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2013

Island Commons Sustainability Center

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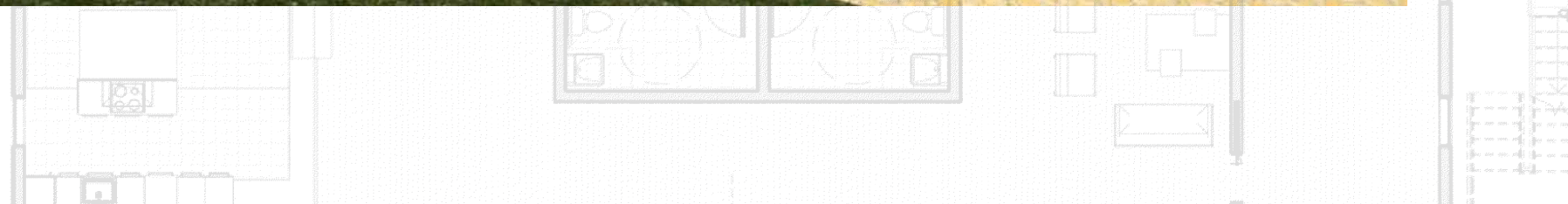


Island Commons Sustainability Center

Community Partner:
Island Commons

Academic Partner:
Feinstein College of Arts and Sciences

Spring 2013



The Roger Williams University Community Partnerships Center

The Roger Williams University (RWU) Community Partnerships Center (CPC) provides project-based assistance to non-profit organizations, government agencies and low- and moderate-income communities in Rhode Island and Southeastern Massachusetts. Our mission is to undertake and complete projects that will benefit the local community while providing RWU students with experience in real-world projects that deepen their academic experiences.

CPC projects draw upon the skills and experience of students and faculty from RWU programs in areas such as:

- American Studies
- Architecture and Urban Design
- Business
- Community Development
- Education
- Engineering and Construction Management
- Environmental Science and Sustainability
- Finance

- Graphic Design
- Historic Preservation
- History
- Justice Studies
- Law
- Marketing and Communications
- Political Science
- Psychology
- Public Administration
- Public Relations
- Sustainable Studies
- Visual Arts and Digital Media
- Writing Studies

Community partnerships broaden and deepen the academic experiences of RWU students by allowing them to work on real-world projects, through curriculum-based and service-learning opportunities collaborating with non-profit and community leaders as they seek to achieve their missions. The services provided by the CPC would normally not be available to these organizations due to their cost and/or diverse needs.

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1. The Project is being undertaken in the public interest.
2. The deliverables generated hereunder are intended to provide conceptual information only to assist design and planning and such are not intended, nor should they be used, for construction or other project implementation. Furthermore, professional and/or other services may be needed to ultimately implement the desired goals of the public in ownership of the project served.
3. The parties understand, agree and acknowledge that the deliverables being provided hereunder are being performed by students who are not licensed and/or otherwise certified as professionals. Neither RWU nor the CPC makes any warranties or guarantees ex-

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May 2013
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 Sustainability 401 | Professor Loren Byrnes

Introduction

Island Commons, a non-profit organization, is a consortium of local agencies that supports sustainability in all its forms on Aquidneck Island. Working with representatives from Aquidneck Land Trust, St. Mary's Church Portsmouth, Aquidneck Grower's Market, Sustainable Aquidneck, ecoRI, Inc., and other participating community members, Island Commons helps the Aquidneck Island community achieve a more sustainable and connected experience to one another and the natural world. They do this by offering incubator farms for up-and-coming farmers, a community garden, individual family gardens, a farmers' and artisan's market, a nature trail system and sustainable education programs.

Located on one of the most important tracts of land in Portsmouth, RI, and surrounded by agricultural fields, woodlands and watershed areas, the 75-acre St. Mary's Church complex serves an important historical and spiritual community.

In the spring of 2013, students from Professor Loren Byrne's Sustainability 401 course, *Working Towards Sustainability*, worked in teams to research best practices and to create conceptual designs for Island Commons including a sustainability center, an environmentally sensitive trail and sustainable agriculture production. The final proposals and plans have been organized within this document.



The weekly winter farmers market
inside St. Mary's Old Parish House.

St. Mary's Old Parish House Rehabilitation

Project Description

The 70+ acre property at St. Mary's contains a new Parish House, constructed in 2012, and additional buildings used by the parish. The 1927 Parish House on the property continues to be used today for a farmers market and education programming. The 1927 Parish House is expected to undergo rehabilitation in order to serve new purposes including, but not limited to, farmers'/artisans' market space, meeting rooms, a cafe/eco-friendly coffee shop, a kitchen, classrooms, exhibition space and a small residential unit.

In order to begin planning for these changes, Island Commons requested that a programmatic design be completed for the structure. The student group compiled a conditions summary with recommendations to inform the design as well as a set of rehabilitation standards and guidelines to respect the historic context of the building. They also completed research to inform Island Commons about possible funding for the project and possible educational programming for the new classrooms. The aforementioned work can be found at the end of this report.

An initial site visit was completed to familiarize the student group with the site and the community. The team surveyed community members and spoke with Rector Pamela Mott

regarding the idea of future development at St. Mary's. Rector Mott is a strong advocate of the Island Commons undertaking and feels confident that St. Mary's is an idyllic location for a sustainability center.

After reviewing the completed surveys, it was determined that most community members also supported the idea of a sustainability center. Certain members were concerned about funding, noting that the new Parish House was just completed; however, the Old Parish House falls on the land owned by the Sarah Gibbs Land Trust and, as such, funding the rehabilitation does not fall responsible to St. Mary's Parish.

A second site visit was later completed, at which time the group was given a tour of the Old Parish House by Lisa Lewis and Kyle Hence, two of the stakeholders from Island Commons. The tour was coordinated through David Monroe, who remained the group's primary contact. Throughout the site visit, the group members discussed the wants and needs of Island Commons regarding the rehabilitation of the Parish House. The program of the new building was confirmed at this time, and the group finalized its ideas for the design and the project.



St. Mary's Old Parish House,
built in 1927.

St. Mary's Old Parish House Rehabilitation

Architectural History

Designed by the renowned architect Richard Upjohn, St. Mary's Church has always been an Episcopalian community. The first services were held in the building during Advent of 1843, prior to the property changing ownership. The church and over 80 acres of land were then donated in 1847 by Sarah Gibbs in a "humble thank-offering to God for innumerable bounties of His Providence and Grace."¹

In 1908, the Church School was added to the complex and in 1927 the Parish House was constructed. 1936 saw the addition of the Rectory, and classrooms were added to the Parish House in 1959 (the rear addition). The new Parish House was designed by Newport Collaborative Architects and all construction was completed in the fall of 2012.²

¹ <http://www.smcportsmouth.org/about-us/>

² <http://www.smcportsmouth.org/about-us/>



The Old Parish House is currently used for a farmers market and education programming.

St. Mary's Old Parish House Rehabilitation

Existing Conditions Report

Interior

The interior of the 1927 Parish House is almost holistically inauthentic, with the exception of a few character-defining features, such as the “bridge room” fireplace on the first floor and the central great hall. The basement is presently filled with miscellaneous items, and it can be assumed that the structure is the only authentic material left.

