for heating.

If a town's size is smaller, more people will be more willing to bike or walk to work. So, bike and walking paths are necessary for people to commute in an environmentally friendlier and healthier way. These can also be useful in more spread out areas too. In many dense urban areas, public transits like buses or trams are very effective. Unfortunately, the population of East Jordan is too small for trams and currently there is not a bus system. They might not be efficient because the buses would be under used. But, public transit might not be necessary if the locations of all necessary functions were within a reasonable distance.

If the community were close enough together people would be able to bike and walk everywhere that is necessary. This means that all functions need to be planned to foster this type of environment. For example, people need to live near where they work. Schools and workplaces need to be located near housing.

The natural environment could raise the local economy, which is needed in East Jordan because it does not have a diverse economy. An economy that could be useful is tourism. By designing a place off of the natural environment one could use these features to expand the local economy, by making it more conducive to tourism. There are many activities that can foster the economy in a low impact way. If cities considered designing for the outdoor activities more people would be attracted to use the facilities provided to them. For example, if bike paths turned into mountain biking trails. This would attract people to use the natural features near a town. Other activities that can be considered are hiking, biking, canoeing, swimming, boating, sailing, skiing, and more. The use of materials and where they come from also impacts the environment. If materials were from the location where they are used, less will be spent on transportation and money will stay in the local economy.

Economy plays a large role in the financial health a community also. How can the built environment be designed so that it brings money into the local economy? It could use the natural features of a place to bring in tourism or industry. By implementing these ideas,

and many more that are not mentioned, a community could be more in touch with its natural surroundings and more economical, environmentally and socially sustainable.

Ideal Situations

To begin this process of design, one might wonder the best way to design a town in accordance with these rules and one that is more in touch with the surrounding natural environment. Of course these ideal solutions are hypnotically conditions. These are designed as if there was nothing there on the site, and as the best solutions to the current day demographics, not considering history of the town. All of these schemes have bike and walking paths. All building should be arranged in a way that facilitates a view towards the lake either by their arrangement, the height, or topography. There were four of these schemes proposed and each of them is unique in their own way and tries to consider each question and answer it in a different way.

The first is a grid based off of the lake. This creates a sense of order while embracing one of the main natural features of the area, the South arm of Lake Charlevoix. There would be bike and pedestrian paths to connect the community together in an environmentally friendly way. The bike paths are also very ordered and arranged towards the lake. The problem with this plan is that it does not relate to the natural environment as well as it could. However, it is very organized and easy to navigate, and every street would be perpendicular to the lake, providing a scenic view in addition to easy to navigate streets.

The second scheme is the Cartesian grid, based off of the compass points, where the streets would run North, South, East, and West. This is even more organized from the last and still has views down the streets towards the lake, but it relates even less to the natural features, even though the bike and walking paths are arranged to the lake and topography. This adds in the sense that one is closer to nature by following the form of the land.

The third one is based off of the topography and sun angles. The sun angles are corresponded in the main roads and range from the winter and summer solstices,

both sunset and sunrise. One drawback is if someone is driving at sunrise or sunset, they will be driving into the sun's glare. It does bring light into the city and the town. The bike paths relate to the topography and there are views towards the lake.

The final one is based purely off of the topography and the lake, the one that is the most entwined with the natural environment. It resembles a medieval town plan, which is contradictory to every other town in the area and would make it unique. It might be a bit confusing, but many of the major roads have views to the lake and the building heights will take care of additional scenic views. One drawback is that the lake might be seen as an organizing structure.

Each of these schemes are not final solutions but investigations of what the town could have been. These ideal schemes will inform the final city design or redesign. These schemes create many benefits for the community, but also forget about history.

Benefits

These schemes would have many benefits to the natural environment. First, the community is more environmentally stable, because it uses less land. There are efficient ways to get around, more natural plants, like trees, because less land is used. Less fossil fuels will be used due to the proximity of everything and efficient personal transit.

The economy would be more stable. By creating a memorable place, more people would want to come back and visit. Adding different programs would expand the tourism industry, as it may attract visitors to return. If this happens enough times, they may decide to move here permanently, bringing more jobs into the community and improving the economy.

The community would be happier for a variety of reasons. They would be closer to work, they will not have to spend as much in fuel because they could walk or bike everywhere, and they will be more in touch with the surrounding natural features because of the design of the town. The population would actually be healthier because they would be outside doing more physical activities.

Even though the town might benefit from a brand new town plan, what about the citizens, or the history of the place? Is it reasonable to design this way? Is it not better to develop what is already in the town?

Integration Ideas

The final scheme for the town design, master plan, is an integration of the previous stated ideas with the current town conditions. This attempt is to create a more socially, economically, and environmentally sustainable community with using the current conditions and natural features.

The new master plan implements bike and walking paths without destroying any buildings. These paths would run along the curves of the land, making the user feel closer to it. They will follow the topography and will not be in a regular girded form, but more organic.

The addition of buildings in specific areas is to add a density, and create a town identity. These will mainly be placed along major roads and in the commercial district. The hope is that it will create a more vibrant downtown bring people and business to the area.

The next addition to the master plan would be a newly designed bridge. The bridge would mainly to redirect traffic into the downtown district so that it creates a higher activity level. Unlike the current one, which diverts around the downtown area.

The last part of the new master plan is the development of the waterfront. As mentioned earlier, the waterfront is one of the town's best features that they are not currently taking full advantage of. Currently, the waterfront is divided into sections of different uses with nothing binding the whole thing together. The public does not have anything near to full access to it - some portions of the waterfront a person might not even realize is even there. One section of it is called "East Jordan's Tourist Park" and only twenty percent of the town's population said they have used it on occasion (East Jordan Economic Development Plan, 2011). The main downtown district even turns its back on the lake, even though it is less than a block away. One begins to wonder why the lake is not as important in this town as it should

be - how can the lake be utilized to its full potential? One solution - create a consistent lakefront park. How should the park be designed and connected by using the natural environment as a guide? Could it be done? How are these taken into consideration? Would it help the community be more sustainable? How?

By creating a park, it would first connect the two side of East Jordan. It would draw people to the town and lead them to different features of the town they may not know about. It would emphasize the importance of the lake to the local economy. It will develop a sense of place that the city is lacking. It would become more of a source of pride for the local community. It will draw people to use the lakefront at different times and draw many people to the lakefront, citizens and tourist. If more people use the lakefront, then it would bring more money to the area, and if it is well connected to the business district, then more money would be spent in the town, creating a better economy. How does the lakefront need to be designed to bring these better conditions about?

These better economic conditions could come about by using programmed streams (paths). These different streams would not only better the economy, but the environment and the community. Each path would connect different programs in a common category. There would be four different streams, one based on a sports category, another based on arts, another on other entertainment, and the last on an educational stream.

The sports stream would connect different sides of town with a path related to different types of sporting activities. It will start at the public swimming beach and end at the public schools' sporting fields on the other side of town. The different nodes related to sports include a swimming area, beach volleyball, an ice skating rink, baseball field, basketball courts, tennis courts, Frisbee area, fishing area, canoeing, and finally the high school's sporting fields.

The next is the arts stream. This stream is focused on the arts education and social awareness to the arts. It starts at the main entrance of the park, which is the major cross of the city and the only stop light, with an entrance adorned with sculpture. The next node on the arts stream

is an interactive fountain (which in the winter time is a skating rink), then followed by the new bridge, and the theater for performing arts and music, and finally ends in a sculpture park. The ideal with the sculpture is that it will be done by local artist and may even be produced by the East Jordan Iron Works, as the factory is right next to the sculptural park.

The next path way is the entertainment stream. This stream is mainly focused on strengthening the local economy, as well as bringing people of all ages to use the downtown area and the park. It starts with a playscape in the middle of the park, then the interactive fountain or ice rink (depending on time of year), followed by the beach, then the stream runs along one of the main road where there would be addition of buildings with restraints, cafes, hotels, shops, and bars. It then leads users through the downtown section and past the theater and finally ends at a boat launch. This stream tries to tie everything together.

The final stream is the educational stream. This stream focuses on informing the users of multiple things about the East Jordan area - what is there, how it became about, the local ecology, and more. It starts at a nodal point of where one of the lumber mills used to be located, and would describe the mill and the lumbering process. The next is the bridge nodal point, and it will educate the use on how the bridge structure works. The next along the stream is "The Trees of Michigan." It will be trees placed along this pathway of different trees of Michigan, and a little description of each of them. The next along this stream is the Environmental Education Center, which will be described in a bit, followed by a rain garden, a viewing station for the estuary of the Jordan River, another mill location and it's information, the theater to inform about the performing arts, and finally ending at the East Jordan Iron Works Museum, which is currently in that location and is under utilized.

The paths are a way to develop the lakefront in an organized designed fashion, drawing people to the waterfront. Multiple people could use them at the same time, while doing completely different things. They create a new economy for the town, and the streams also connect major partitions of the town together. They

educate the users about the environment and the arts.

The second scale that tested this ideal about designing the built environment with the natural features is the architectural scale. This happens on the educational path, and is the Environmental Educational Center. The program of the center is mainly focused of the ecology of the Northern Michigan area and the local watershed. It will include a museum and laboratory, with the laboratory being used by non-profits for testing water and bacteria samples collected in the local lakes and rivers. These non-profits can use this Educational Center as a main base for collecting these samples, as well as run environmental tours of the waterways. This would also provide a learning center for the area's school children, providing education on a variety of ecological areas. The building would be designed to interact with the ground in various ways. At its points, it would sit directly on the ground or water, others it floats above the ground and/or water, others it is completely in the ground or under the water, and sometimes the ground is above it. There will be a green roof where people can walk up a hill and end up on top of the roof overlooking the estuary. They could also walk out the back of the building and have the feeling they are walking at the same level of the water. Or, when they are in the building they can see the water rush past them at eye level. Or they could be standing over the water and looking out over the estuary but inside. The building's main form is derived directly off of the land and river forms. Walls are following topography lines and rooms are forming inlets in the river. This building is showing how the built environment manipulates the natural environment.

Even the materials used to construct the building react to the natural environment, the final smallest scale. All local materials would be used drawing from the original ideal scheme rules. All these materials would be natural and not man-made, such as not using manipulated materials such as heavy-duty plastics. The main cladding assembly is an example of all these ideas in one. It would have a wooden sun screening or partial weather protection depends on the material behind it. These would either be a glazing or copper sheeting. The

sun screening is for the glazing and the partial weather protection is for the copper. The idea with the partial weather protection in front of the copper is so that some areas of the copper are less exposed than others creating a unique weathering effect on the copper. It will show how the natural environment affects the built environment.

The built environment affects the natural environment and the natural environment affects the built. By designing with the natural features in mind, the built products, at all scales, would be more sensitive to the natural environment and more economically, environmentally, and socially sustainable.

