Appendix G
University of Michigan Student Work

UNIVERSITY OF MICHIGAN

Taubman College of Architecture + Urban Planning
Master of Urban Design Program

Roy Strickland, *Director*
Lars Gräbner, *Lecturer in Architecture*

Students

Grace Ames
Reza Amindarbari
Scott Curry
Sravya Garladenne
Peter Hantes
Wenwen He
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Peter Robie
Kanchana Sokkalingam
Saritha Sudhakaran
Zhishan Wang
Ying Ye

UNIVERSITY OF MICHIGAN: STUDENT WORK FROM THE MASTER OF URBAN DESIGN PROGRAM

Students from the University of Michigan's Master of Urban Design Program (MUD) created design concepts as part of our process. Over a six week period, students analyzed information about the Township, reviewed input from the subcommittees and the public during the Community Workshops, and met with residents during a Design Workshop held on February 5, 2010.

The students analyzed the information they received, and generated design concepts for a few different areas of the Township. The goal was to help us re-imagine our community and create conversation for the 2010 Pittsfield Plan. The students' design concepts sought to preserve and accentuate the Township's beautiful natural landscape. The also sought to: preserve undeveloped land; incorporate principles of sustainable energy generation; create non-motorized transportation connections; strategically add density to areas to provide for transit opportunities; and create walkable nodes of mixed-use development.

THE LANDSCAPE

As a culturally and ecologically rich area, we wanted to approach urban design in Pittsfield in the way of landscape urbanism. The goal of the overall project is to make landscape the core of the Township's identity. It will be an economic driver, define infrastructure, and serve as an energy source for the Township. It will form the identity of the area and be used to create wonderful recreational experiences community members. There are three layers of proposed strategies to organize the landscape:

DEFINE A GROWTH BOUNDARY

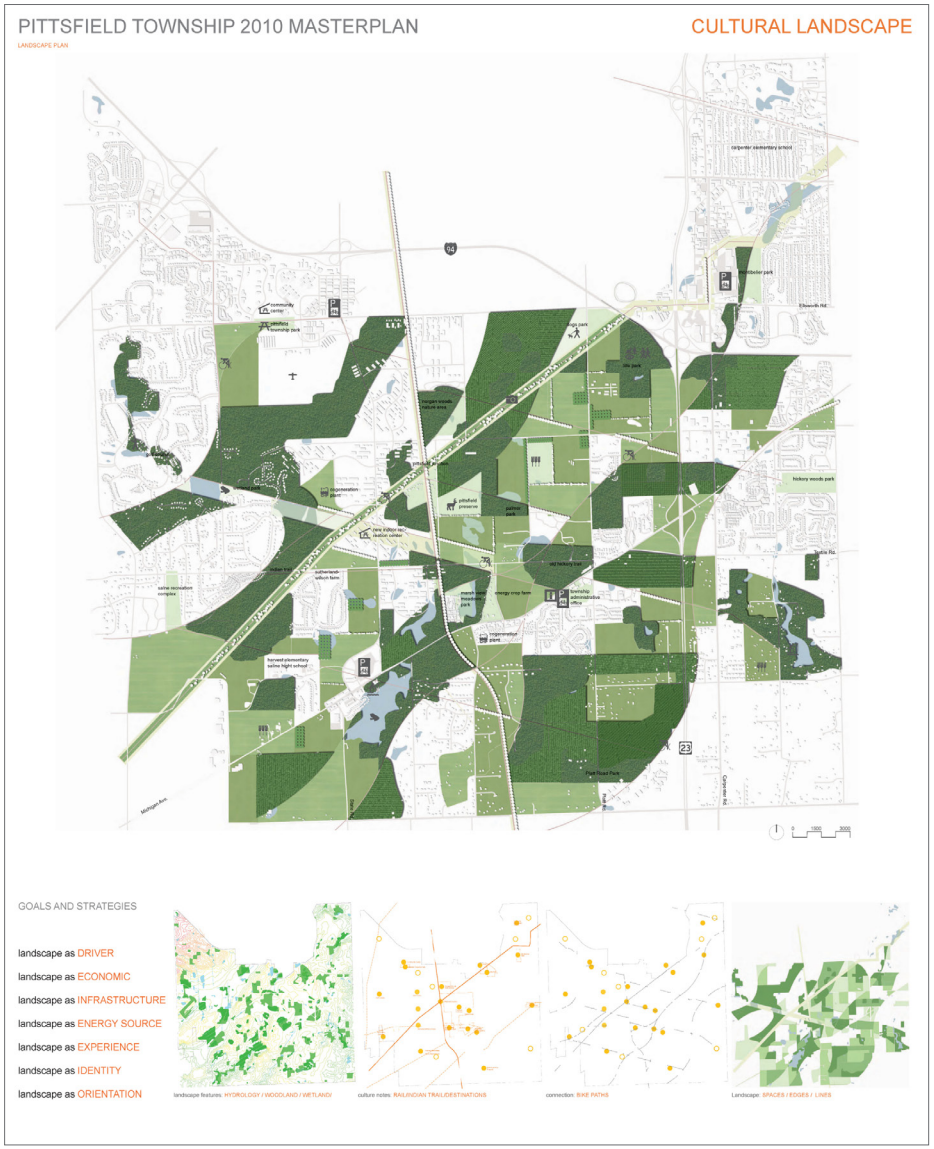
This is based on hydrology, and natural /developed features. These features establish the boundaries between nature and development.

CREATE CONNECTIONS

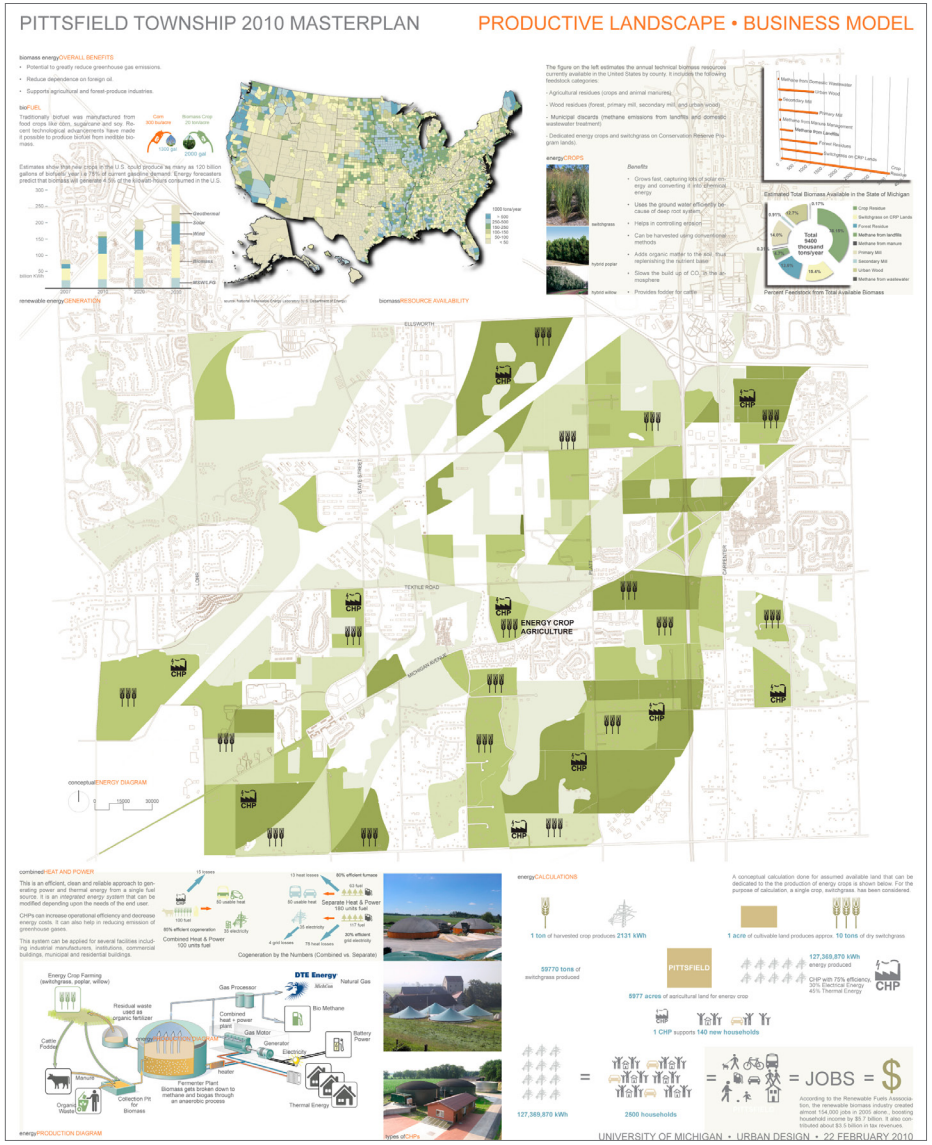
Establish a non-motorized path system and transit network to connect all cultural and historical nodes throughout the Township.