The ground floor is organized around a central great hall. Much of the materiality used in the peripheral rooms is inauthentic. Furthermore, much of the ground floor is not compliant with ADA code. Since the Parish House is a quasi-public building, all public spaces must be handicapped-accessible. The second-story spaces are similar to the first, in that the materiality is largely inauthentic. Based on observation, the structural members and framework within the building is in good condition.

Because there is so little authentic fabric remaining in the building, the stakeholders are less concerned with restoring the interior to historical accuracy. As such, it is advised that existing historical features, such as the fireplace and the central great hall, be incorporated into a new interior design aimed to fulfill the program determined by the stakeholder organizations.

Whenever possible, historic materials should be maintained or reused within the structure. Finally, all public spaces within the interior must be redesigned to fit ADA code.

Interior Rehabilitation Recommendations

CRITICAL:

- Restore all interior spaces to be ADA Compliant.

Low:

- Remove all inauthentic fabric and redesign interior space to fit program.

Exterior

Unlike the interior, the exterior maintains much of the historic fabric, particularly with regard to massing and materiality.

- The roofing structure appears to have biological growth and moisture infiltration on some of the shingles, all of which needs to be removed. It is advised that the flashing be investigated and, likely, reinforced.



The windows are in varying states of disrepair. Many require repainting and replacement of rotting sills.

- The gutter system is inauthentic and slowly degrading; it is, as such, advised for a new gutter system to be installed. As Island Commons is intended to become a sustainability center on Aquidneck Island, it provides the opportunity to lead by example with regard to sustainable building design.
- Any new construction should utilize “green” roofing methods.
- The chimney on the main structure should be restored. From distant observation, it appears as though the brickwork needs to be repointed, and the atmospheric staining needs to be removed.
- The window systems around the building remain in varying conditions. Many of the sills, particularly along the rear addition, are rotting and need to be replaced. There are also panes of cracked glass around the building that should be replaced; finally, all cracking or peeling paint should be removed and the mullion or framing systems should be repainted.
- All exterior doors appear to be inauthentic and should be replaced to mimic the historic shingle style. The peripheral stairwells also appear to be later additions, as their massing is not in harmony with the rest of the main structure; however, these stairwells have since become a part of the local image of the Parish House. It should be determined by the stakeholders and architects of the final project whether these stairwells should be maintained or removed.
- There is also the potential for outdoor space that can attract people and advocate for sustainable lifestyles. Further research into outdoor space design should be completed.

Exterior Rehabilitation Recommendations

CRITICAL:

- Replace rotting window sills.
- Install new gutters.

MODERATE:

- Remove staining and growth from roof/chimney.
- Repoint chimney.
- Replace cracked panes of glass.
- Reinforce flashing.

Low:

- Repaint window framing systems.
- Replace inauthentic doors/hardware.

Based upon observation, documentation and information regarding the intended program, it is our opinion that the building's exterior should be restored to historical accuracy with particular attention given to the main facade. For the interior, we recommend maintaining the massing of the central great hall but redesigning the interior spaces to fit the intended program. Because the vast majority of the interior is inauthentic and because new uses are intended for the building, it is not necessary to restore the interior to historical accuracy.

Furthermore, as the Parish House will function as the center for Island Commons, it maintains the unique opportunity to be a community leader and advocate for sustainable rehabilitation and construction. It is highly recommended that the project be completed utilizing recycled materials, alternative energy sources and minimal waste construction as much as possible.



As a quasi-public building, the public spaces must be redesigned to be ADA compliant.

St. Mary's Old Parish House Rehabilitation

Zoning Ordinance

Pursuant to the zoning ordinance for Portsmouth, the land that the Parish House rests upon is zoned for present construction as R-30 Residential, meaning that the land is a residential zone with a minimum lot size of 30,000 square feet. However, the existing land use comprises open space, agricultural land, vacant/cemeteries and institutional. The zoning ordinance notes that all existing uses of the land shall not be compromised but that further development may be limited.¹

For future use, the land that the Parish House rests on is zoned as low-medium density residential, implying that the land can be subdivided into 3/4-1 acre lots intended for single family housing. This area falls within the Watershed Protection District. It should be noted that there are buffers of open space zoning surrounding St. Mary's Pond that are presently zoned for open space; in the map delineating future uses, this land remains as open space.²

¹ http://www.portsmouthri.com/townplanner/documents/Zoning_Ord_08_31_08_w_Amends_Thru_3_28_11.pdf

² http://www.portsmouthri.com/townplanner/comp-plan/documents/Attachments_Comp_Plan_TOC-Map20.pdf



The grounds behind the Old Parish House.

St. Mary's Old Parish House Rehabilitation

Secretary of the Interior's Standards

Should the stakeholder organizations choose to pursue the rehabilitation of the 1927 Parish House, it is recommended that the project adhere to the Secretary of the Interior's Standards for Rehabilitation to be eligible for the 20% federal historic tax credit. Should Rhode Island renew the state's historic tax credit, there is the possibility of a state 10% tax credit.

In order to be eligible for specific tax credits and grants, certain standards must be met and regulations adhered to. It is suggested that all financing be researched prior to commencing construction in order to complete the project in compliance with all standards.

St. Mary's Parish complex is eligible to be nominated for the National Register of Historic Places, and it is recommended that such a nomination be completed. Listing on the National Register can provide more funding as well as protection against development and contamination of the historic fabric of the property and buildings.



Students from Sustainability 401 visit the 1927 Parish House to complete the existing conditions report.

St. Mary's Old Parish House Rehabilitation

Proposed Designs



1. Proposed exterior design for the renovated Parish House.

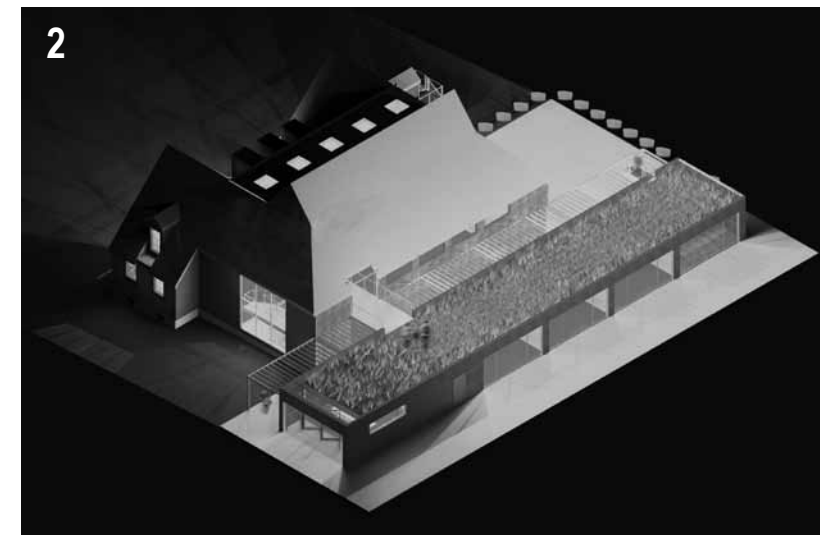
2. Proposed area outside of the new kitchen in the renovated Parish House.



- 1. Proposed public seating and meeting area.
- 2. Proposed cafe area.
- 3. Proposed entryway and atrium.