Conclusion

By rethinking, critiquing the current conditions of a small industrial town and adapting it to certain criteria it will foster a better community by enhancing its natural, economical, and humanistic features. Designing with the natural features of East Jordan in mind, the lake and river, would help the community in multiple ways. While it works best at the urban scale; there is still benefits designing with the natural features at the architectural scale and material scale. By design with the natural features at all scales creates a sense of unity thought out the town and architecture, which reinforces the overall town fabric. By doing this, it will create a more sustainable community that is more in touch with its natural surroundings.

Site

Description

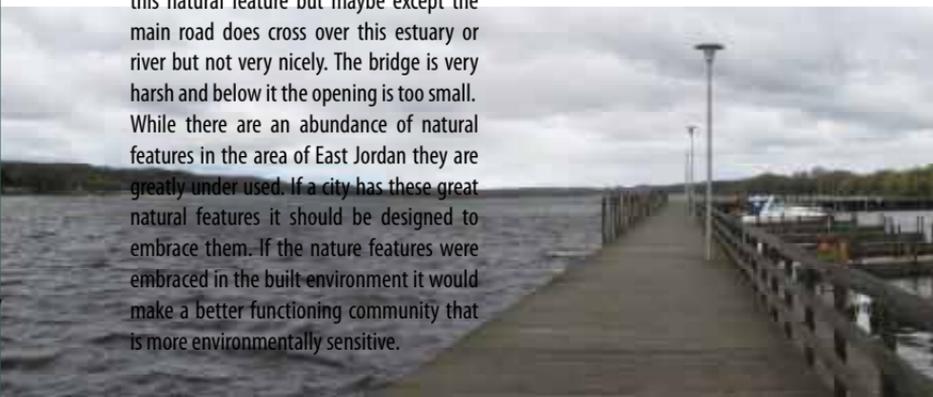
The City of East Jordan Michigan is located in North Western Michigan. Its current population is just over 2,000 people. It is located on the end of a river estuary that is connected to a lake. That lake is connected to Lake Michigan by a couple of other lakes and channels.

The estuary of the Jordan River spreads the town apart. Not only is the town split in half it is very spread out. There is little density to the city, which is typical of most American small towns. The public spaces of the city are not very well planed and the parks, which are a good size, are under utilized. This under use could be to the location of these parks in consideration to the natural environment.

There is a very diverse natural environment that the city plan does not take advantage of. The main down town section turns it back on the lake and the river. The lake is hard to see from the downtown even though it is right next to the downtown.

There is a great topography change that none of the built environment considers, except the main roads leading out of town. But the street grid is very regular and is not affected by the topography change.

Finally, there is a decent size river. The river runs into the South Arm of Lake Charlevoix. Next to the town it is more of an estuary than a river or channel. Nothing considers this natural feature but maybe except the main road does cross over this estuary or river but not very nicely. The bridge is very harsh and below it the opening is too small. While there are an abundance of natural features in the area of East Jordan they are greatly under used. If a city has these great natural features it should be designed to embrace them. If the nature features were embraced in the built environment it would make a better functioning community that is more environmentally sensitive.