CREATE A PRODUCTIVE LANDSCAPE

Define existing natural features as well as prospective farmland for energy crops. Combined with the CHP development in the area, this will not only make the landscape a scenic feature of the Township but also turn the landscape into an energy source.



By Wenwen He



By: Saritha Sudhakaran

By: Jae-Hyun Oh & Reza Amindarbari

THE VILLAGES *(MICHIGAN AVENUE & PLATT ROAD)*

Scott Curry & Saritha Sudhakaran

The Villages project seeks to create a vibrant new Township Center with a new focal public space for the Township, and also to provide a model for sustainable housing solutions within a typical suburban subdivision site. The Villages proposal accomplishes this by creating two urban edge conditions along Michigan Avenue near the intersection of Platt Road. These urban edge conditions contain development, define the landscape, provide points of attraction, and create an identity for the Township.

PITTSFIELD TOWN CENTER

The proposal locates a medium-density, mixed-use Township Center at the intersection of Platt Road & Michigan Avenue where proposed regional greenways and dedicated bus lanes meet. The project also utilizes the existing Township administrative center as an anchor and attraction point for both civic and private development.

HARWOOD FARMS SUSTAINABLE HOUSING MODEL

The proposal provides a model for a sustainable, medium-density, suburban housing subdivision on the stalled Harwood Farms site. By extending productive landscapes through the site and utilizing energy crop opportunities to fuel district CHP plants the proposal suggests an entirely self-sufficient [in terms of electricity and heat needs] housing model to be employed throughout the Township.

THE GREEN COAST *(LOHR ROAD & TEXTILE ROAD)*

Peter Robie

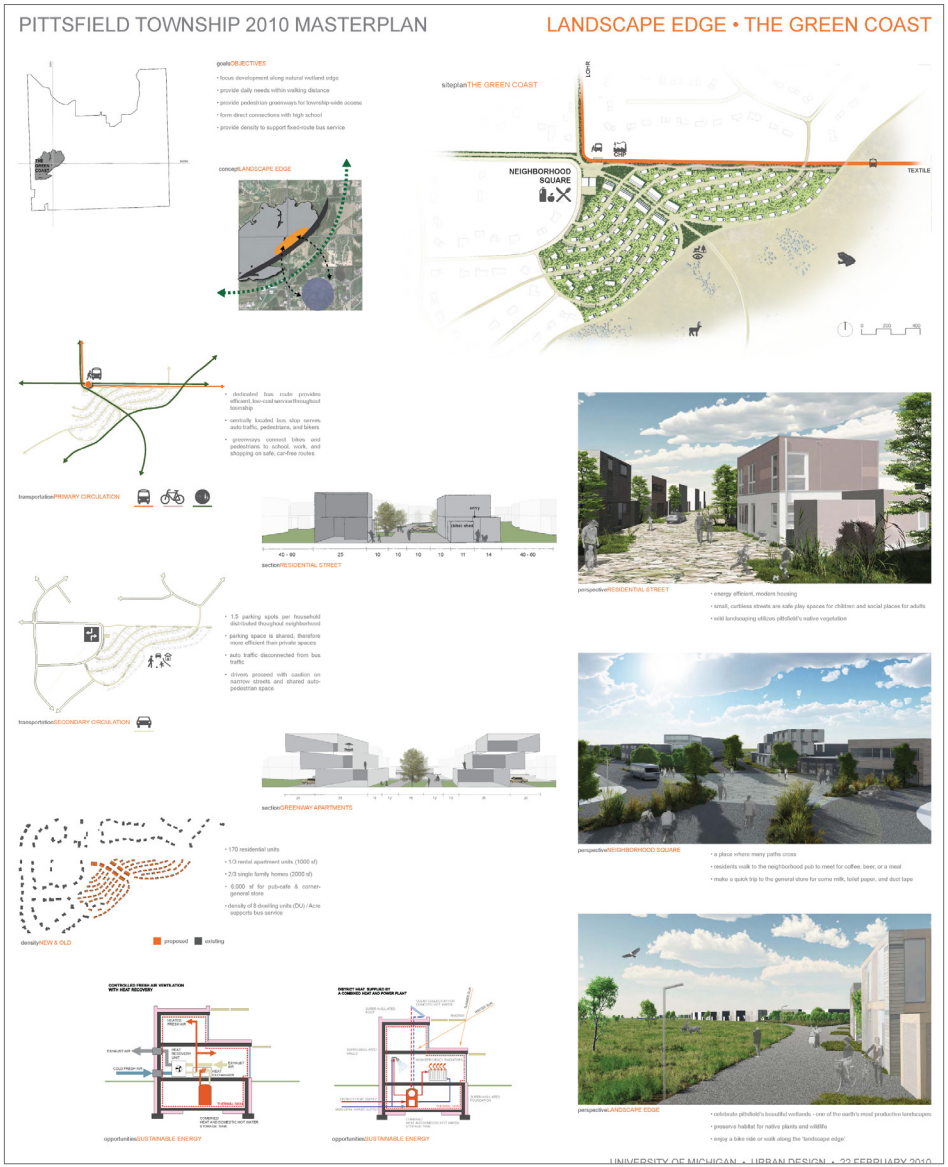
The Green Coast presents a new way to think about American suburban housing patterns. It proposes not another auto-oriented subdivision, but a neighborhood with daily needs in walking distance as well as bike and pedestrian paths to connect residents safely to more distant locations for work and shopping.

PRESERVATION OF THE ECOSYSTEM

The Green Coast neighborhood not only emphasizes preservation of the adjacent wetland, but also celebration of the valuable ecosystem services it provides. The edge of landscape and development allows residents to enjoy the wetland's beauty while preserving habitat for native plants and animals.

WALKABILITY

Intimate neighborhood 'play streets' are not made just for cars, but for everyone, walking, playing, or biking, enabling a safer and slower atmosphere for all users. The Green Coast's central neighborhood square offers connections to the proposed Pittsfield Country Bus route, as well as a pub and general store where residents can buy milk, bread, and eggs or meet with friends for coffee. Additionally, single-family houses are mixed with rental apartment units creating an accessible neighborhood which allows people of all ages and incomes to live in a comfortable and supportive community.



THE CONNECTIVE CORRIDOR *(WASHTENAW AVENUE)*

Sravya Garladenne & Peter Hantes

The Washtenaw Avenue corridor is an important yet fractured space within Pittsfield lacking any sense of identity and out of scale for pedestrians. We propose the following goals and strategies to reimagine Washtenaw as a diverse location within the township offering a balance between different uses and users.