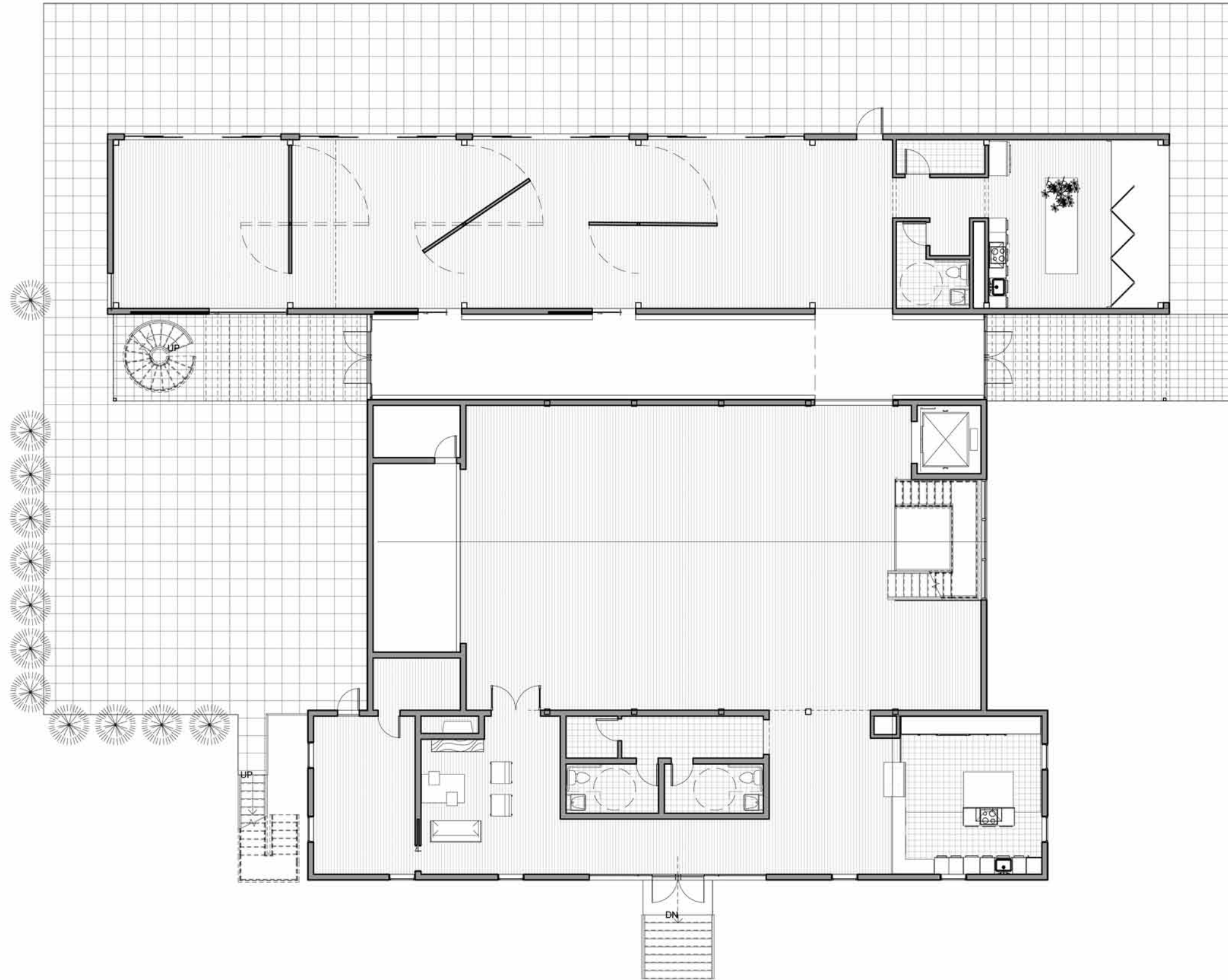


Proposed rendering
for the Parish House.

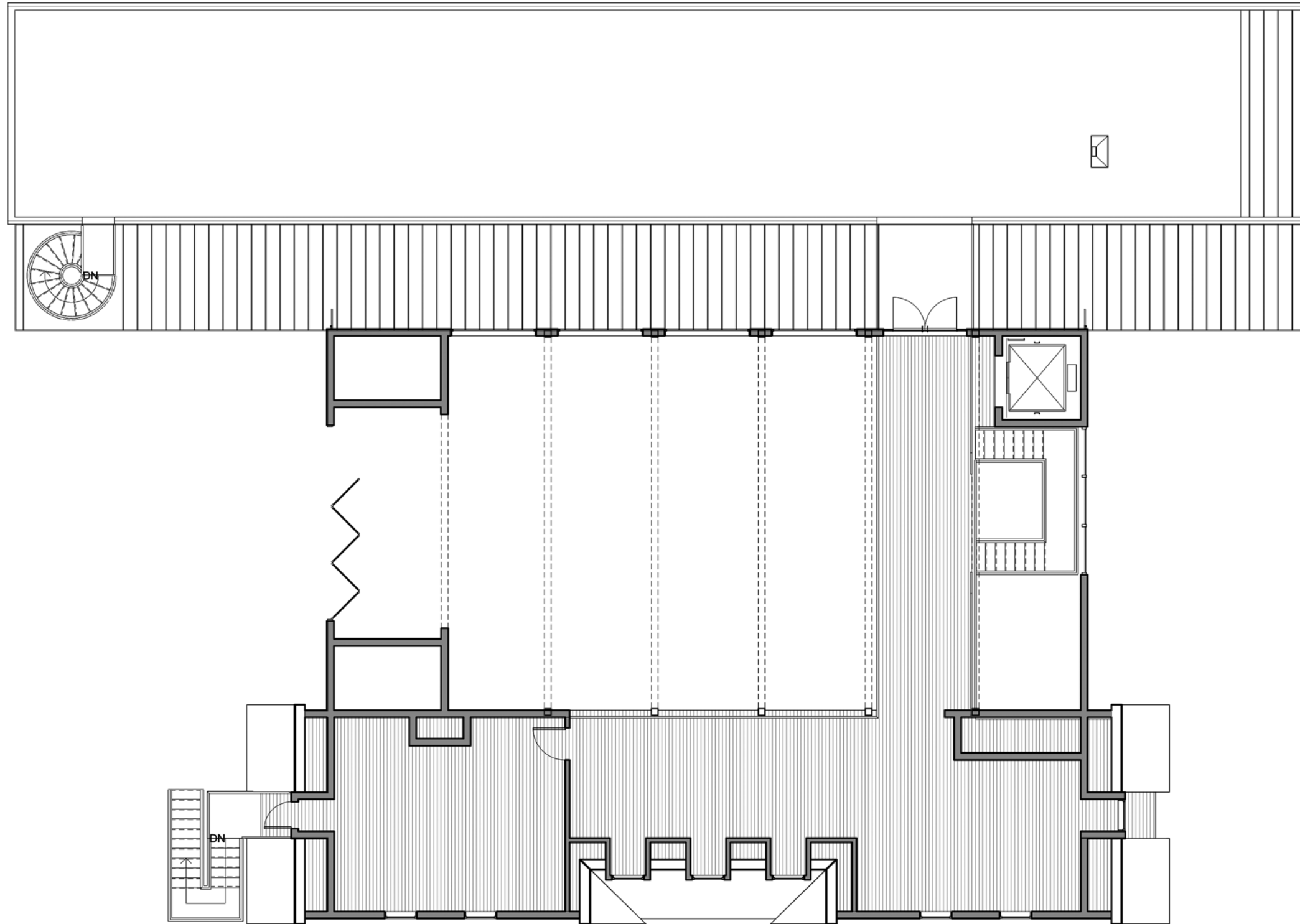


1. The exterior back wall and grounds of the proposed building.
2. Aerial perspective showing proposed roof garden.
3. Accessible side entry of the proposed Parish House.