Site

Lake System

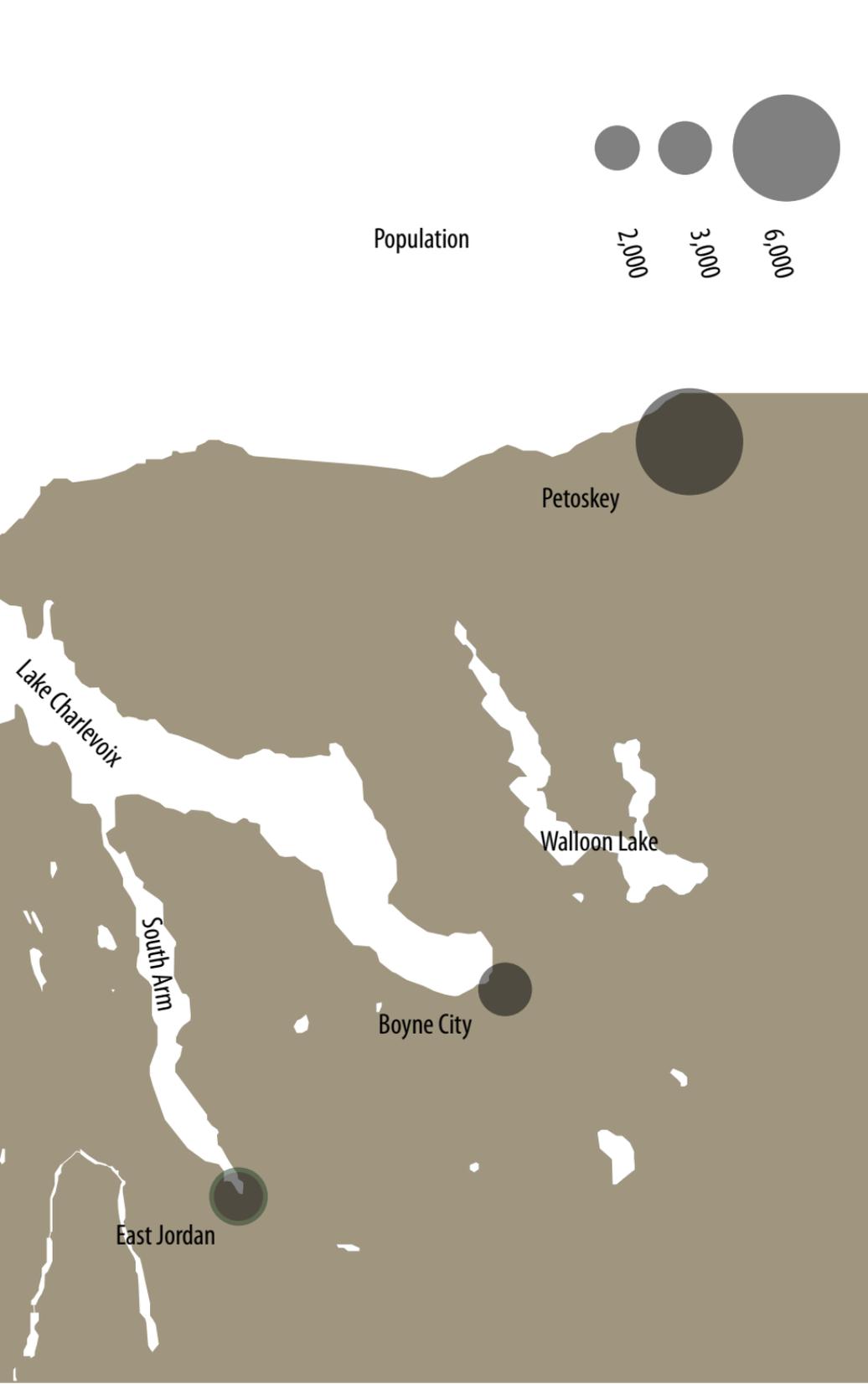
Lake Michigan

Charlevoix



19

Torch
Lake



Population



2,000

3,000

6,000

Petoskey

Lake Charlevoix

Walloon Lake

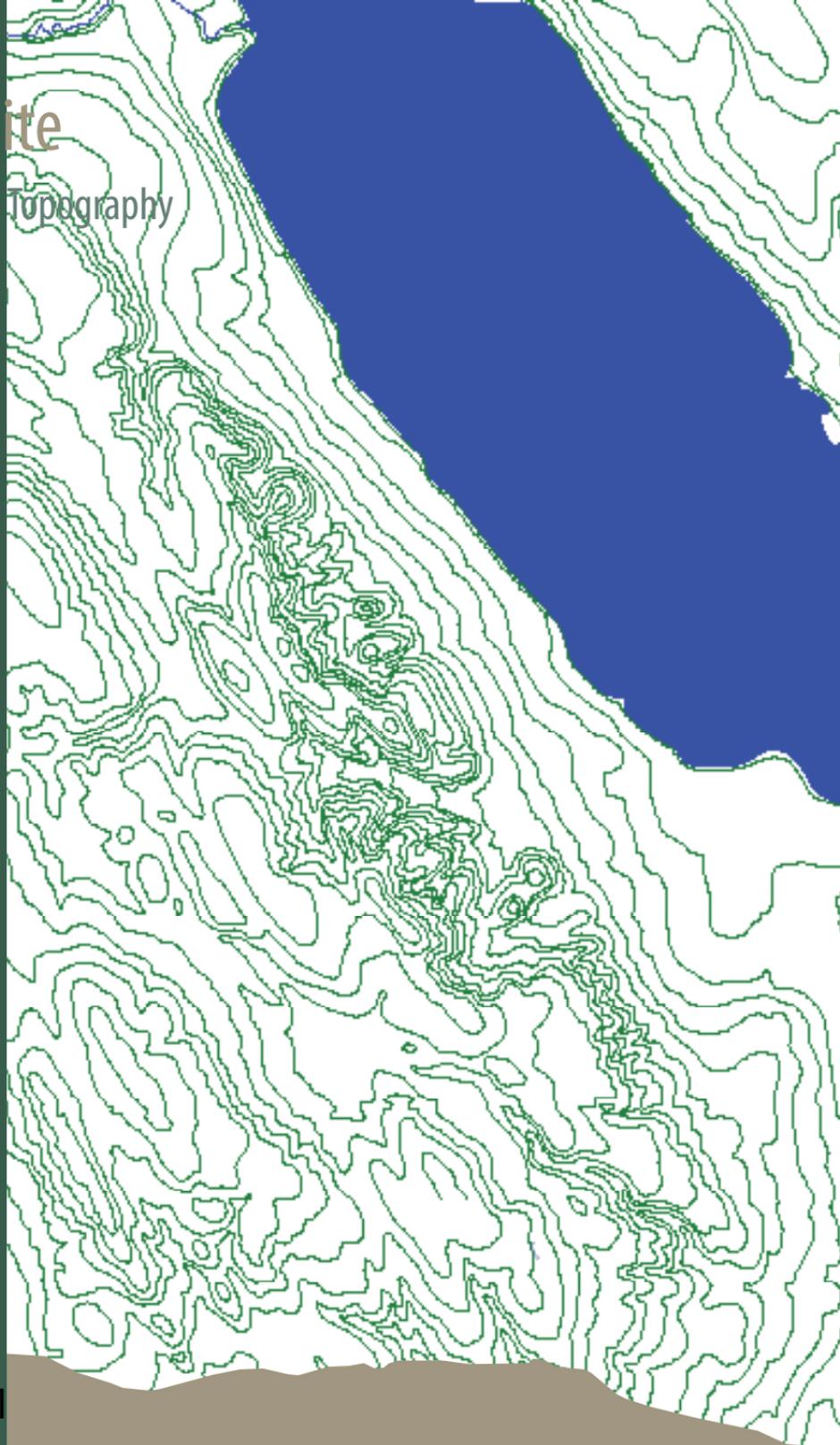
South Arm

Boyne City

East Jordan

Site

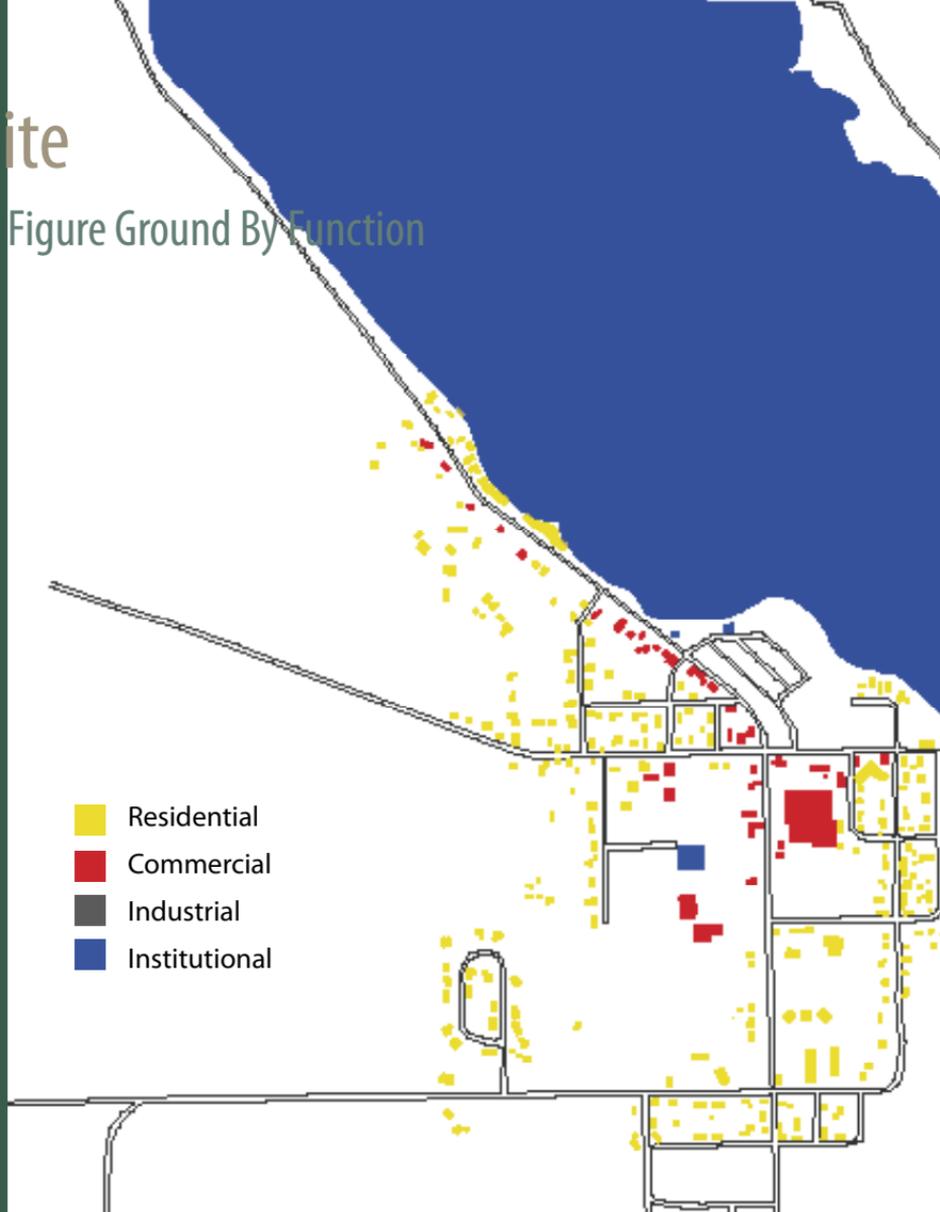
Topography

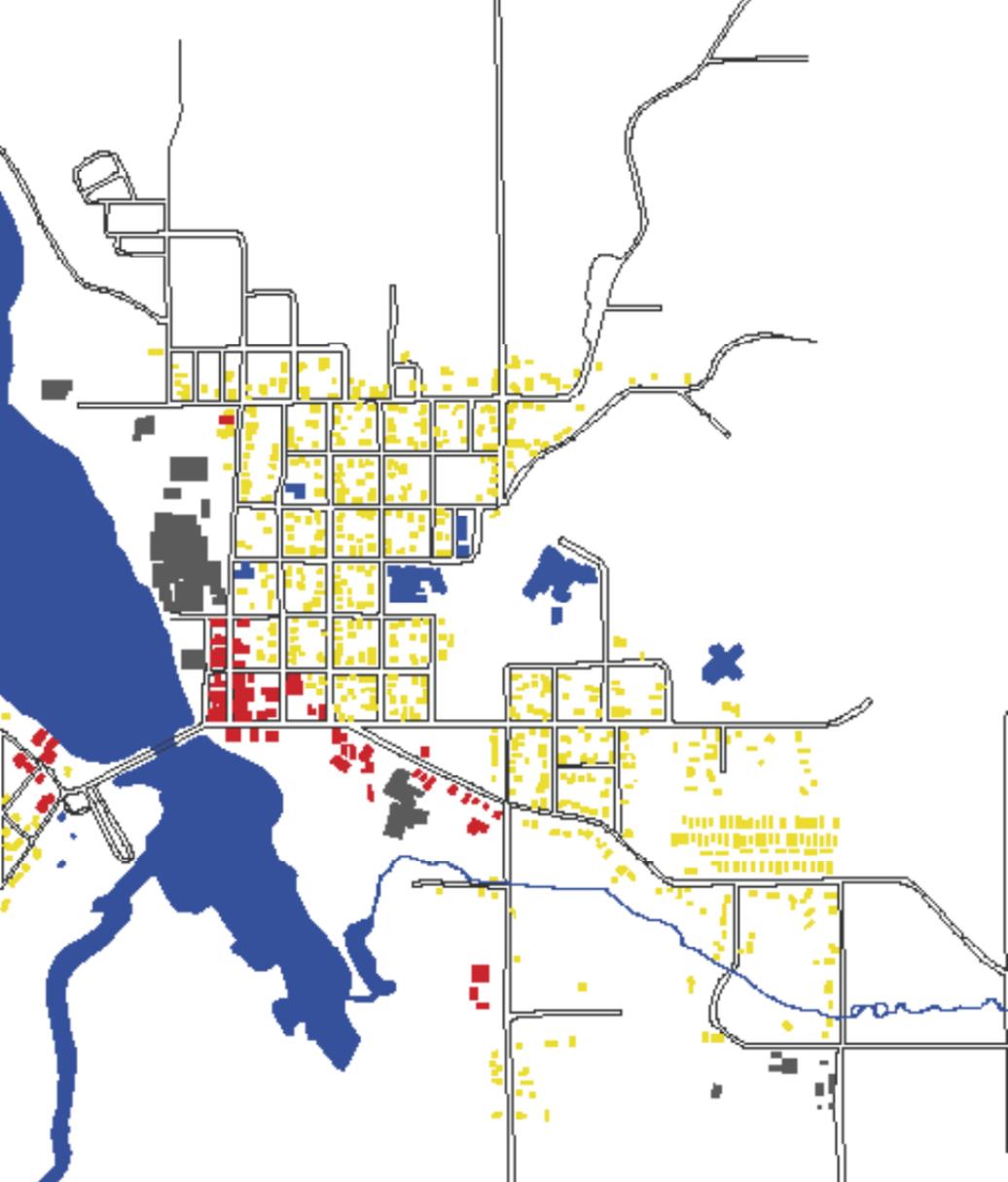




Site

Figure Ground By Function





The major mode of transportation is cars and trucks. The major roads of the town conform to the surrounding landscape. But the overall road layout of the town is a bit confusing and it is not constant. On the east side there is a grid type street grid and the west it is more organic and moves along with the landforms.

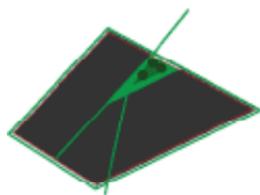
Aerial view of East Jordan. This view shows the relationship between the town and the natural features of the area. The size of the lake compared to the town. It shows the estuary and wetlands in comparison to the lake and the town. The wetlands and estuary is the light brown color at the bottom of the picture.

The city analysis map shows a lot of different things. The main things are the city limits. The existing forest area and what was assumed to be forest before development. It shows important manufacturing of today and the past, during development. The red dots of non – existing mills and the blue dot is the Iron Works. It shows where the land gets to steep to build on with the dark black line.



Rules

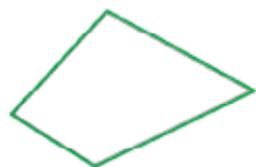
The Rules for Design are to create a beautiful, dense, livable, walkable, and unified place.



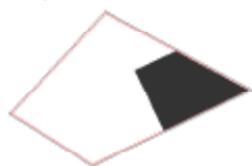
City blocks are created by the street grid.



Blocks need to have sidewalks and streets need to have bike lanes.



Buildings can be any shape on the block but sections must meet up with the building setback line, which is 4 to 6 feet back from the street edge. The setbacks can be different in single family residential, but building must be lined up.



There is no restriction of the number of buildings on a block, but they need to be built in accordance with the building heights zones.



Exceptions are made to the height zoning if the building relates to the surrounding buildings and no one objects to the height of the building.



The space that the buildings shapes create are for public use. The spaces in the building adjacent to this public area can have retail.



Rules

The spaces between the buildings, allies, may have pedestrian and or bike paths in the.



Interior block public spaces need to be landscaped with local plants. No non-local plants are allowed.



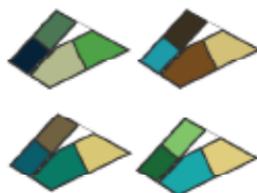
The paths may also go through buildings if designed.



Buildings have to line up to the building setback lines unless the shape creates some pattern through the block.



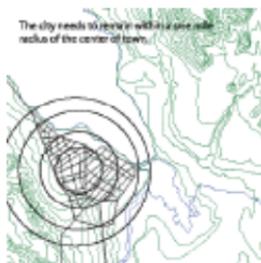
The building exteriors need to use certain color schemes.



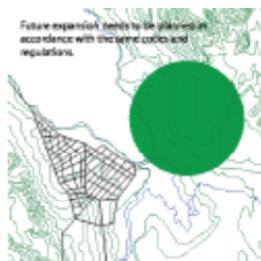
The building materials have to come from within a region of 200 miles.



The city needs to remain within a one mile radius of the center of town.



Future expansion needs to be planned in accordance with the same codes and regulations.