THE AVENUE AS DESTINATION

Utilize the Avenue as a destination by identifying nodes and promoting diverse development within them in addition to treating these nodes as public points of gathering.

A UNIQUE IDENTITY

Create a unique identity for Pittsfield by reinforcing and celebrating the landscape.

PEDESTRIAN & BICYCLE FRIENDLY

Encourage pedestrian and bicycle use by installing sidewalks on the entire stretch of Washtenaw Avenue and incorporating public connection points across the Avenue and into adjacent neighborhoods.

SUSTAINABLE SYSTEMS INTEGRATION

Promote sustainable systems through the introduction of bioswales, preserving existing wetlands, and setting aside agricultural land for the production of fuel crops.

EFFICIENCY IN TRANSPORTATION

Introduce an efficient transportation system linking a dedicated bus lane with secondary uses of pedestrian and bicycle paths, car shares, and points of interest.

INSIDE OUT *(CARPENTER ROAD)*

Nana Bonsu Adja-Sai

The overarching goal is to enhance this site as a suitable environment for living, working, shopping and recreation. This is to create a larger framework for a comprehensive green and sustainable development for this focus area.

Integrate the three predominant usages (housing, shopping, and recreation) by deploying the landscape as a sustainable channel for connecting one domain to the other.

Make Carpenter Road safer for all users, especially the pedestrian. One measure is to provide sidewalks along the entire stretch of Carpenter Road as well as all along all main corridors of movement.

Create a separate bus right-of-way to facilitate speedy movement of passengers using the public transit system.

Reduce the coverage of impervious surfaces in this focus area by developing an extensive use of locally available landscape material (eg., plant materials).

Create a 'cultural park' between Ellsworth & I-94 east of Carpenter Road. This will serve as a bridge between the cinema complex and playground [behind Meijer and Target].

Create higher density mixed-use development in this focus area. This is but one measure to promote the integration of the various domains in this focus area.

Reconfigure and consolidate Miles of Golf and Kroger (alongside other consumer outlets) at Packard & Carpenter and develop it as a 'Lifestyle Center'. Next create a connection with the housing development with the use of various landscape features.

Promote the adoption of green-roof systems and leisure urban farms in compliment of the overall landscape design.

Aim to create green and sustainable shopping centers with the development of big-box retail outlets in mind.

THE GATEWAY *(ANN ARBOR-SALINE ROAD)*

Lei Pei & Kanchana Sokkalingam

The project attempts to redefine the suburban big box developments and their relationship with the surrounding residential neighborhoods. This is achieved through extensive landscaping that would minimize the hostility of the commercial developments and their parking lots. It proposes the creation of a sustainable local center that would have a healthy mix of local speciality shops, retail, restaurants and other public amenities alongside the big box shopping areas. A well laid network of shaded pathways and bike ways pierces through the landscape connecting the residential zone with the commercial core. The modified landscape between the big boxes will become community spaces for displays of art, festivals, and open markets. These spaces and events will bring people together to create a sense of community and thus, establish its identity as a "gateway" to the Township.

KNOWLEDGE ARCHIPELAGO

(STATE ROAD & MICHIGAN AVENUE)

Jae-Hyun Oh & Reza Amindarbari

The main goal for the Knowledge Archipelago is to limit sprawl. In the proposed plan, the following actions constitute the steps to be taken towards reaching this goal.

MIXED-USE DEVELOPMENT

Taking advantage of the existing diverse landscape types in the area is the main source of inspiration for re-organizing the area. Re-organization of this area includes interspersing new mixed-use commercial, residential, and office uses among the existing school and single-family housing. The schools in the area could be catalytic in providing the neighborhood with an activity center, near the intersection of State/Moon Road & Michigan Avenue.

RE-ORGANIZING THE ROAD NETWORK

This concept aims to increasing walkability by limiting the use of automobiles through modifications to the road system and capitalizing on the vibrancy of the mixed-use area. Automobiles could be disconnected from the residential neighborhood and school center. This would create a common open space between Saline High School and Harvest Elementary School. This would also require reducing the size of the parking lots and changing their character by better integrating them into landscape .

HIGH-TECH ARCHIPELAGO *(STATE ROAD)*

Ying YE

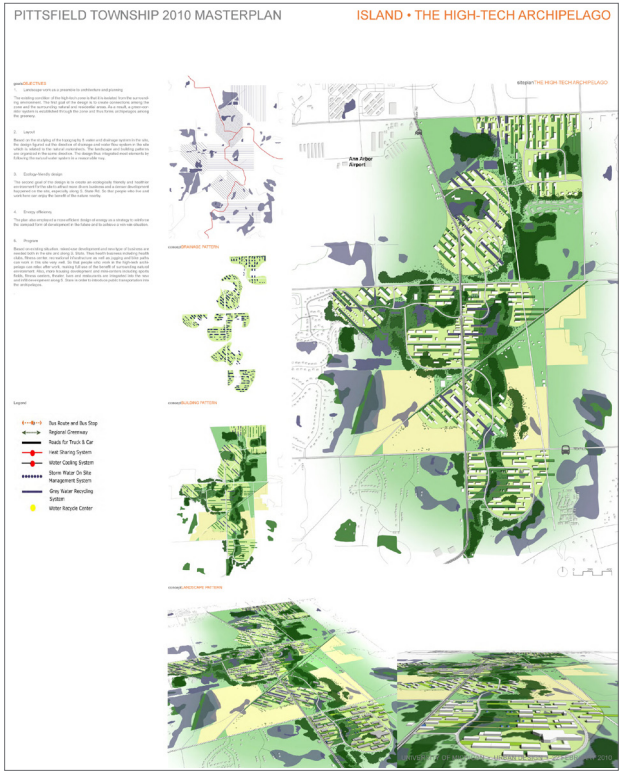
This concept hinges on identifying and defining a couple of archipelagos in the Township. Creating or rebuilding green corridors that run through the archipelagos would help compact and mixed-use development occur and allow energy efficiency to take place among the clusters of companies.

LANDSCAPE WORK AS A PREAMBLE TO ARCHITECTURE AND PLANNING

Currently, this high-tech zone is isolated from the surrounding environment. This design creates connections among the zone and the surrounding natural and residential areas. As a result, a green-corridor system is established and forms archipelagos among the greenery.

ECOLOGICALLY-FRIENDLY DESIGN

The design is sensitive to the direction of drainage and water flow on the site. The landscape and building patterns are organized in the same direction.



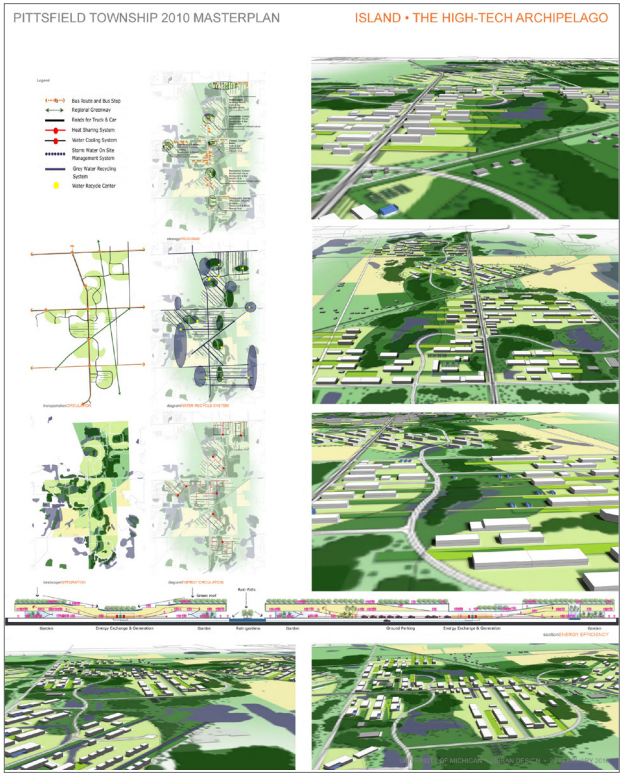
Creating an ecologically-friendly and environment for the site will attract diverse businesses and generate denser development, so that people who live and work here can enjoy the benefit of the nature nearby.