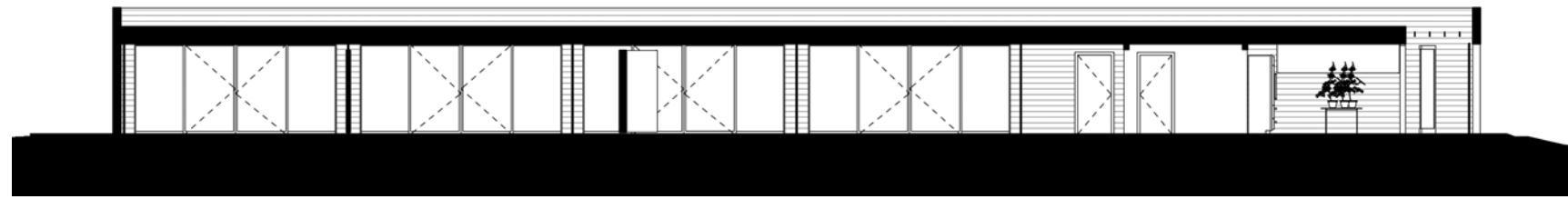




First floor



Second floor



Section drawings for the Parish House.





Section drawings for the Parish House.



Planning for a Trail System at Island Commons

Project Description

The property at St. Mary's contains two parcels of land: one parcel is owned by St. Mary's, and the other has been optioned for purchase by the Aquidneck Land Trust.

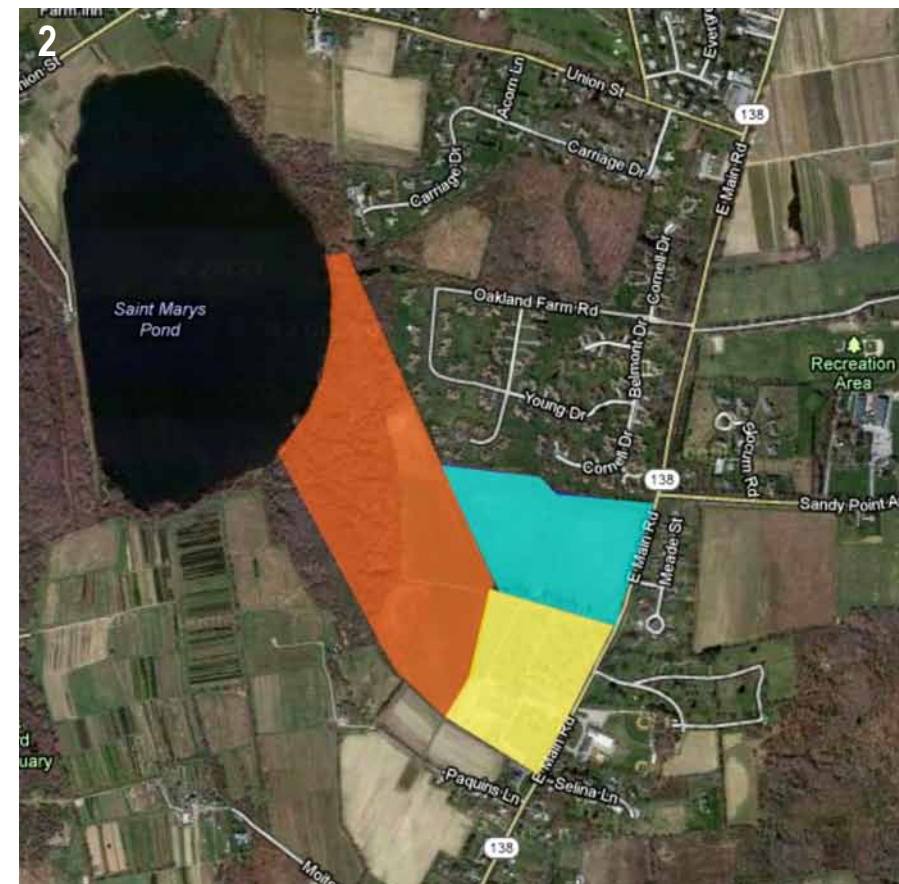
When planning for a trail system on site, the group was asked to design an aesthetically pleasing, universally accessible trails system on the pre-existing property for the center which would act as "sanctity" and peaceful spaces with minimal manipulation of the grounds. The team was asked to incorporate native plants, which would create new sustainable ecosystems, and to develop information stations that would inform visitors about the ecosystem and environment at St. Mary's. The team was also tasked with finding ways in which local artists could contribute sustainable related artwork to the site.



Current cut trail path on the St. Mary's property in Portsmouth.

Planning for a Trail System at Island Commons

Existing Conditions



- Land that is currently owned by the Aquidneck land Trust
- Land that is currently owned by St. Mary's
- Current campus of St. Mary's Episcopal Church

1. St. Mary's Episcopal Church.
2. Map depicting the current division of 70 acres of conserved land at St. Mary's.



1. Existing entryway A

2. Existing entryway B



Planning for a Trail System at Island Commons

Perspective Renderings



1. Proposed entryway A

2. Proposed entryway B

Proposed path for the trail system at St. Mary's in Portsmouth.



Due to the possibility of a change of ownership with that land, we chose to make a trail that could be implemented onto the current land trust site, but could also go onto the site owned by the church

The new trail system at St. Mary's Church allows individuals and visitors to interact with the environment, rather than destroying the existing land. The system simply follows the perimeter of the land.

Within the trails, there are five information boards explaining different topics relating to sustainability and leading a more environmentally friendly lifestyle.



Site map of proposed trail system. Red dots represent trail entrances (as seen in the Perspective Renderings section). Blue dots show the location of information boards.

Planning for a Trail System at Island Commons

Suggested Vegetation

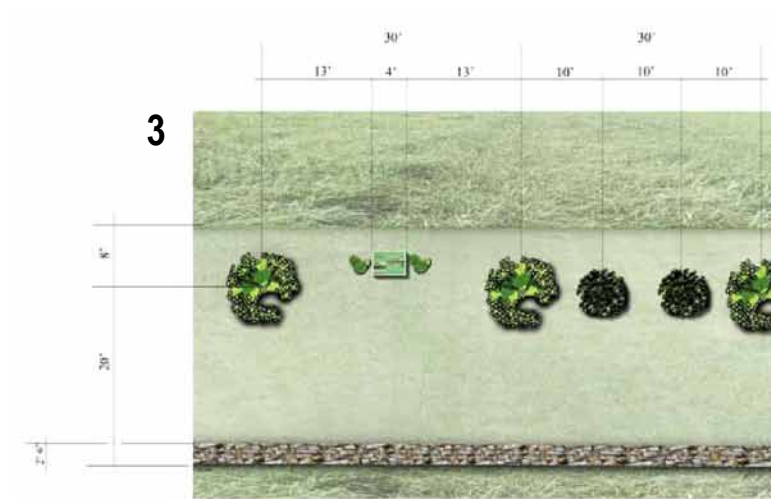
Rhododendron Plants

These plants are often used for their aesthetics in landscape design. Rhododendrons can grow to a variety of sizes, but can easily be managed to stay at a constant size. When blooming, the rhododendron can be a variety of colors. For this path system, keeping the rhododendren at a size of five feet tall, six feet wide and six feet long is appropriate.