Ideal Plans

Description

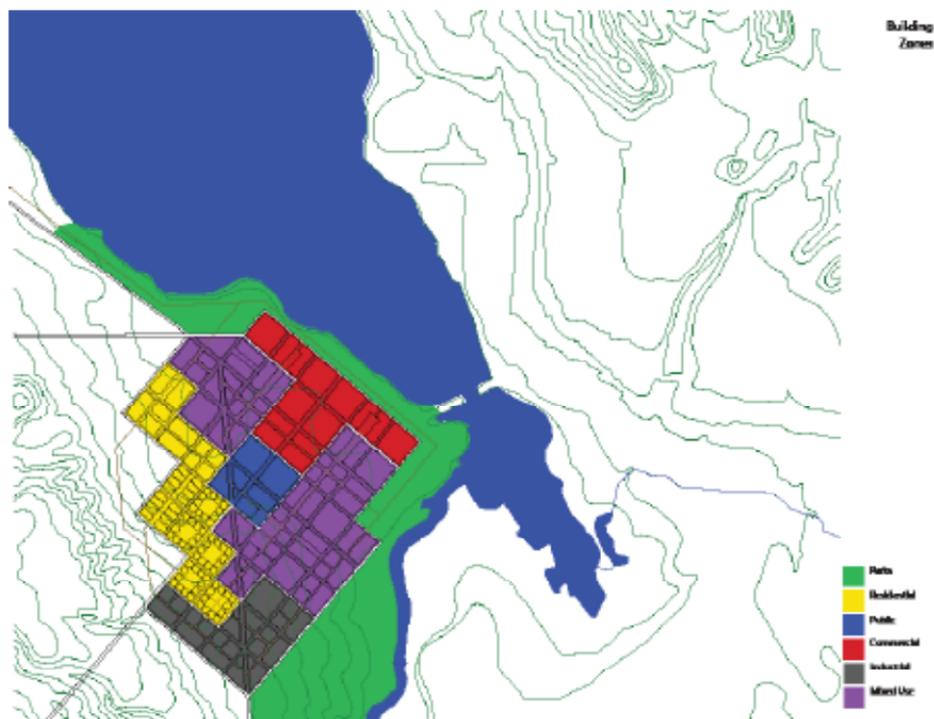
The ideal solutions are hypothetical conditions. These were designed as if there was nothing there on the site and as the best solutions to the current day demographics. All of these schemes have bike and walking paths. All buildings should be arranged in a way that facilitates a view towards the lake either by their arrangement, the height, or topography. There were four of these schemes proposed and each of them is unique in their own way. Each of these schemes are to inform the final design that is more focused on the current conditions of the city layout.

Ideal Plans

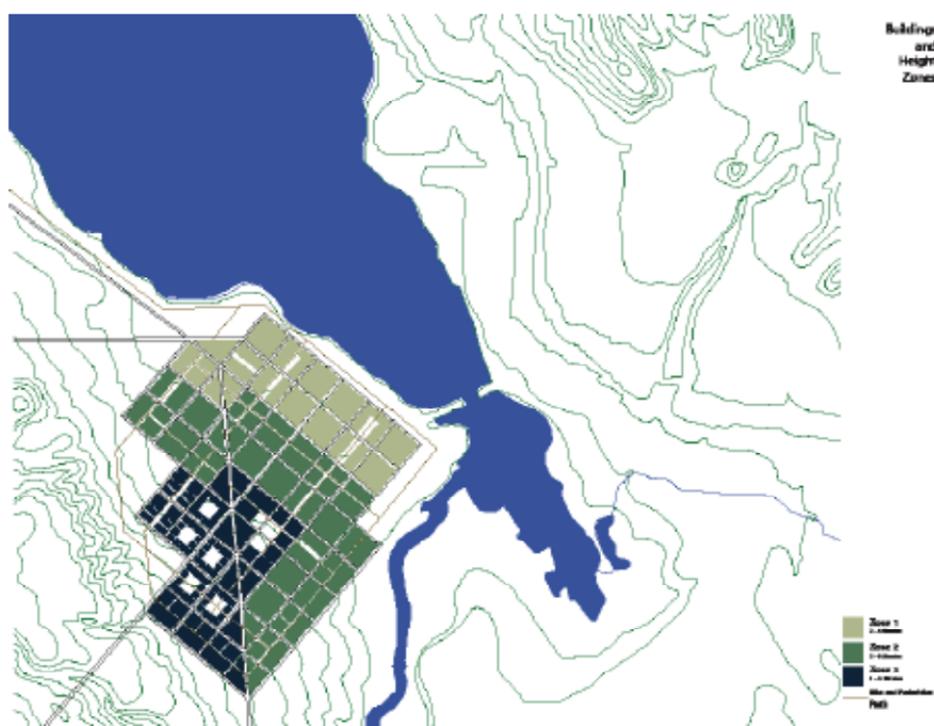
Cartesian Grid Based on the Lake

The grid based off of the lake. This creates a sense of order while embracing one of the main natural features of the area, the South Arm of Lake Charlevoix. There would be bike and pedestrian paths to connect the community together in an environmentally friendly way. The bike paths are also very ordered and arranged towards the lake.

Zoning



Height Zones

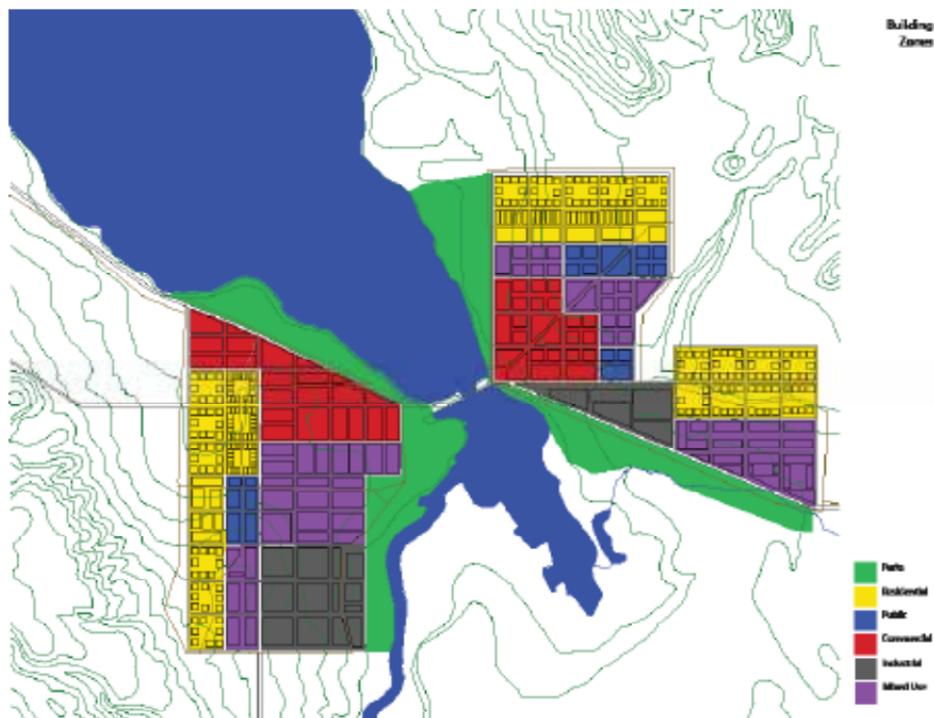


Ideal Plans

Cartesian Grid Based on Compass Points

The second scheme is the Cartesian grid based off of the compass points. The streets run north, south, east, and west. This is even more organized from the last and still has views down the streets towards the lake. But it relates even less to the natural features. But the bike and walking paths are arranged to the lake and topography. This adds in the sense that one is closer to nature by following the form of the land.

Zoning



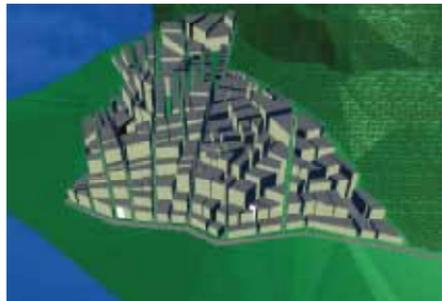
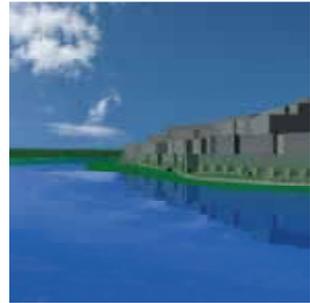
Height Zones