ENERGY EFFICIENCY

This concept also employs a more efficient design for energy consumption as a strategy to reinforce compact development.

MIXED-USE DEVELOPMENT

Mixed-use development is needed both on the site and along S. State Road. Health-related businesses (e.g., health clubs, fitness centers, recreational infrastructure, non-motorized paths) would complement the green landscape. They would enable people who work in the high-tech archipelago to relax after work in the surrounding natural environment. More housing and retail and entertainment opportunities should be integrated along S. State Road, to create the density needed to introduce public transportation into the archipelagos.

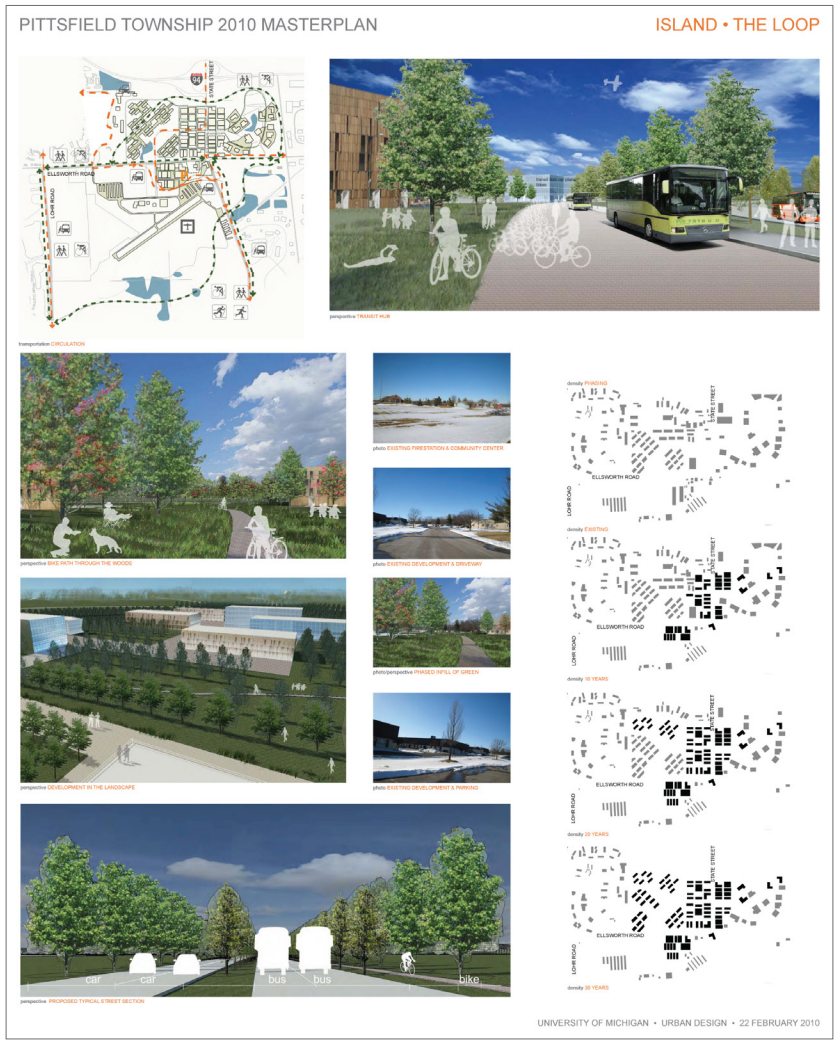


THE LOOP *(STATE STREET & ELLSWORTH ROAD)*

Zhishan Wang & Grace Ames

The State and Ellsworth site posed an opportunity for better connections between the wooded landscape of Pittsfield Township, to the local business parks, several residential neighborhoods, and municipal services. Furthermore, this area provides physical connections to regions beyond Pittsfield with a possible transit connection to the City of Ann Arbor and a walkable connection to the Ann Arbor Airport.

State and Ellsworth sets itself apart from the rest of the Township due to its importance as a point of networking for people, transportation, and economic development. Therefore, this concept establishes an identity for this place. The concept emerged a desire to build an identity through the connections of parks, place, and people through a multi-modal transit hub, a continuous wooded landscape, and an increase in density located in a clearing in the woods.



UNIVERSITY OF MICHIGAN
Taubman College of Architecture + Urban Planning
Master of Urban + Regional Planning Program

Larissa Larsen, *Associate Professor of Urban & Regional Planning and Natural Resources*

Students

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Amanda Irvine
Pramoth Kitjakarnlertudom
Tara Mather
Patrick McDonnell
Andrea Milne
Virgilio Sklar

UNIVERSITY OF MICHIGAN: STUDENT WORK FROM THE MASTER OF URBAN & REGIONAL PLANNING PROGRAM

Students from the University of Michigan's Master of Urban & Regional Planning program were asked to generate design concepts for a key site in Pittsfield Township. The site was selected by the class. It is located on the southwest corner of Textile and State Roads. The site is adjacent to a large single-family residential development and located along one of our most important business corridors, State Road. The site is currently undeveloped with a lush landscape and interesting topography.

Students' Concepts focused on:

- Preserving the integrity of the business corridor
- Creating walkable mixed-use development
- Integrating senior housing options to encourage aging in place
- Using natural on-site stormwater management techniques
- Protecting natural systems & local ecology

Initial Approach & Context

Goals

1) Design a mixed-use node that provides amenities for the entire Township, while fostering a neighborhood identity for Sweetwater residents and shop owners.

2) Increase connectivity to surrounding residential, commercial, educational, and recreational uses.

3) Preserve the unique ecological systems found on site, and use the natural features as springboards for design-based experience zones.

Site Inventory & Analysis

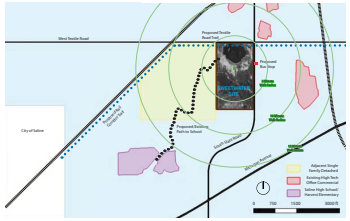
A giant Bur Oak tree is the focal point of the Northern Portion of the site, welcoming a grand boulevard entry point.

The site contains a natural wooded wetland to the South and a man-made wetland to the North. A rare Blandings Turtle was discovered in the southern wetland during a site visit. The complexity of the water ecosystems necessitates the incorporation of stormwater infrastrcuture that increases infiltration and retention while decreasing runoff.

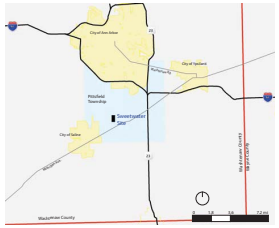
The site's sloping topography presents an opportunity for a unique design solution at the Northeast Corner. It also requires that street contours follow the perpendicular to the graded slope.

The proximity to schools and of to the high-tech corridor creates the opportunity for a mixed-use node that can become an amenity for all of Central Pittsfield township.