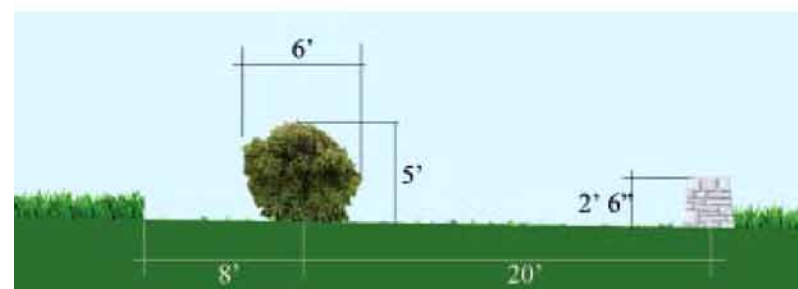
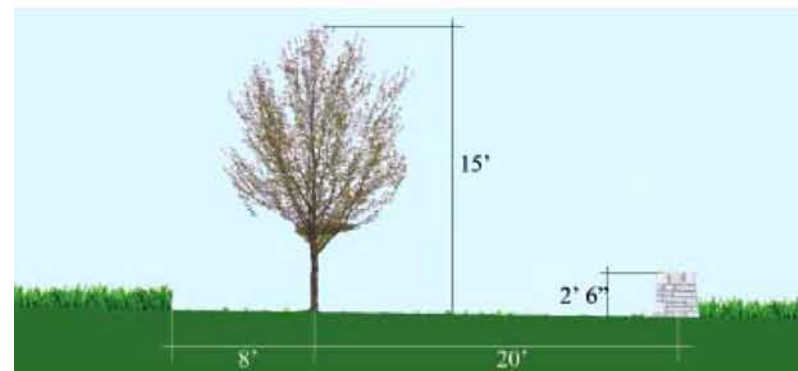


Laceback Elm Trees

Laceback elm trees have rapid growth and can adapt to any soil habitat. These trees were first used in landscape design between the 18th to the early 20th century. They are resistant to wind and can adapt to a wide range of climates. When the tree blooms, leaves turn a dark red. The color of the tree will complement the colors of the rhododendron plants. The trees will need to be managed to maintain a constant height of fifteen feet.



1. Rhododendron
2. Laceback elm tree
3. Suggested dimensions of the plants.



Planning for a Trail System at Island Commons

Information Station Renderings

BUYING LOCALLY

Local Purchasing is a preference to buy locally produced goods and services over those produced further away. It is often thought as a positive goal, “buy local”, that parallels the phrase “think globally, act locally”.





TEN REASONS WHY YOU SHOULD BUY LOCAL...

- 1) **Tastes and looks better:** The crops are picked at their peak. Livestock products are processed in nearby facilities. Farmers usually have a direct relationship with processors, overseeing quality.
- 2) **Better for you:** The shorter the time between the farm and your table, the less likely it is that nutrients will be lost from the fresh food.
- 3) **Preserves genetic diversity:** Livestock diversity is higher where there are many small farms.
- 4) **Safe:** Unique kind of assurance when looking a farmer in the eye at the farmers market.
- 5) **Supports local families:** Farmers that sell directly to the consumers get full retail price for their food.
- 6) **Builds a community:** When buying direct from a farmer, you’re engaging in a connection between eater and grower. Knowing farmers gives you an insight to the seasons, land, and food.
- 7) **Preserves open space:** When you buy locally, you are doing something proactive to preserve our working landscape.
- 8) **Keeps taxes down:** Farms contribute more in taxes than they require in services.
- 9) **Benefits the environment and wildlife:** Well-managed farms provide ecosystem services. They conserve fertile soil, protect water sources, and sequester carbon from the atmosphere.
- 10) **An investment in the future:** By buying locally, you are helping to ensure that there will be farms in your community tomorrow.

LOCAL FOODS 101

- Transitioning over to buying and eating locally is a very big transition that could potentially be a hard one. It can also be a transition that can be made over a long period of time.
- One needs to keep in mind that you are getting better tasting food that is also a lot healthier for you and at the same time you are helping out and supporting local farms and businesses.
- When eating locally, you NEED to know what's in season. This will make the trip to the local farmers market easier.
- Most of all, find a farmers market that is best suitable for you so you can stick with buying locally and not break the good habit.



By adding information boards to the trail, visitors will have an interactive and educational experience.

Sample information boards are found on the following pages.



BUYING LOCALLY

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**Aquidneck
Land Trust**

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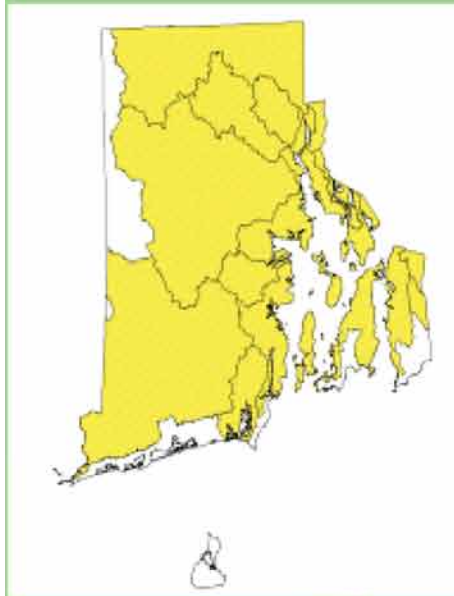
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WATERSHED MANAGEMENT

A **Watershed** is an area of land that is drained into the outlet of a river, stream, estuary, lake, or another body of water. Every single plot of land is on one watershed or another.



DIFFERENT WATERSHED MANAGEMENT GROUPS

- | | |
|--|------------------------------|
| Tomaquag Brook-Pawcatuck River Watershed | Upper East Passage Watershed |
| Aquidneck Island Watershed | Blackstone River Watershed |
| Woonasquacket River Watershed | Kickemuit River Watershed |
| Salt Ponds Watershed | Narrow River Watershed |
| Hunt River Watershed | Taunton River Watershed |
| Saugatucket River Watershed | Ten Mile River Watershed |
| Pawtuxet River Watershed | Wood-Pawcatuck Watershed |
| Sakonnet River Watershed | Buckeye Brook Watershed |
| Westport River Watershed | Narragansett Bay Watershed |
| Warren River Watershed | |



HOW TO GET INVOLVED IN A WATERSHED NEAR YOU

- You can make a contribution.
- Join their emailing list.
- Join their print mailing list.
- You can volunteer; you can adopt-a-spot on the watershed.