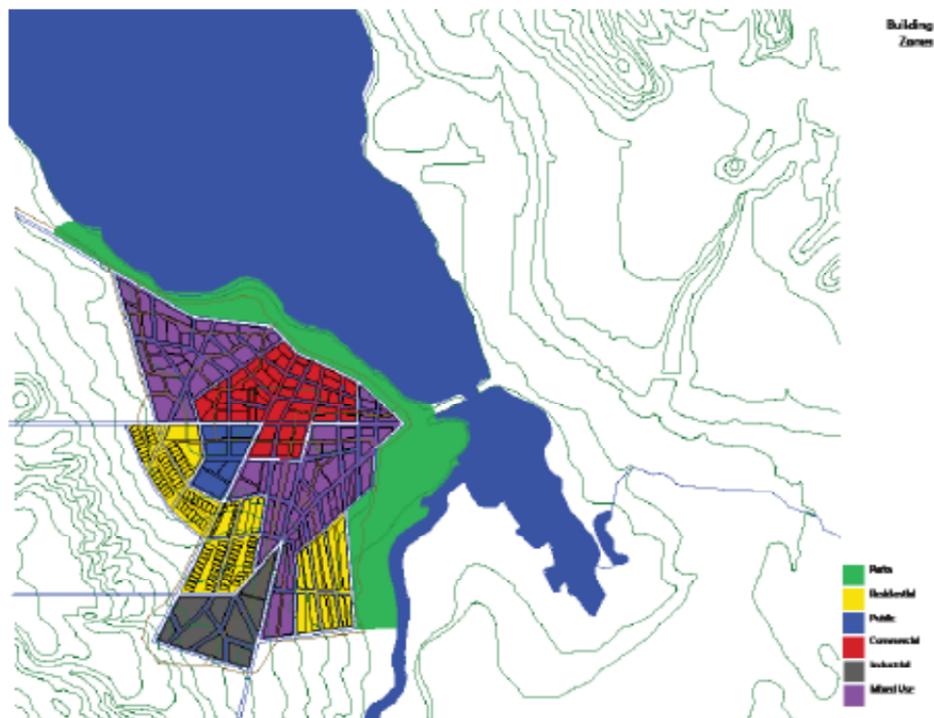
Ideal Plans

Topography and the Sun Angles

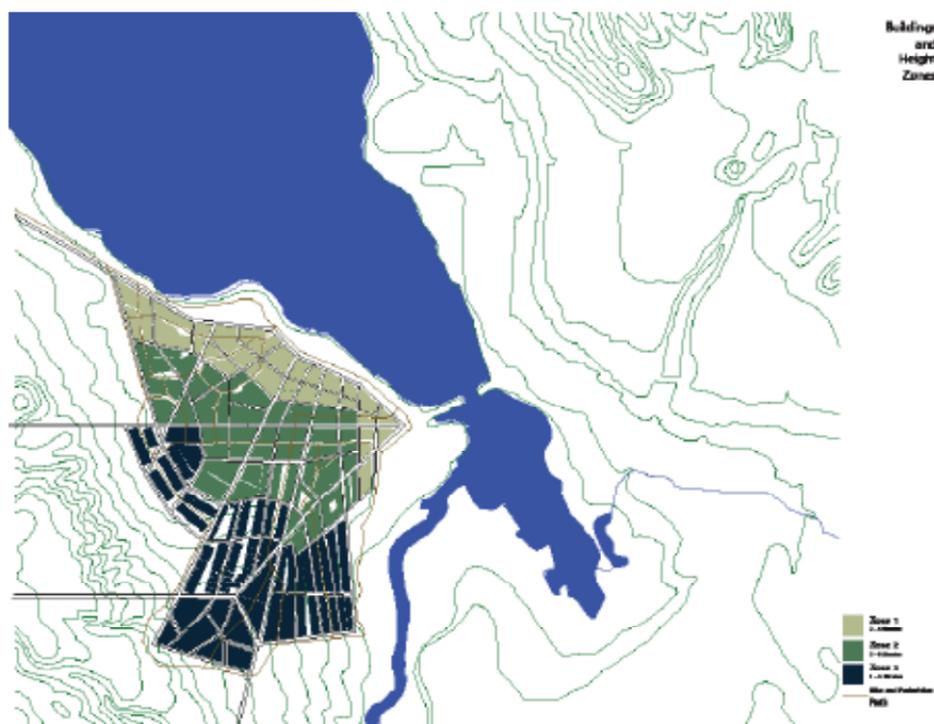
The third one is based off of the topography and sun angles. The sun angles are corresponded in the main roads and range from the winter and summer solstices both sunset and sunrise. But if someone is driving at sunrise or sunset they will be driving into the sun. It does bring light into the city and the town. The bike paths relate to the topography and there are views towards the lake.



Zoning



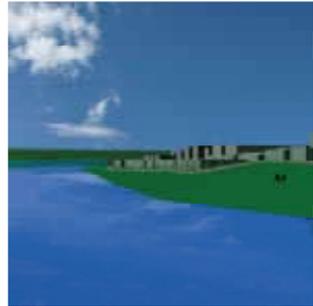
Height Zones



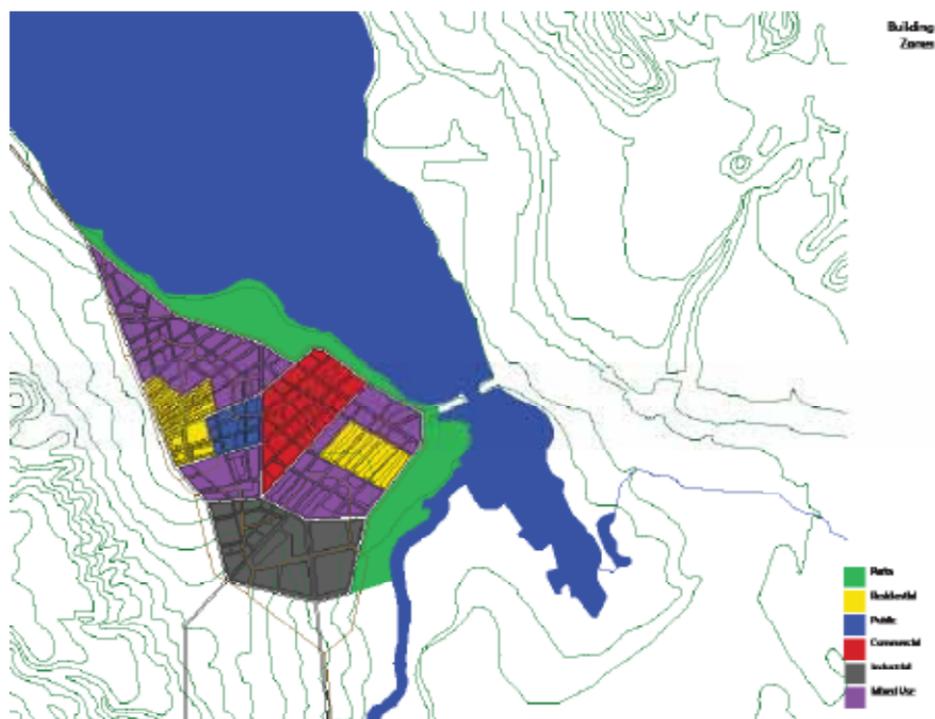
Ideal Plans

Topography and the Lake

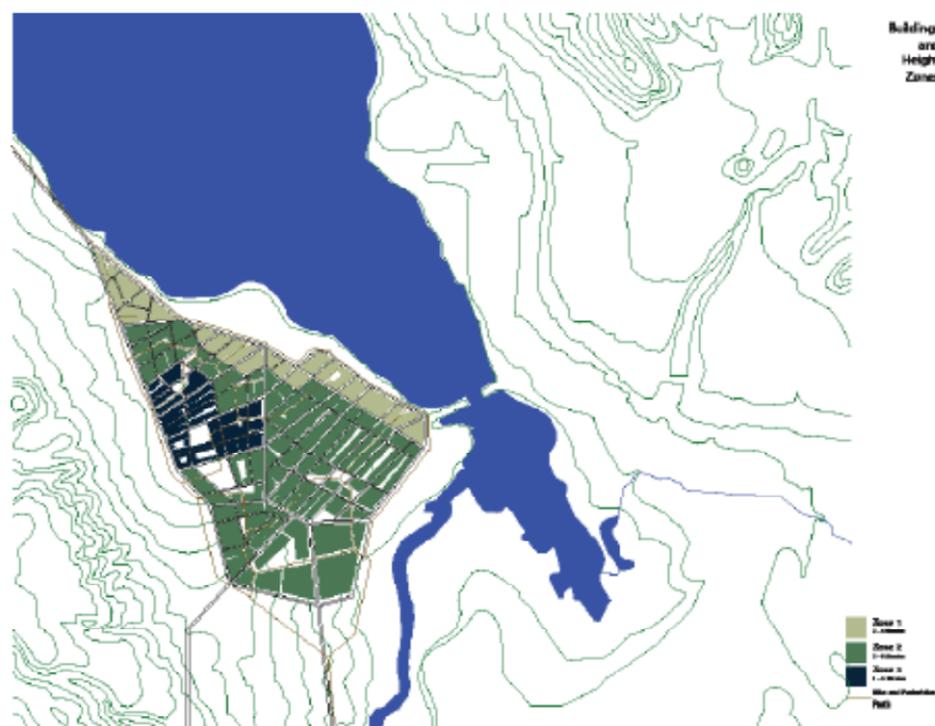
The final one is based purely off of the topography and the lake. This one seems the most entwined with the natural environment because everything is based off of it. It kind of resembles a mid evil town plan which is contradictory to every other town in the area, making it unique. It might be a bit confusing but many of the major roads have views to the lake and the building heights will take care of the views to the lake. The lake might be seen as an organizing structure.



Zoning



Height Zones



Urban Solution

Master Plan



As the ideal solutions were hypnotically conditions. The Master Plan is a realistic solution for the city of East Jordan to implement. It takes the ideas that were learned from the Ideal Solutions and integrates them into the existing fabric of the current city. The main ideals that were implemented were the integration of biking and walking paths, addition of buildings, a new bridge that redirects the flow of traffic, and a developed waterfront plan. Each of these will help create a better community in different ways.

Urban Solution

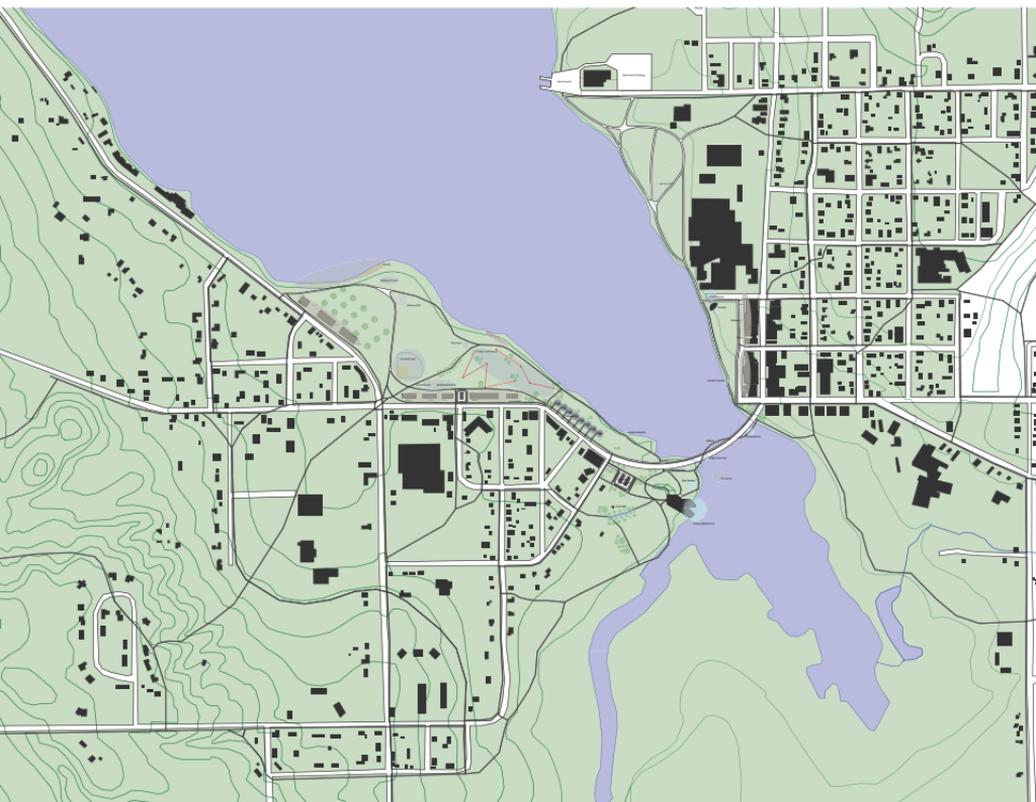
Master Plan

Biking and walking paths are designed directly with the existing topography and existing buildings. Nothing was changed or destroyed when implementing these paths. They run along with the topography by following ridges and never creating a grid. When someone uses the paths they would feel closer to nature because they are following and moving with it.

The addition of buildings along certain streets and roads will create a higher density and bring a sense of place to the downtown portion which it lacks currently. All these will be designed similar to the codes denoted earlier in this book.