Local Context



Regional Context



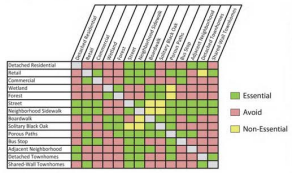
Residential Precedents

Proposed Circulation

Sweetwater Site -- Pittsfield Township, MI
Design Team: Le An, Peter Clemo, Virgilio Sklar
University of Michigan, Taubman College of Architecture & Urban Planning
UP 518 - Urban Design Workshop. Professor Larissa Larsen.. Winter 2010

Engaging the Site's Ecology

Adjacency Matrix



Rain Garden

Ageratina altissima
Asarum canadense
Anemone virginiana
Bromus species
Caltha palustris
Carex species
Elymus species
Geranium maculatum
Helianthus species
Heracleum maximum
Impatiens capensis
Lilium michiganense
Lobelia cardinalis
Lobelia siphilitica
Onoclea sensibilis
Parthenocissus quinquefolia
Sanguinaria Canadensis
Symplocarpus foetidus

Pond

Asarum canadense
Asclepias incarnata
Asclepias syriaca
Bromus species
Carex species
Cephalanthus occidentalis
Elymus species
Eupatorium maculatum
Eupatorium perfoliatum
Helianthus species
Lobelia cardinalis
Lupinus perennis
Silphium perfoliatum
Symplocarpus foetidus
Vernonia missurica
Zizea aurea

Woodland

Acer rubrum
Amelanchier arborea
Carpinus caroliniana
Carya ovata
Cephalanthus occidentalis
Hamamelis virginiana
Podophyllum peltatum
Prunus serotina
Prunus virginiana
Quercus alba
Quercus bicolor
Quercus rubra
Vaccinium species

Prairie

Aquilegia canadensis
Asclepias tuberosa
Aster azureus
Carex species
Echinacea species
Elymus species
Liatris spicata
Lupinus perrenis
Monarda fistulosa
Oligoneuron rigidum
Ratibida pinnata
Rudbeckia hirta
Schizachyrium scoparium
Silphium terebinthinaceum
Solidago speciosa
Sorghastrum nutans

Land Uses

- Detached Residential
- Compact Residential
- Community Center
- Natural Areas
- Retail
- Commercial
- Boardwalk
- Mixed Retail / Residential
- Roads / Paths

Buffers

Buffers will aide in slowing the flow of water through and across the site. While providing an attractive native landscape, buffers will also provide a travelway for wildlife.

Street Verge

In addition to rain garden species:

Asimina triloba
Carpinus caroliniana
Cercis canadensis
Cornus stolonifera
Gleditsia triacanthos
Gymnocladus dioicus
Ilex verticillata
Physocarpus opulifolious
Staphylea trifolia

Sweetwater Site -- Pittsfield Township, MI
Design Team: Le An, Peter Clemo, Virgilio Sklar
University of Michigan, Taubman College of Architecture & Urban Planning
UP 518 - Urban Design Workshop. Professor Larissa Larsen. Winter 2010

A Vibrant Neighborhood Emerges

SE Perspective of Site

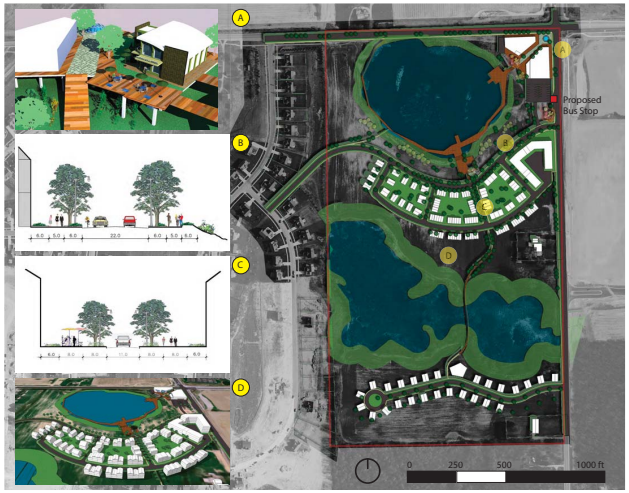
Summary Statistics

Total Residential:	159 units
Single Family Detached:	42 units, 198,450 sq ft
Townhome Style:	81 units, 148,330 sq ft
1 Stall Garage Townhome:	38 units
2 Stall Garage Townhome:	43 units
Condominium Style:	36 units, 43,270 sq ft
Retail/Restaurant:	84,570 sq ft
Commercial/Office:	32,580 sq ft
Community Rm/Fitness Cntr:	7,950 sq ft
Parking (Public/Private Spaces):	85/186
Compactness (excluding wetlands):	3.18 Dwelling units/acre

Conclusions

Even with ample wetland buffers, the Sweetwater site can support a mixture of uses, with a tradtiional neighborhood system of connectivity. The cul-de-sac pattern of suburban development is not necessary on the Northern portion of the site, allowing for pedestrian friendly streets that can accomodate stormwater retention and filtration features in the verge. By providing nodal entry points at key intersections with the surrounding community, the site will become a successful retail and commercial anchor for Central Pittsfield.

Site Plan, Street Sections, & Design Character



Sweetwater Site -- Pittsfield Township, MI
Design Team: Le An, Peter Clemo, Virgilio Sklar
University of Michigan, Taubman College of Architecture & Urban Planning
UP 518 - Urban Design Workshop. Professor Larissa Larsen. Winter 2010

The Oaks At Clearwater

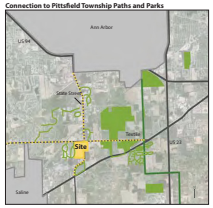
Chris Canna, Amanda Irvine, Andrea Milne
UP 518 - Professor Larson; April 2010

The Oaks at Clearwater Goals
- Preserve and embrace existing wetlands
- Provide age in place housing for Pittsfield Township residents
- Provide alternative connections to sourrounding landuses, nodes and natural areas

Pittsfield Township Context

Sweetwater Site: Existing Conditions

Connection to Pittsfield Township Paths and Parks

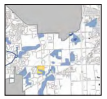


Housing
- Majority single-family, upper middle class
- Mixture of older farm houses and newer subdivisions
- Some multi-family housing
- Relatively consistent style

Introduction
Tasked with creating a plan for the Sweetwater site in Pittsfield Township, our group has developed a multi-phased strategy that we believe well reflects desires community. The delicate environmental nature of the site was a key consideration in the formation and design, resulting in the inclusion of many elements of storm water management and green building practices. The request for housing for the aging population in addition to the demographics of the area led our group to develop the majority of the site as housing for seniors at multiple stages of living independence and a community center for all of them to enjoy. The mixture of a small commercial center completes the site plan as it embraces both the existing wetlands and the built potential of the area.

Existing Conditions
The Oaks at Clearwater is a proposed development for the Sweetwater site at Textile Road and State Street in Pittsfield Twp, MI. The site currently has rolling topography surrounding a wetland pond, and is bisected by a wooded wetland area. We determined that the best land for developing was on the north area of the site, nearest Textile Rd, as well as a site across State St.