INCUBATOR FARMING

Incubator Farming is most commonly known and discussed in context as an Incubator Farm Program. The programs are designed special for young people who want to go into organic farming, but find that access land is too large in scale and intimidating. Programs like these would help the younger generation find a small amount of land, about an acre that they would be able to farm independently from the government.



“You can’t sustain yourself if you can’t feed yourself, local food gives the entire American nation greater strength.”

- Debbie Bost, Cabarrus County Extension director in North Carolina

Why Incubator Farms

- Presents learning opportunities with 100% hands on experience for the public, for educational use and apprentice training.
- Investing in the food supplied by your incubator farm, you are able to avoid price gouging, reduce waste and lastly, eat locally from the food in your backyard knowing it’s direct source.
- Community expansion
- Enforces and welcomes the idea of buying and eating locally
- Programs typically include initiatives to support farmers, protect farm-lands and create sustainable local food systems.
- Can be grown all year round with use of a greenhouse for colder seasons

What Can You Grow?

This depends on the farmer, or individual preference and of course location. For the north-east climate, popular and appropriate items to grow might include:

Vegetables:

squash
cucumber
potatoes
beets
leeks
onions
garlic
peas
broccoli
cauliflower
leaf lettuce
spinach
kale
corn
various beans

Fruits:

blueberries
ccantaloupes
cerries
cranberries
grapes
nectarines
peaches
plums
rasberries
strawberries
watermelon
apples

Herbs:

arugla
basil
fennel
garlic
mint
nettle
oregano
parsley
thyme



COMPOSTING

Composting is a process in which raw materials are used to create a final organic material that can later be used to grow plants. There are multiple ways to compost: vermicomposting, aerobic composting, and anaerobic composting.

Vermicomposting Bin Example Process



Things to Include (and if they contribute carbon or nitrogen):

Vegetative kitchen scraps	Nitrogen
Dead houseplants	Nitrogen
Fresh grass clippings	Nitrogen
Manure from different animals	Nitrogen
Aquarium water	Nitrogen
Leaves	Carbon
Hedges prunings	Carbon
Brown Garden Debris	Nitrogen
Newspaper	Carbon
Dryer Lint	Carbon
Wood Ash	Carbon
Coffee Grounds	Nitrogen
Weeds	Nitrogen
Straw or hay	Carbon
Egg Shells	Neither
Corn Cob	Carbon

Things NOT to Include:

- Diseased Plants:** Adding into compost can spread disease
- Gypsum Wall Board:** could contain paint and other toxins
- Paper:** Colored inks and special photo papers can contain metals
- Meats, Dairy Products, Bones, and Fish:** Smell, decompose slowly, and attract animals to compost piles
- Road Side Materials:** Grass and other organic materials may contain petroleum residues, toxins, and nonbiodegradable materials
- Certain Animal Manure:** Manure from animals such as dogs, cats, pigs, and reptiles may contain dangerous pathogens and parasites

VERMICOMPOSTING

Vermicomposting is composting with the use of redworms to break down materials and is used often with the use of food waste. The use of worms turns food scraps into valuable soil amendment called worm castings. Those castings mix with soils and assist plants with nutrients absorption.



How You Can Get Involved

Vermicomposting is simple and can be done almost anywhere. There is no smell and vermicomposting can reduce decomposition time dramatically. It is very easy to set up your own worm bin!

1. Create a bin: A plastic bin with holes drilled into all sides works best
2. Bedding: This can consist of almost anything, including newspaper, which will be eventually eaten by the worms.
3. Getting and Feeding the Worms: Placing the worms on the top and outside of the pile will allow for the worms to settle in and find their own place to live.
4. Maintaining the Bin: Make sure the ingredients are moist and that the environment is ideal for worm growth and production of castings.



ORGANIC vs. INORGANIC

“Organic’ is a labeling term that denotes products produced under the authority of the Organic Foods Production Act. The principal guidelines for organic production are to use materials and practices that enhance the ecological balance of natural systems and that integrate the parts of the farming system into an ecological whole.

- USDA National Organic Standards Board



Organic farming uses many different techniques of farming practice and produce care. They differ in practice from conventional farming in a few ways.

Conventional Farming	Organic Farming
Use chemical fertilizers to increase plant growth.	Use natural fertilizers like manure and compost to help soils and plants.
Spraying synthetic insecticides to reduce pests and disease.	Use unordinary techniques such as mating disruption and traps or implementing certain types of insects and birds to reduce pests and disease.
Control weeds growth with use of herbicides.	To help with weed control, techniques such as rotating crops, tills, hand weeding, and mulch are used.
Growth hormones and animal antibiotics to keep animals healthy and free of disease.	Focusing on animals' environments is more important than enhancing the actual animal. Giving them access to outdoors, organic food, and clean housing increases their productivity and decreases disease.



Different Levels of Organic

- 100% Organic:** Foods that are made with 100% organic ingredients.
- Organic:** Products that contain at least 95% organic ingredients.
- Made with Organic Ingredients:** Foods that contain 70-94% organic ingredients.
- Other:** Products that have less than 70% organic ingredients.

Products that are 100% organic or organic can use the seal shown on the right. Made with Organic Ingredients can list up to the three ingredients on the front of their package.



How You Can Get Involved

Organic farming and organic products are something that anyone can be a part of. Any farmer can turn their farm into an organic farm, a process that takes three years. For people who are not farmers, there are many ways to support organic farmers and organic products. Visiting local farmers markets and checking for USDA organic seals are good ways to make sure you eat organic.



Sustainable Gardening at Island Commons

Project Description

The goal of the sustainable gardening project was to provide the Island Commons Community Garden with an overall plan for expanding the current community garden site. This was accomplished through various aspects of work.

Using AutoCAD, a site plan was drawn to give a dimensional layout of the available area for the new garden plots. The team researched native plants, types of compostable materials, sustainable irrigation systems and solar wells.

On weekends, the team volunteered to help with preparing the garden for the upcoming growing season. We planted 100 asparagus plants and put up trellises for beans and other vegetables.



The current Island Commons Community Garden located at St. Mary's in Portsmouth.

Sustainable Gardening at Island Commons

Recommended Plants

Food production is a major goal of this dynamic agricultural program, and Island Commons wishes to utilize the land to provide fruits, vegetables, nuts and herbs for years to come. The group investigated the different types of these edibles and developed a list of recommended plants that would best fit the environmental conditions of this particular area.

Bushes and Shrubs

Recommended bushes and shrubs include blueberries, raspberries, strawberries and blackberries.



1. Kale currently growing in the Island Commons Community Garden.

2. Volunteers assist with planting at the community garden.

Trees

Fruit trees can be planted along the border of the property or in an orchard with other trees. Trees that are known to produce high yields of food in New England are: apples, allstar (yellow peaches), pears, plums and cherries.

- **Apples:** All apples require some form of cross pollination for fruit set. When selecting varieties be sure to select at least one different type to ensure cross pollination (i.e. 3 Red Delicious and 1 Cortland). Crab apples are great choices for cross pollination because they have a longer bloom period and a larger production of flowers.
- **Allstar (yellow peaches):** Most peaches are self-pollinating, however we recommend two varieties to increase the potential for good fruit set.
- **Pears:** Most pears need a cross pollinator for fruit set. Most varieties are able to cross pollinate each other (i.e. Bartlett will pollinate Bosc and vice-versa).
- **Plums:** Most require a cross pollinator, however, even with self-pollinating varieties we recommend more than one to increase potential for better fruit set.
- **Cherries:** All sour cherries are self-pollinating whereas sweet cherries require a cross pollinator. Again, follow the rule of thumb where more than one variety increases the chances for fruit set.