A new bridge will redirect the flow of traffic towards the main downtown district. It will force people to realize where the main district is unlike the current conditions where one can drive by the downtown with out even realizing it is there. This will draw people to use the downtown by making it more noticeable.

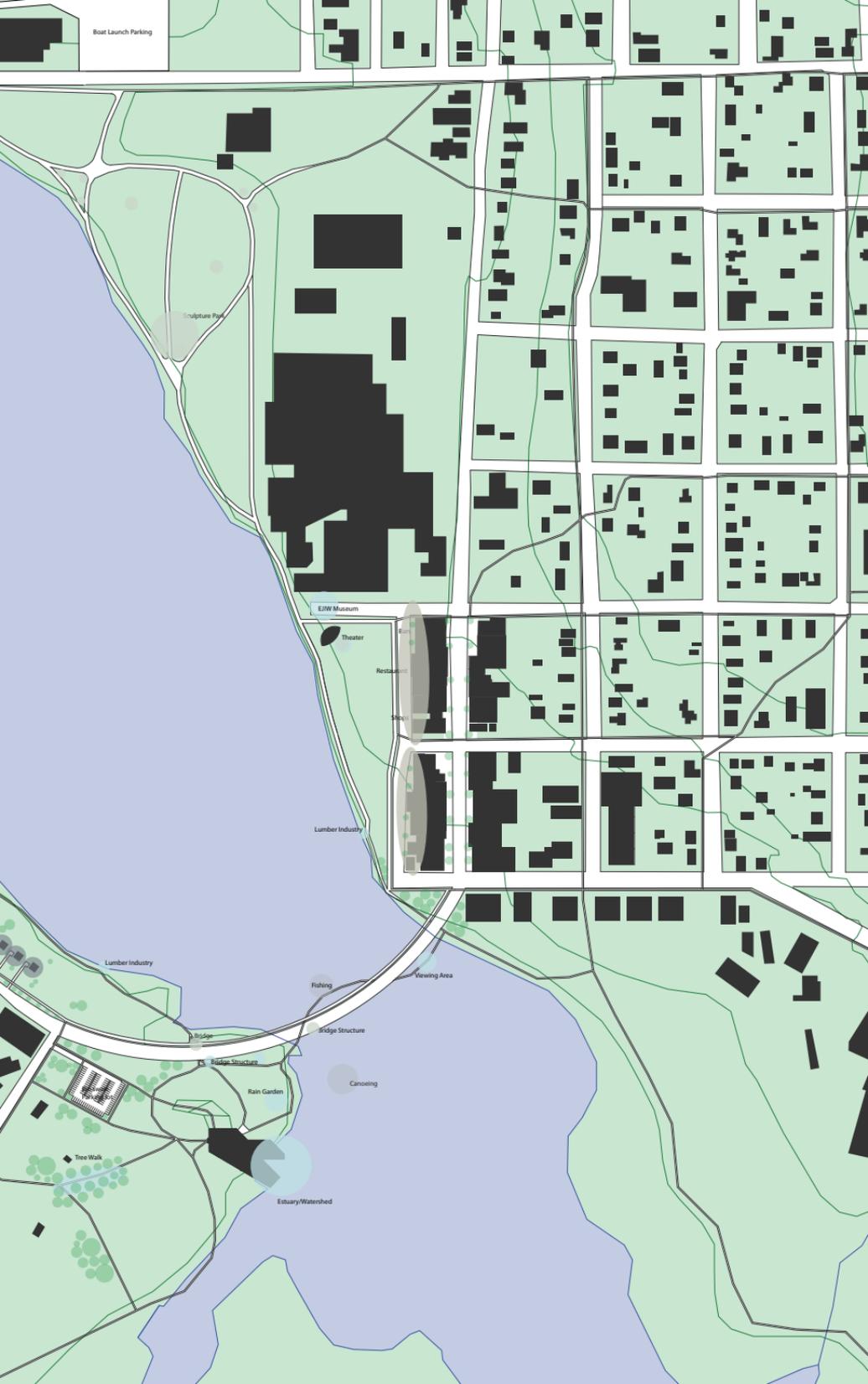
Finally, the development of a waterfront park is necessary to the revitalization of East Jordan. The current park is under used and not designed well. By creating a cohesive park system along the lake front it will bring more of an economic value into the city, while educating the community, and preserving the natural surroundings of the area.



Urban Solution

Waterfront Plan





Boat Launch Parking

Sculpture Park

EJW Museum

Theater

Restaurant

Lumber Industry

Lumber Industry

Fishing

Viewing Area

Bridge

Bridge Structure

Rain Garden

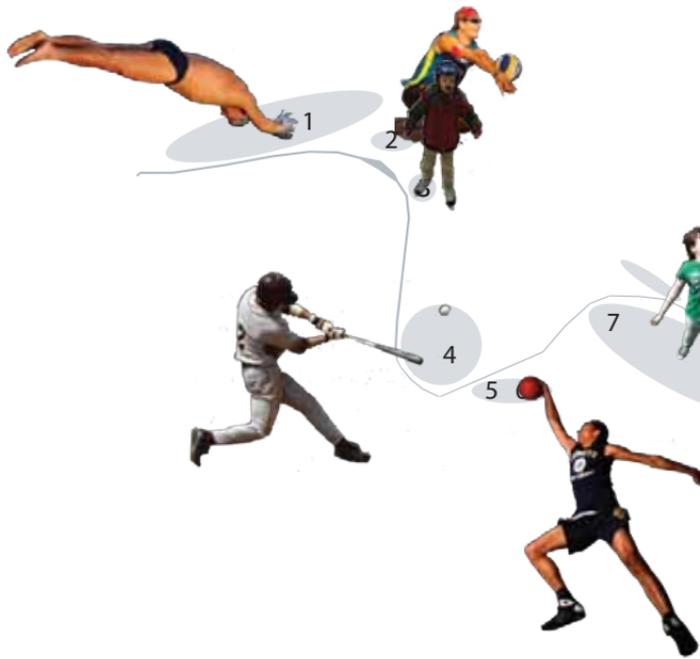
Canoeing

Tree Walk

Estuary/Watershed

Urban Solution

Waterfront Development
Programed Streams
Sports Stream



1. Swimming Area
2. Beach Volleyball
3. Ice skating Rink
4. Baseball Area
5. Basketball
6. Tennis Courts
7. Frisbee Area (Frisbee Golf and Open Field)
8. Fishing Area
9. Canoeing and Kayaking
10. High School Sports Fields



Urban Solution

Waterfront Development
Programed Streams
Arts Stream



1. Park Entrance (Sculpture)
2. Interactive Fountain
3. Architectural Bridge
4. Outdoor Theater
5. Sculpture Park



Urban Solution

Waterfront Development
Programed Streams
Entertainment



1. Playscape
2. Ice skating Rink
3. Beach Area

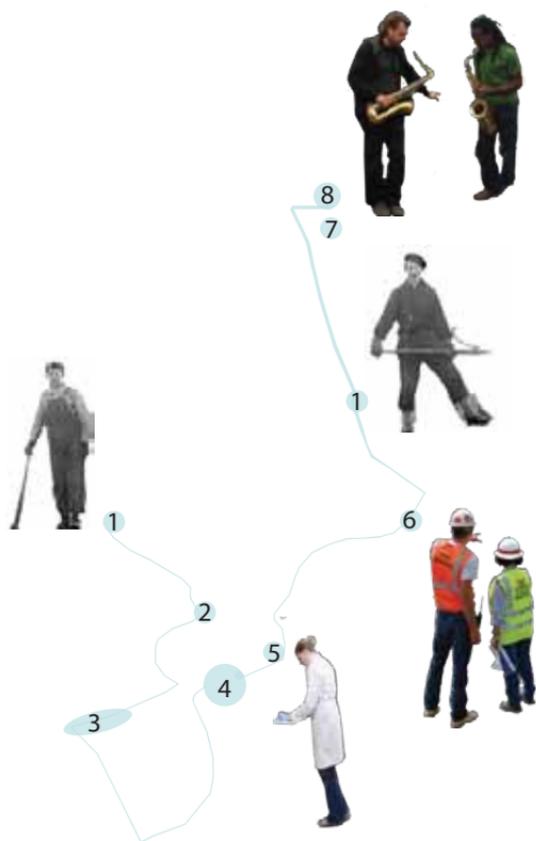
4. Shops, Bars, Cafes,
and Restaurants.
5. Hotel
6. Outdoor Theater
7. Boat Launch



Urban Solution

Waterfront Development
Programed Streams
Educational Stream

- | | | | |
|----|--------------------------------|----|-------------------------------|
| 1. | Lumber Industry Education | 5. | Rain Garden |
| 2. | Bridge Structure | 6. | Viewing Area of the Estuary |
| 3. | Trees of Michigan | 7. | Outdoor Theater |
| 4. | Environmental Education Center | 8. | East Jordan Iron Works Museum |



Architectural Solution

Environmental Educational Center

Conservatory/Museum/Laboratory/Educational
Center

Relation to the Natural Features



The program of the building is an Environmental Educational Center, mainly focused of the ecology of the Northern Michigan area and the local watershed. It will include a museum and laboratory. The laboratory will be used by non-profits for testing water and bacteria samples collected in the local lakes and rivers. These non-profits can uses this Educational Center as a main base for going out to collect samples and run environmental tours of the lakes and rivers. While local school kids and others can learn about different things in the classrooms and exhibition spaces.

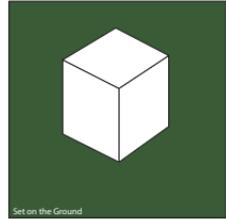


View from River.

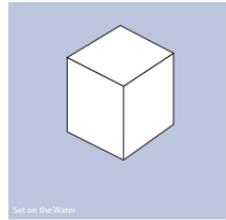
Architectural Solution

Relation to the Natural Features

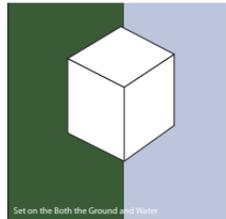
Portions of the Building set on the Ground.



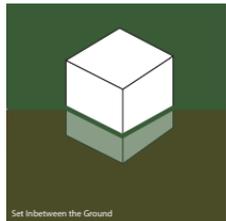
Portions of the Building set on the Water.



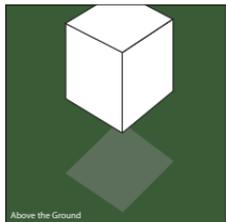
Portions of the Building set on both the Ground and Water.



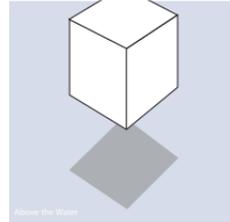
Portions of the Building set in the Ground.



The Building Floats above the Ground.