Community Resources
- Libraries
- Recreation Center
- Museum
- Senior Center
- Parks
- Community Centers
- Schools

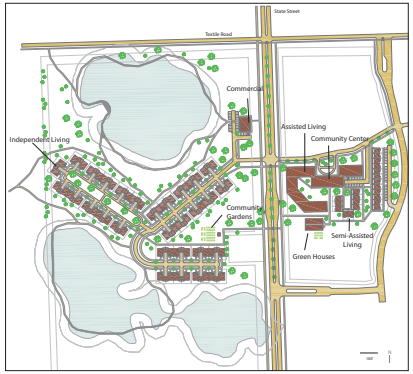


Natural Resources
- Within the Huron River watershed
- Low-lying wetlands
- Wooded areas
- Rivers and streams

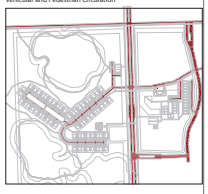
Greenways and Trails
- Many unconnected trails
- Not pedestrian-friendly near site
- Greenways have low groundwater infiltration
- Lacking necessary linkages to community resources

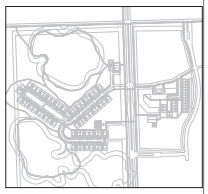
Commercial Areas (Nodes)
- Set-backs from street
- Only accessible by car
- Include large parking lots as frontage
- None within walking distance of Sweetwater site

Clearwater Site Plan



Vehicular and Pedestrian Circulation



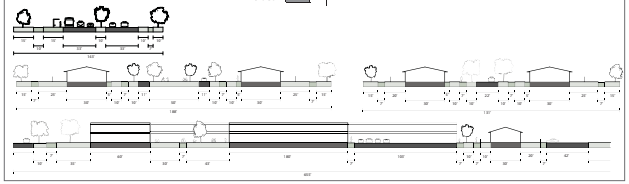


Adjacency Matrix

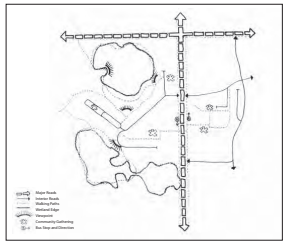
	Assisted Living Facility	Bike Path	Bus Stop	Commercial Buildings	Independent Living Homes	Main Roads	Neighborhood Gardens	Neighboring Residences	On-Site Road	Parking	Walking Paths	Wetlands
Assisted Living Facility												
Bike Path												
Bus Stop												
Commercial Buildings												
Independent Living Homes												
Main Roads												
Neighborhood Gardens												
Neighboring Residences												
On-Site Road												
Parking												
Walking Paths												
Wetlands												

Essential
Desirable
Unimportant
Avoided

Section Locations



Clearwater Residents



Development Summary

	Square Ft/ unit	Number of Units	Total Square Ft	Capacity	Parking Spaces
Independant	1200'	58	69,600'	116	116
Semi-Independent	900'	21	18,900'	32	30
Assisted	784'	100	92,400'	150	21
Commercial	1650'	3	4950'	varies by use	26
Bus Shelters	72'	2	144'	12	--
Garden Plots	100'/200'	40/8	5600'	--	--
Greenhouses	3,000'	2	6,000'	--	--

Resident Population

Independent Living
Residents 55+ with few or no mobility restrictions or healthcare needs.

Semi-Assisted Living
Residents with some mobility limitations and other periodic homecare needs.

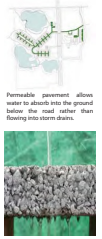
Assisted Living
Residents who need assistance with daily tasks such as bathing, dressing and taking medication.

Character Examples

Rain Harvesting

Directing water from the roof into a holding container saves rainwater for use in the lawn and garden a prevents excess runoff.

Permeable Surfaces



Permeable pavement allows water to absorb into the ground below the road rather than flowing into storm drains.

Bioswales

Bioswales positioned around wetlands slow the flow of water and allow harmful materials to settle out before entering sensitive ecosystems.

Rain Gardens

Rain gardens collect water in low lying areas and allow it to settle slowly into the ground while taking the place of traditional planters.

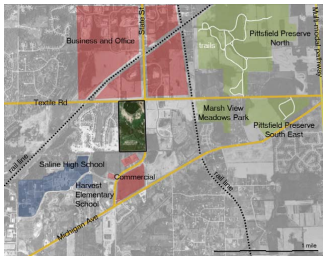
Green Roofs

Green Roofs absorb water, provide excellent insulation and prevent sunlight from reflecting into the atmosphere and rising temperatures.

Green System

These elements, along with the wetlands present on the site, mange stormwater runoff and prevent harmful particles found in the built environment from entering rivers and streams. They also slow the flow of water thereby lessen the threat of flooding during unusually heavy rain events. Proper water management also ensures that Clearwater residents will be able to enjoy the views and native species harbored by the wetlands.b

Pittsfield Township Sweetwater Site Plan **Context Maps**



The Sweetwater site plan incorporates a mixed-use development for senior citizens and aging populations in varying stages of mobility. The site plan provides a variety of housing options and services that allow residents to maintain independence in their daily activities. All residents can access the retail on the site through a network of pedestrian paths and roads.

The retail and office buildings are located on State Street, which is continuing a pattern of intense use along the corridor. The businesses and programs in these structures are meant to attract users from surrounding areas in order to make them viable.

Pittsfield Charter Township has made important steps in improving accessibility throughout the Township by building pedestrian and bicycle paths. The Sweetwater site plan continues this trend by providing a network of paths that connect the site to both residents and visitors of the site. By continuing the existing bike paths, a greater number of users could utilize the site and its amenities, while enhancing the site's connectivity to other areas.

Panoramic view of the Sweetwater site on its existing state

Demographics

POPULATION, 2000 Census: 30,167
Population density: 422.9/km² (1,095.4/mi²)
Median age is 32 years
Median household income: $61,262
Below poverty level: 9.1% of the population

AGE
24.0% Under the age of 18
11.8% From 18 to 24
26.6% From 25 to 44
18.9% From 45 to 64
5.7% 65 years of age or older

http://en.wikipedia.org/wiki/Pittsfield_Charter_Township,_Michigan

Proposed Phase I of Construction
Concentrated zone of mixed-use:
Retail, office, cottages – deli, coffee shop, hair salon, fitness center, etc.
Semi assisted living single family homes

Proposed Phase II of Construction
24-hour care, assisted living facility
Community center – indoor gardens, art and craft facility, guest housing for visiting family members

Proposed Phase III of Construction
Independent single-family homes for aging adults

Proposed Phase IV of Construction
Commercial two-story building for office space to continue the high technology corridor

Adjacency Matrix

Pittsfield Township Sweetwater Site Plan **Character**

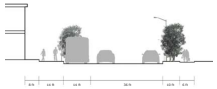
Project Goals

1. Design an assisted living community that promotes interaction and enhances quality of life
2. Incorporate existing natural features as organic elements of the site and community environment
3. Provide commercial/retail that fills niche uses to the local and surrounding community

Proposed Development

Mixed Uses: Establishing a mix of uses on site (retail, commercial, and residential) connects site residents with visitors to the site, and provides niche services to the surrounding community.

Cottage Community Development: Small homes organized around a central greenspace foster a community feel and encourage interaction among neighbors.



State Street Section

Community Green Space

Corner of State and Textile

Pittsfield Township Sweetwater Site Plan **Circulation Maps**

Vehicle Circulation Patterns

User Circulation Patterns

User 1: Sweetwater Resident

Paths along the inner courtyards provide the opportunity for spontaneous interaction with neighbors on sidewalks and front porches.

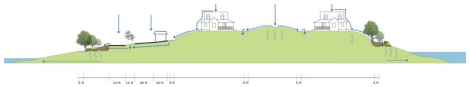
Residents must be able to access the community center from the paths for the events and facilities available.

User 2: Visitor

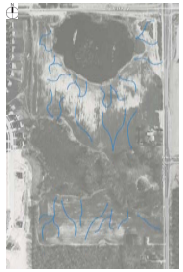
Those who drive to the site will most likely be employees working in the offices or individuals coming for the food and restaurant services or retail and commercial.

The paths around the wetlands will offer a pleasant environment for exercise and recreation, while not bringing excessive traffic into the community.

Central Site Section: Stormwater Management



Rain Garden Example



Water Runoff: Undeveloped

Water Runoff: Developed

In the Sweetwater site it is essential to properly address water runoff and preparation for high rain events. The recommendation for the Sweetwater site is to implement low impact development techniques. These techniques promote capturing water runoff thereby helping to reduce the buildup of toxins and sediment in the local and regional watersheds. The primary techniques recommended are rain gardens, rain channels, bio swales, and pervious asphalt.

Rain Gardens:
Are areas that allow water to collect and naturally filter through a series of plants, soil, and gravel and rock to effectively filter runoff prior to reaching the bio swales and eventually the wetland.