This information was found at <http://www.northeastnursery.com/plants/fruit.html>.



Proposed divisions of
community garden plots.

Vegetables

Recommended cold season crops not affected by frost include:

- Asparagus
- Cabbage
- Kale
- Peas
- Spinach
- Broad Bean
- Collard
- Kohlrabi
- Radish
- Turnip
- Broccoli
- Garlic
- Leek
- Rhubarb

Recommended cold season crops affected by frost include:

- Carrots
- Chinese Cabbage
- Parsnip
- Cauliflower
- Endive
- Potato
- Celery
- Lettuce
- Swiss Chard
- Beets
- Chard
- Mustard

Suggested warm season crops include:

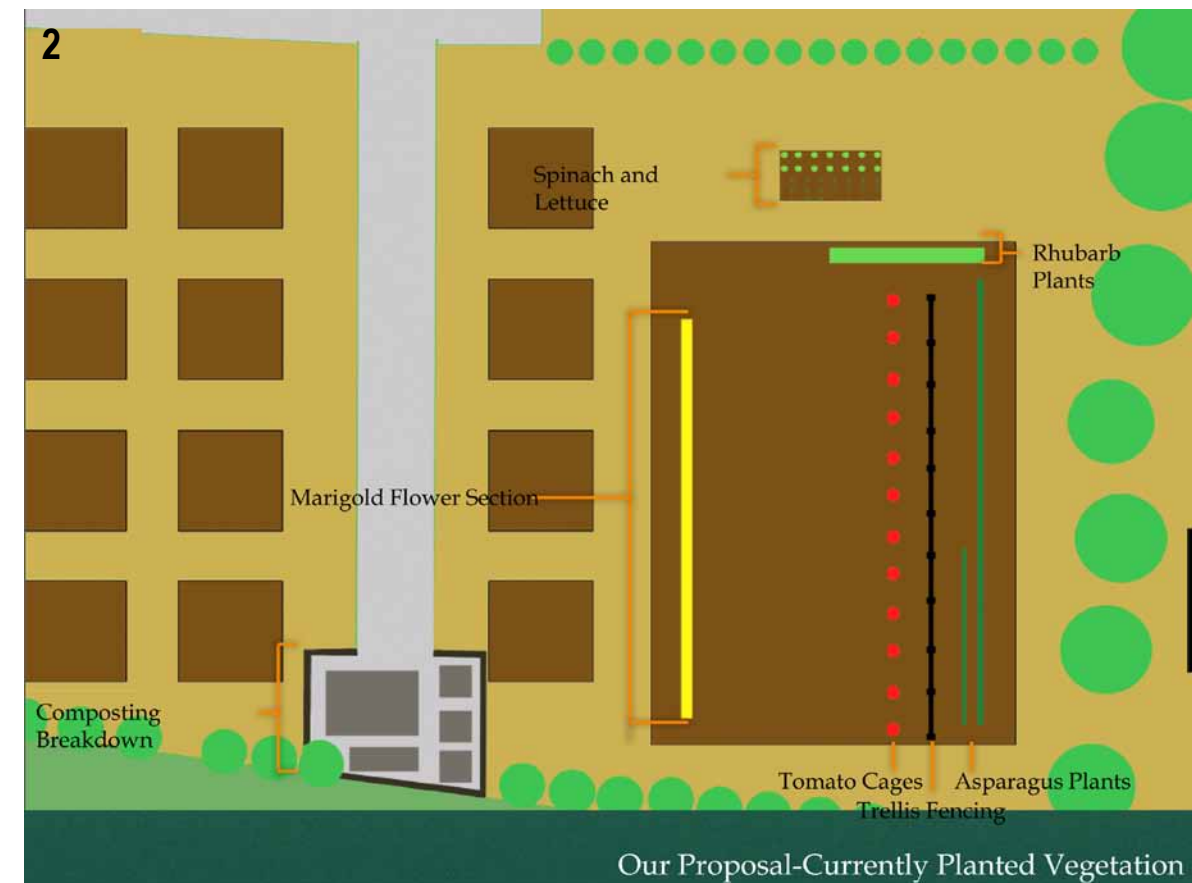
- Lima Bean
- Snap Bean
- Tomato
- Eggplant
- Pumpkin
- Sweet Potato
- Cucumber
- Pepper
- Sweet Corn
- Cantaloupe
- Squash
- Watermelon

These recommendations are compiled from the following sources:

<http://www.sunset.com/garden/fruits-veggies/best-vegetables-fruit-herbs-to-plant-00400000062826/page23.html>

<http://localfoods.about.com/od/searchbystate/a/rhodeislandseasons.htm>

http://localfoods.about.com/od/searchbyregion/a/NE_Seasons.htm



1. Current garden bed of spinach.
2. Proposed vegetation to be planted.

Sustainable Gardening at Island Commons

Composting

During the first site visit, the group saw that there was a composting area already in place, but it looked unkempt and uncared for. The group recommends that a fenced-off area be reserved for composting, whether it be pen composting for yard waste (including grass clippings and leaves) or barrel composting for food scraps.

Composting itself is very simple and does not require a lot of maintenance, which is perfect for the site. The vision for the composted material is that it would be used for the community gardens, as compost adds nutrients to the soil

naturally without the use of chemicals. Families would have the opportunity to compost scraps from their homes and gardens and to use the output to feed the soil in their lots.

As for composting itself, almost anything—except for highly acidic products, oils and meats—can be used. This includes all vegetable scraps, coffee grinds, egg shells, paper, grass clippings and all fruit scraps (except lime and lemon peels due to their acidity level).



Current compost area.

Sustainable Gardening at Island Commons

Sustainable Irrigation Systems

The group researched different types of sustainable irrigation and determined that drip irrigation systems are the most efficient (greater than 90%), which helps conserve large amounts of water. The benefit of these systems is that they put the water right to the plant roots where it is needed most. They also can be calibrated to provide the right amount of water based on the plant's needs.

In addition to the drip system, a rain collection system would greatly increase the sustainability factor. This would be very easy to implement.

The gutter system around the church could be redirected into rain barrels with a pressure pump attached to the barrels. The size of this pump would be directly related to the size and pressure

requirements of the drip irrigation system, allowing for greater flexibility and an overall larger drip system than could be accomplished from a standard exterior spigot.

The group did not research the sustainable irrigation system further than determining the best type and understanding the requirements for a rain collection system.

Upon further consultation with Island Commons, it was understood that they already had plans for installing a drip irrigation system. However, the group still included their research into this report, and they hope that the resources used would be helpful to the Island Commons Community Garden in the future.