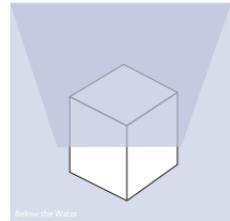
The Building Floats above the Water.



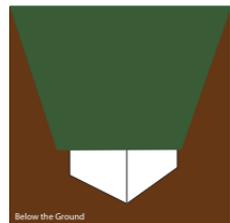
The Building Floats above the Ground and Water.



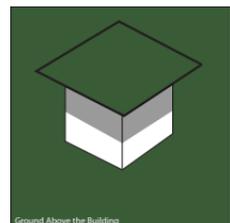
Portions of the Building are below the Water.



Portions of the Building are below the Ground.

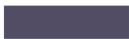
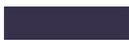
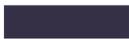


The Ground is above the Building.



Architectural Solution

Program

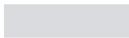
-  Grass
-  Water
-  Administration
-  Offices
-  Lab (Private)
-  Lab (Public)
-  Classrooms
-  Lecture Hall
-  Exhibition Space
-  Entry Space
-  Circulation
-  Rest rooms
-  Storage
-  Mechanical
-  Store

Main Floor



Architectural Solution

Program

-  Grass
-  Water
-  Administration
-  Offices
-  Lab (Private)
-  Lab (Public)
-  Classrooms
-  Lecture Hall
-  Exhibition Space
-  Entry Space
-  Circulation
-  Rest rooms
-  Storage
-  Mechanical
-  Store

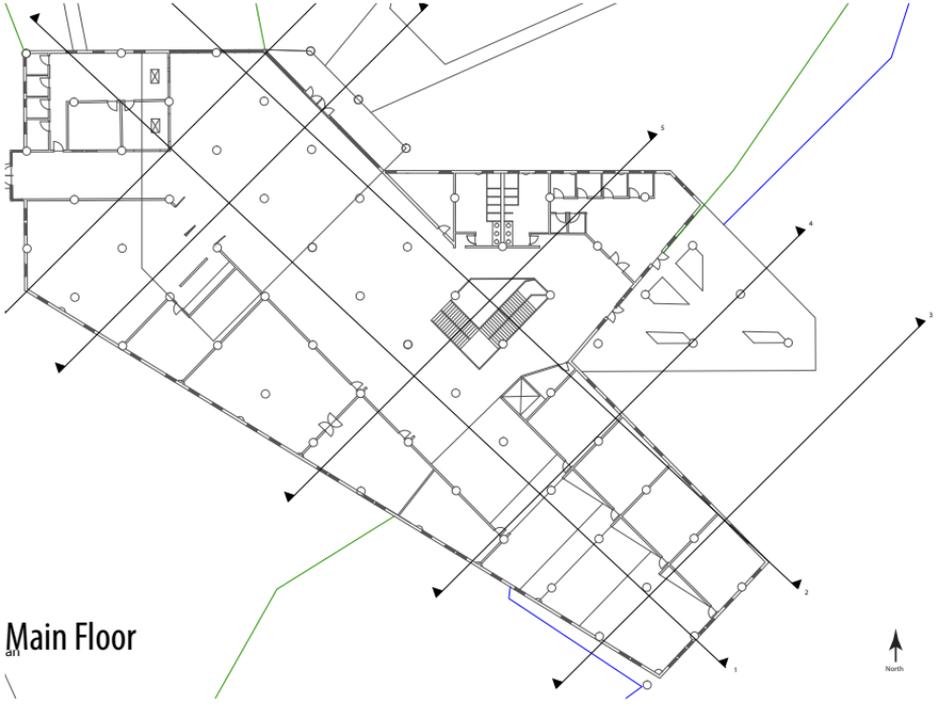
Lower Floor



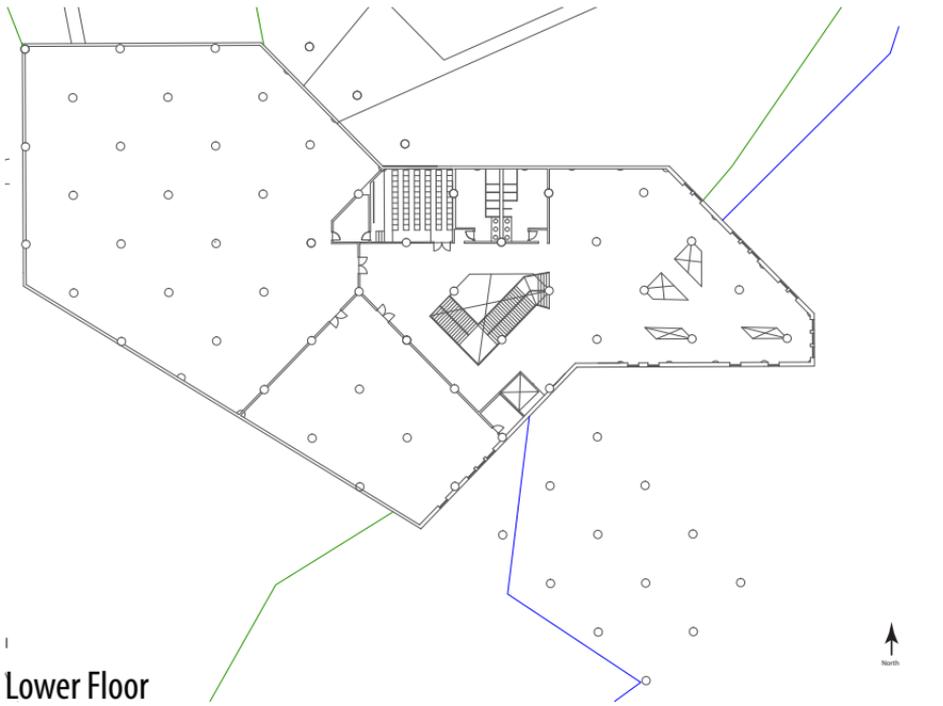
Architectural Solution

Floor Plans





Main Floor

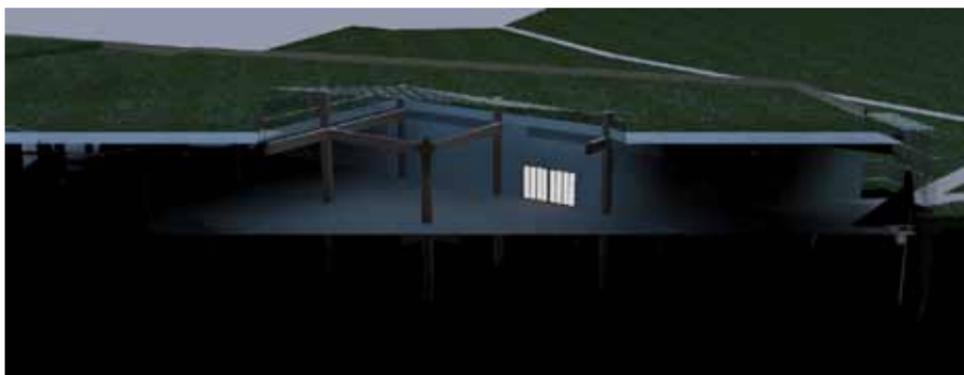
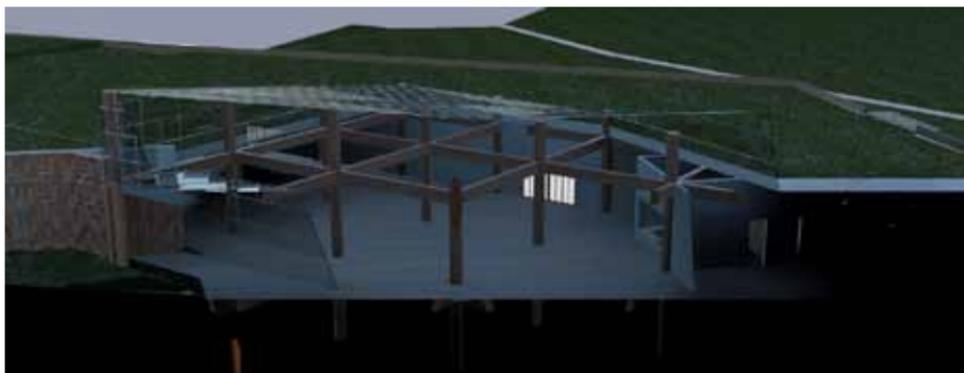
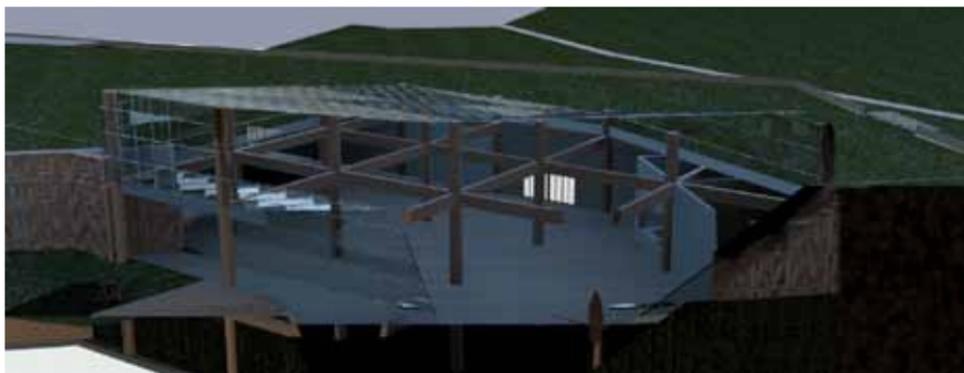


Lower Floor

Architectural Solution

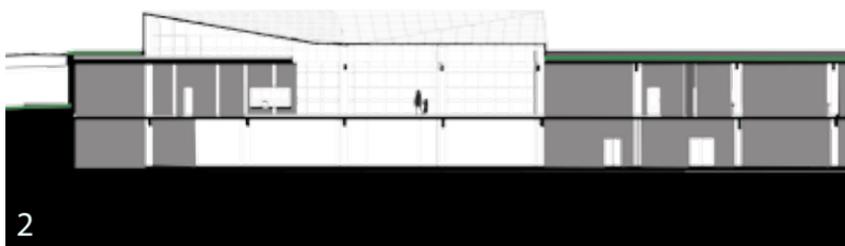
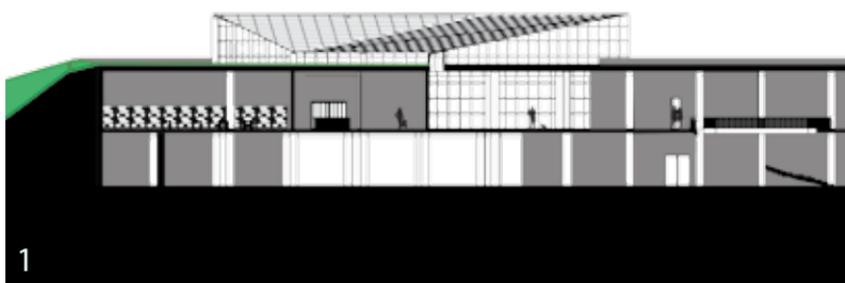
Sections