Rain Channels:
Are an effective method of moving water from the site to the bio swales while filtering toxins on the way to bio swales and the wetlands. Rather than working to retain water, the rain channels' primary purpose is to move water into the bio swale systems.

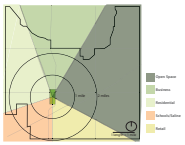
Bio Swales:
Are linear areas meant to allow water to infiltrate over longer periods of time. Often planted with sedges and shrubbery to help filter toxins, sediment, and effectively infiltrate of water. These will contain the majority of the storm water on site and provide adequate filtration to maintain the environmental quality of existing wetlands.

Pervious Asphalt:
Is a material that allows water to infiltrate through the road and into a rock bed reservoir rather than running across in a sheeting action. As with other methods this helps water to infiltrate through a more natural process, rather than directly into the local watershed.

Sweetwater A Community for Convenience and Conservation

Goals:

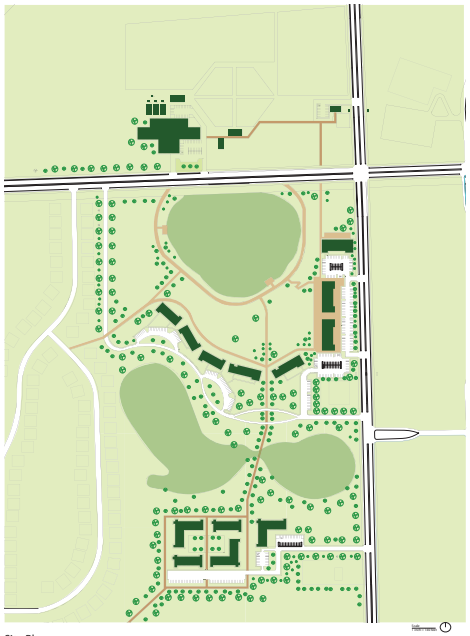
- Provide affordable and practical housing options with proximity to local services and amenities
- Incorporate services and retail opportunities that are needed and accommodate a range of different age groups
- Provide an urban agriculture center that draws people from outer areas into the community whilst serving as an anchor and educational space for the surrounding community
- Create safe spaces and pathways that connect the neighborhood with its surrounding schools, parks, services, etc...
- Create attractive, multi-modal roads that absorb traffic congestion and provide options for alternative modes of travel.



Context Maps

Street Section 1

Street Section 2



Site Plan

Baja, Glatas, McDonnell | University of Michigan | UP 518 - Larsen | April 2010

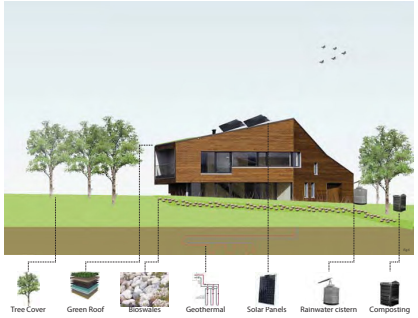
Hillside Housing (Winter)

Woodland Housing (Spring)

Mixed-Use on State Street (Summer)

Hillside Upscale Housing (Fall)

Accessibility



Environmental Considerations

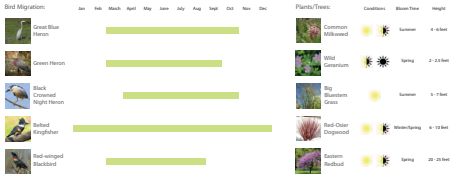
Our Sweetwater vision is to provide a healthy and environmentally friendly living opportunity for families and individuals of all socio-economic groups. We aim to connect Sweetwater to the existing community through pathways and services while also offering on-site amenities and affordable living options. The vision includes continuing development along the State Street corridor through retail, a variety of services, restaurants, and educational opportunities. Most of the development proposed does not currently exist in the area at this time. Additionally, all of the buildings and landscape will be "green" and incorporate environmentally sustainable systems and landscaping. The goal is to maintain as much of the natural landscape as possible while still providing equal housing and healthy living.

The community agriculture center will serve members of Sweetwater in addition to members of the Bicentennial Subdivision and other residents of Pittsfield Township and Saline.

Site Strengths:
- Proximity to the school
- Open land for development
- Community agriculture center and retail for families and kids will likely be accepted and used by the neighborhood
- Proximity to a surrounding neighborhood with families and children
- Good land for community agriculture

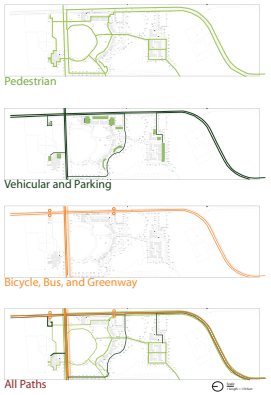
Potential Weaknesses:
- Wetland separates the housing areas
- The development is not a "seniors only" location and thus, seniors who want to live here must be willing to live in a community with children
- Natural park space is lost due to the development
- The proposal is along the tech corridor and does not include tech development

Site Analysis

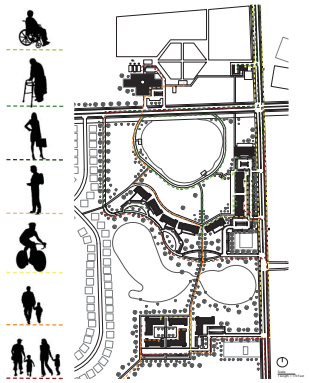


Native Bird and Plants

Baja, Glatas, McDonnell | University of Michigan | UP 518 - Larsen | April 2010

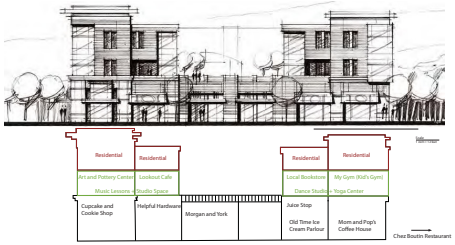


Circulation



User Study

Phasing



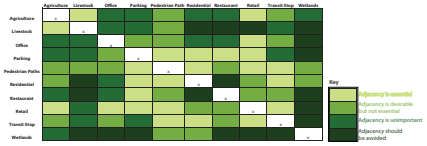
State Street Multi-Use Development

The terrain is a distinct feature of this site. It affects surface water flow and distribution and largely determines the suitability for development. Working with the terrain in the site we hope to preserve and compliment the natural wetland habitat to reduce the impact on the environment.

Existing Landscape

Proposed Remedy

Terrain



Matrix of Uses

Baja, Glatas, McDonnell | University of Michigan | UP 518 - Larsen | April 2010

Citing Images:

Page 2:

Hillside Housing (altered by Kristin Baja)- www.contemporist.com

Woodland Housing (altered by Kristin Baja)- www.jetsongreen.com

Mixed Used on State Street- www.mfa-eng.com

Hillside Upscale Housing (altered by Kristin Baja)- www.nvamoy.info.com

House in Environmental Considerations (altered by Kristin Baja)- www.archinspire.com

Bird Migration:

photo source: http://en.wikipedia.org/wiki/File:Great_Blue_Heron_in_Golden_Gate_Park.jpg

photo source: http://en.wikipedia.org/wiki/File:Butorides_virescens_at_Tarpon_Springs.jpg

photo source: http://stealthbigcitum.com/images/night-heron-black-crowned/r1608-night-heron-black-crowned.jpg

photo source: http://farm3.static.flickr.com/2649/3791069812_ad062257e1_o.jpg

photo source: http://en.wikipedia.org/wiki/File:Agelaius_phoeniceus_0110_taxo.jpg

photo source: Native Plant Nursery, http://www.nativeplant.com/

photo source: Native Plant Nursery, http://www.nativeplant.com/

photo source: Native Plant Nursery, http://www.nativeplant.com/

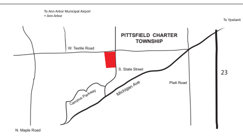
photo source: http://www.finegardening.com/CMS/uploadedimages/Images/Gardening/Plants/Cornus_stolonifera_sericea_Arctic_Fire_3g.jpg

photo source: http://www.flickr.com/photos/phoosena/2534604648/

Page 3:

State Street Multi-Use Development Sketch- Photo source: http://s2designgroup.com/ residential.php

Existing Landscape Image- Photo Credit Pete Clemo



BLUE HERON COMMUNITY

GOALS

1 | Create COHESION within the site + within the greater context of the COMMUNITY.