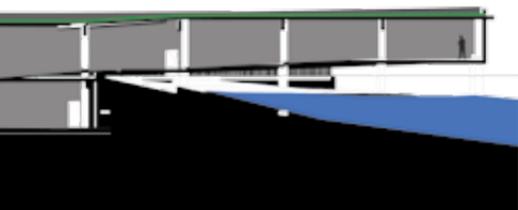
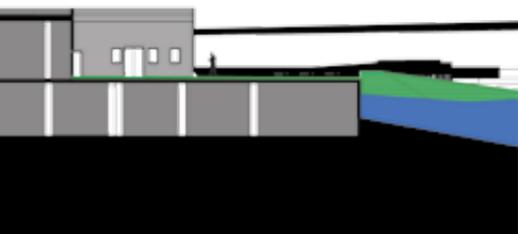




Architectural Solution

Sections

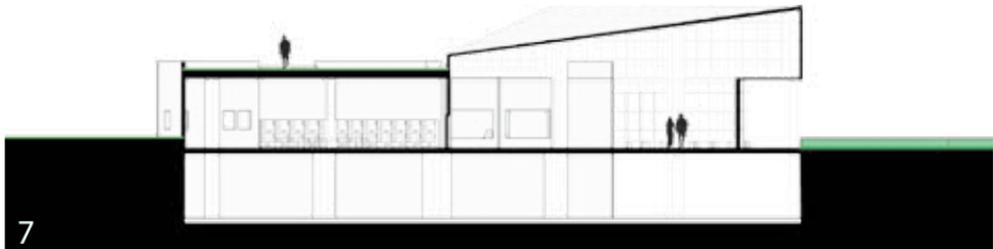
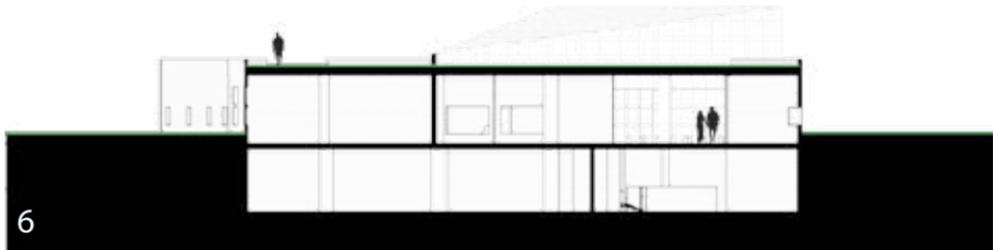
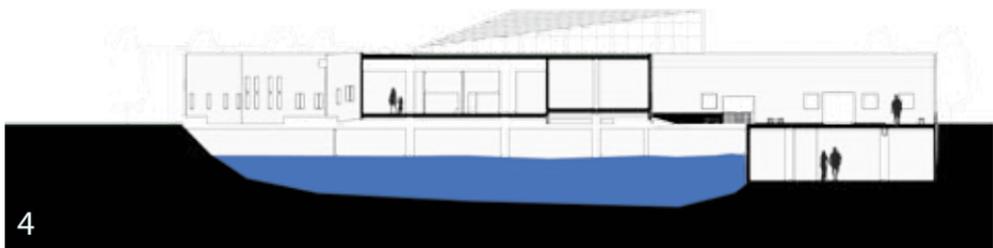
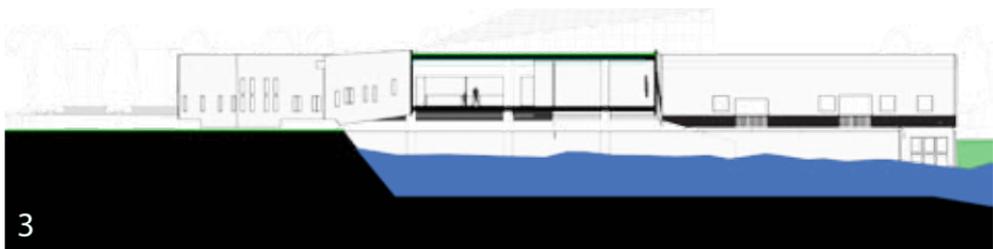




Architectural Solution

Sections





Architectural Solution

Renderings



Main Entrance.



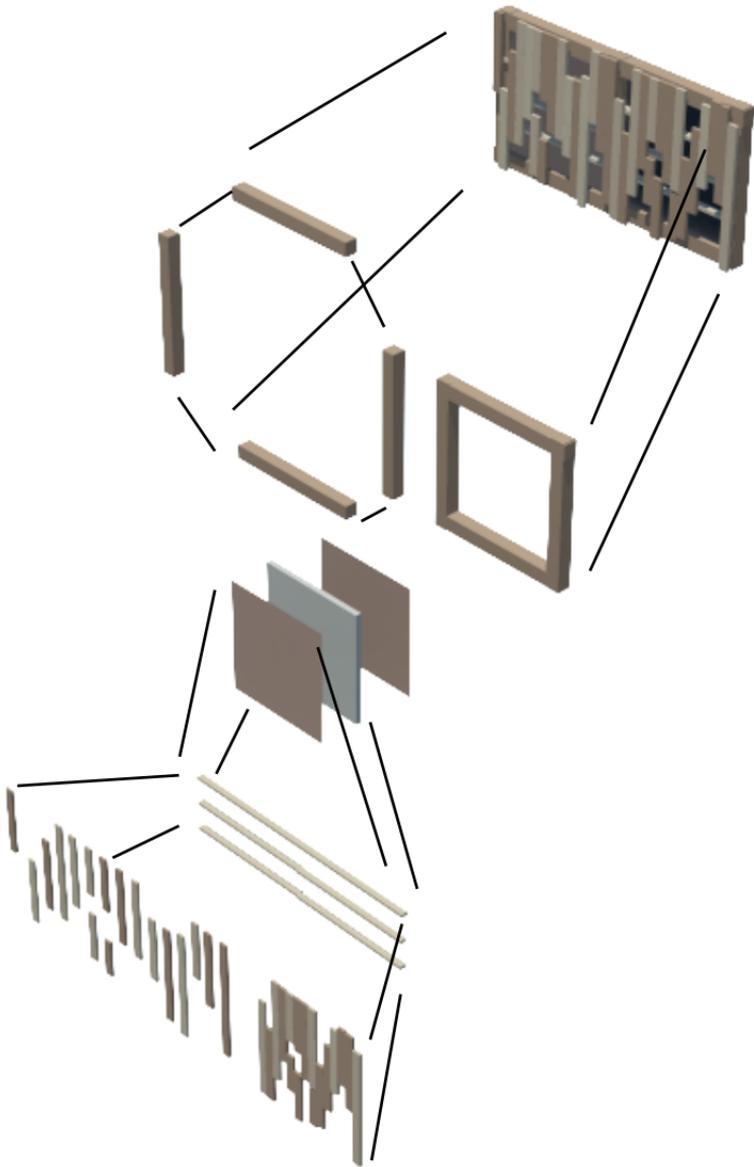
Interior Rendering of Lobby Space.



Interior Rendering of Back Entrance.

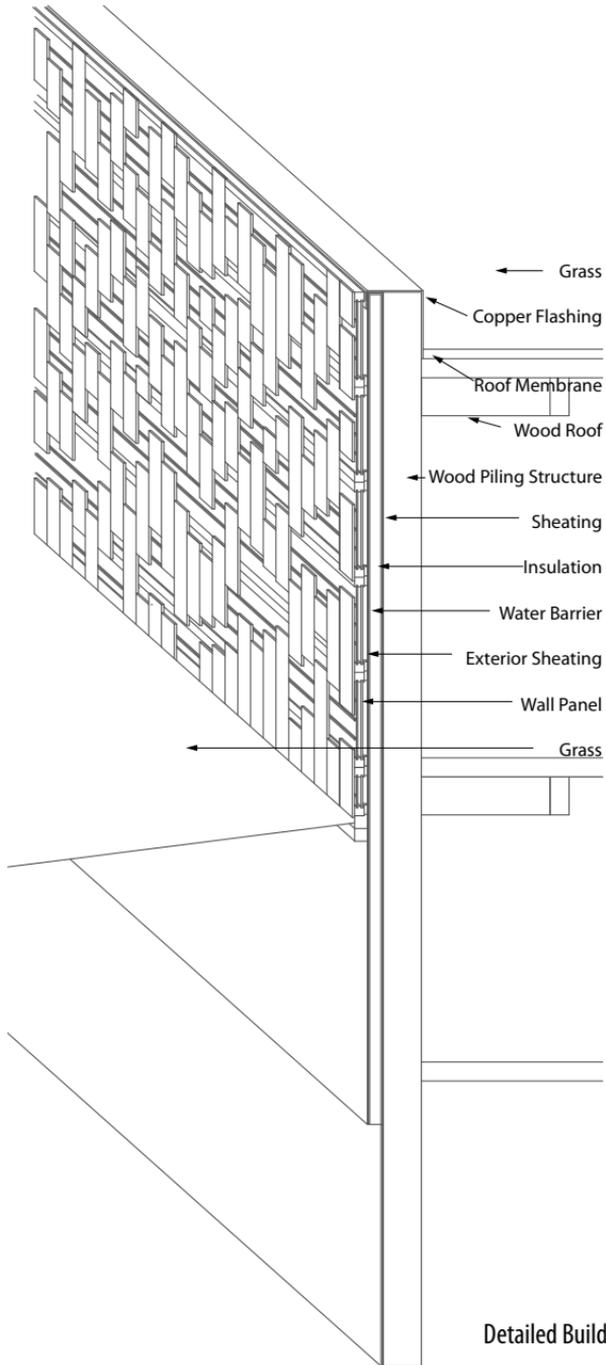
Cladding Solution





The cladding system is affected by the weather conditions. It is an assembly that is made up of wood siding that covers some areas and exposes other areas. This wood siding is used as either a sun screening device or semi-weather protection. Behind that is either glass or copper sheeting. The copper weathers at different rates because it is covered in some places and exposed in some. Over time it will create a unique weathering effect that will create a variety of colors. So, the building reacts directly to nature.

Cladding Solution



Detailed Building Wall Section



Physical Wall Paneling Section

Conclusion

The built environment affects the natural environment and the natural environment affects the built. By design with natural features in mind the built products at all scales, would be more sensitive to the natural environment and more economically, environmentally, and socially sustainable.

By rethinking the design of towns and buildings and adapting them to certain criteria it will foster a better community by enhancing its natural, economical, and humanistic features. By doing this it will create a more sustainable community that is more in touch with its natural surroundings.

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