2 | Provide HOUSING + a unique living experience for SENIORS.

3 | Maintain the function of NATURAL SYSTEMS

COHESION

BLUE HERON COMMUNITY is a reimagining of the 72 acre Sweetwater Site in Pittsfield Charter Township, Michigan.

Utilizing the presence of natural features, Blue Heron Community incorporates 124 residential units into the existing rolling landscape.

Composed of 50 Single Housing Units [850 sq. feet] and 54 Two-and Three - Bedroom Units [1300 sq. feet], Blue Heron Community provides both assisted and independent living for seniors on the North side of the site.

A community center, walking pathways, boardwalk through the wetlands, viewing decks, and a fitness center are built into the design to highlight the importance of community and a sense of place among the residents.

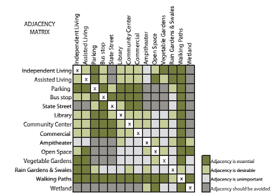
Phase II incorporates retail, restaurants, and a library into the south end of the site, offering amenities for residents, nearby workers, and visitors.

SITE INVENTORY

LILLIE PARK
Blue Heron Community helps to bring cohesion to Pittsfield Charter Township by incorporating the Lillie Park landscape into the design of the site and connecting surrounding neighborhoods through walking trails and preservation of existing natural features.

PITTSFIELD CHARTER TOWNSHIP CONTEXT MAPS | ROADS, WETLANDS + GREENSPACE

BLUE HERON COMMUNITY



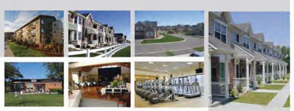
LISA DROGIN, LIZ DURFEE, PRAMOTH KITJAKARNLERTUDOM | APRIL 2010 | UP518 - LARSEN

AREA & FUNCTION

SITE TOTAL AREA= 3,165,608 SF

SINGLE HOUSING (850 SF / UNIT) = 42,500 SF (50 UNITS)
MULTI-FAMILY HOUISNG (1,300SF/ UNIT) = 70,200 SF (54 UNITS)
COMMUNITY CENTER = 13,500 SF
PLAYGROUND / SPORT FIELD = 56,290 SF
FITNESS CENTER = 6,500 SF
RETAIL / RESTAURANT = 107,000 SF

IMPERVIOUS SURFACE (ROAD & PARKING SPACE) = 20,7900 SF+ 85,200 SF
280 PARKING SPACE
50 ACCESSIBLE PARKING SPACE



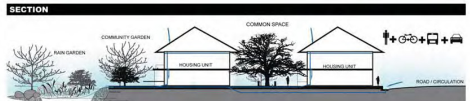
USERS

SENIORS (RESIDENTS)
MIDDLE-AGE PERSON (RESIDENTS)
TEENAGERS (VISITORS)
RETIALS' CLIENTS (VISITORS)

SITE PLANNING

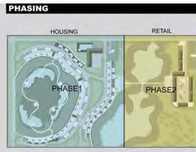
LINKAGE (HOUSING, BOARD WALK, WETLAND)

SECTION



CIRCULATION

PHASING



NATURAL SYSTEMS

The wetland currently provides stormwater management for the immediate and adjacent land as well as habitat for wildlife. A variety of Low Impact Development techniques are proposed to maintain and enhance these and other ecosystem services such as carbon sequestration and storage. LID design manages and restores water quality by reducing water and pollutant runoff at its source rather than allowing it to run over the landscape. Incorporating raingardens, bioswales, and permeable pavement into the design of the community will aid in maintaining and enhancing the current pre-development hydrological and ecological function of the site. Further, reducing the amount of water entering municipal stormwater systems will provide stormwater management cost savings and reduce the risk of exceeding sewer capacity.

PERSPECTIVE 1 | AMPITHEATER FOR COMMUNITY GATHERING

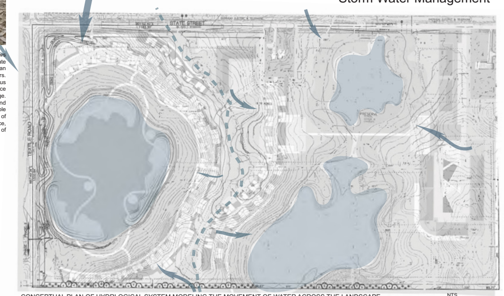
PERSPECTIVE 2 | VIEW OF DRIVE AND PERMEABLE SURFACES

PERSPECTIVE 3 | BIORETENTION SYSTEMS + PERMEABLE PAVERS IN PARKING LOT

Permeable Pavement allows surface water to percolate through the soil rather than run directly into storm sewers. Concrete pavers or porous asphalt can significantly reduce runoff and peak discharge. Suitable for parking lots and low traffic areas, permeable surfaces reduce the volume of water requiring conveyance, thus reducing the cost of stormwater management.

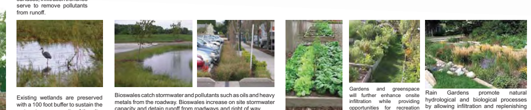
Infiltration trenches are linear troughs designed to hold and then drain stormwater within 3 days of a rain event. Infiltration trenches consist of a perforated PVC pipe surrounded by a rock, gravel, and sand-filled trench. Commonly constructed adjacent to impervious surfaces, infiltration trenches serve to remove pollutants from runoff.

Storm Water Management



CONCEPTUAL PLAN OF HYDRLOGICAL SYSTEM MODELING THE MOVEMENT OF WATER ACROSS THE LANDSCAPE

NTS



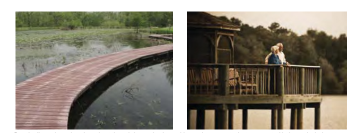
Existing wetlands are preserved with a 100 foot buffer to sustain the water storage capacity of the site. This preservation is important not for preserving as well as to provide opportunities for residents and visitors to enjoy the site's natural features and wildlife.

Bioswales catch stormwater and pollutants such as oils and heavy metals from the roadway. Bioswales increase on site stormwater capacity and detain runoff from roadways and right of way.

Gardens and greenspace will further enhance onsite infiltration while providing opportunities for recreation and social interaction.

Rain Gardens promote natural hydrological and biological processes by allowing infiltration and replenishing groundwater. A medium of sand, topsoil, organic leaf compost, and clay enable infiltration greater than 1.5 inches/ hour. Colorful native plants make this bioretention system particularly aesthetic. Photo Source - ooooby.com

SECTION | RAIN GARDEN



Boardwalks and gazebos throughout the existing wetlands provide a unique opportunity to connect with the ecological systems in the Blue Heron Community. Whether bird watching or basking in the Great Black Oak tree's shade, residents and community members will feel welcome to connect with the natural world as they meander the walking pathways throughout the site.

Native Plants should be used for rain gardens and landscaping because they have evolved and adapted to the local climate, can tolerate harsh conditions, and typically require less maintenance. Native woody shrubs and species with deep fibrous roots are more effective in cleaning and filtering water.