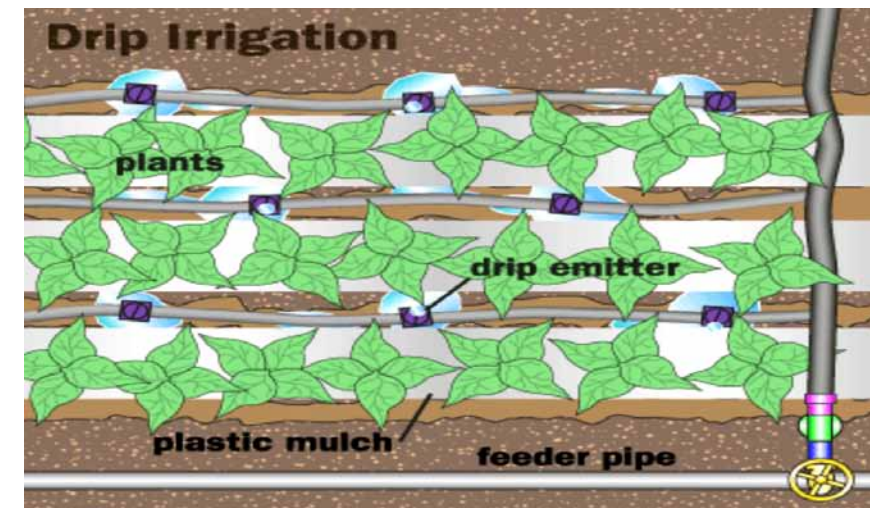


Diagram of drip irrigation system.

Useful reference materials pertaining to sustainable irrigation systems include:

<http://www.irrigationtutorials.com/dripguide.htm>

http://extension.oregonstate.edu/lincoln/sites/default/files/documents/rain_water_harvesting_for_gardening_use.pdf

Sustainable Gardening at Island Commons

Solar Wells

Members from the Island Commons consortium also suggested that the group investigate the potential of a solar well with the primary function of supporting the irrigation system. The group began researching these systems. The group also made contact with Kyle Hence from Sustainable Aquidneck. Mr. Hence provided information on the solar well that was being designed for the Island Community Farms.

After reviewing the information provided by Mr. Hence and doing their own research, the group developed questions about the specifications that would be required for designing a solar well system. These questions revolved around well depth and required pressure for the irrigation system, which would directly affect the size of the pump needed to extract the water and the size of the solar array to operate said pump. The group then found that the client would not have the funds for such a project in the near future, and with city water being as cheap as it is, a solar well did not seem like an affordable option.

If in the future the client were to pursue designing such a system, they would need to start with determining the site of the well. Then they would need to know the depth of the water table at that spot in order to know how deep the well would be. The client would also need to determine the pressure requirements of the irrigation system that the well is supporting.

Using this information, the client could determine a pump size that would be able to overcome the head loss due to the length of pipe from pump to base of well and meet the pressure requirements of the irrigation system. Using the power ratings of the chosen pump, a solar array can be designed to meet the power requirements.

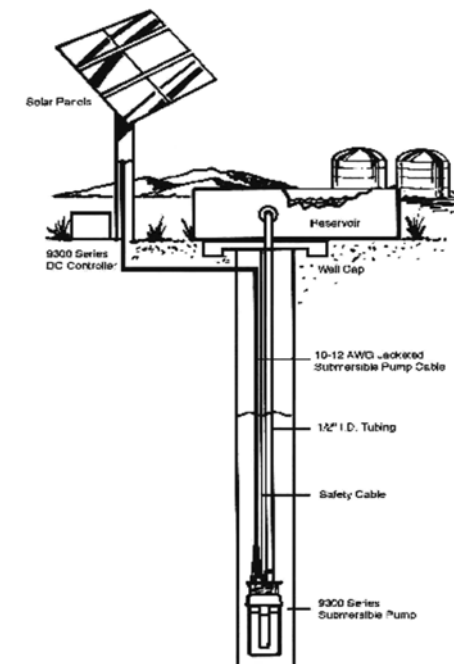


Diagram of a solar pump, which reduces water and electricity expenses.

Sustainable Gardening at Island Commons

Sustainable Gardening Potential

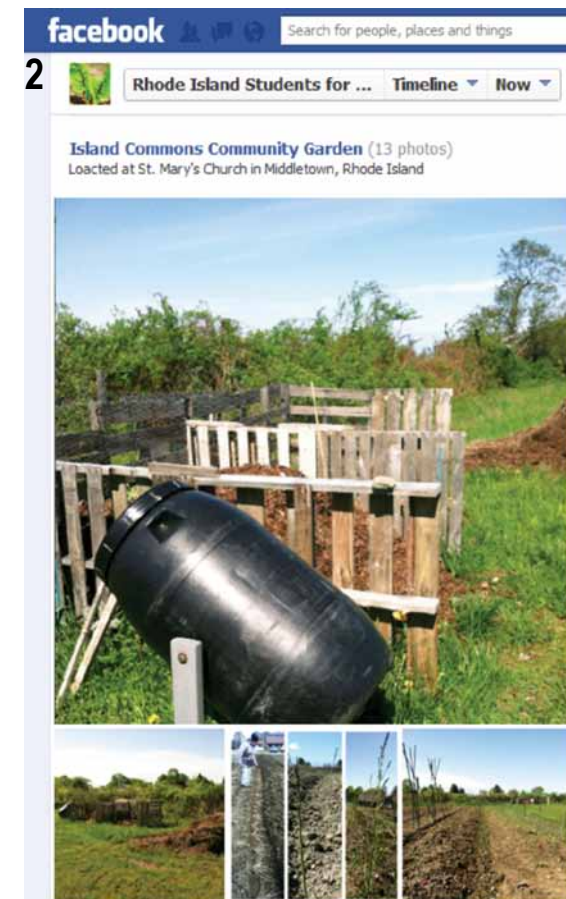
Our proposed expanded community garden plot should yield a couple thousand pounds of vegetables and other food to the local food bank, compared to the 300 pounds donated last year, which was grown on two small rows.

While the current number of volunteers is sufficient to handle this plot of land, more experienced gardeners and volunteers would be necessary for expansion. Effective community outreach could help expand this dynamic agriculture program out of the 100x70-foot plot to other endeavors like permaculture or a second community garden plot.

The success of this project will be determined by the level of community involvement and the individual functions of the designated plots. It is recommended that Sustainable Aquidneck assess initial production of the vegetation, use of the composting services on site, and yield of produce to determine if the garden is being properly used and maintained.

In order to maximize community involvement, the group decided to reach out to the Roger Williams University community by connecting it to an existing Facebook page: “Rhode Island Students for Local Food” made by Phil Yashinowsky.

The page is used to post pictures and information in order to get students aware and interested in issues of local food and sustainability in Rhode Island. Through active volunteerism from the group, friends and members of clubs from Roger Williams University, a large volunteer base can be built to make expansion feasible. Such expansion of Island Commons Community Garden will raise the food security and lower the number of those affected by hunger in the community.



1. Current garden at Island Commons.

2. Facebook page created to raise awareness and activism on local food among RWU students.

Education Programming for Island Commons

Recommendations for an educational programming series were derived from research conducted on pre-existing and successful sustainability programs, including Sakonnet Greenway Trail in Portsmouth, RI. These programs are aimed at appealing to a diverse demographic while relating to the surrounding complex and the stakeholder organizations. By directing the programs towards various demographics, people of all ages can be involved with Island Commons and benefit from the experience.

Educational programming maintains the opportunity to become a staple within the sustainability center; the proposed design creates space idyllic for this type of programming. Ultimately, the educational programs inform people about sustainability and the efforts that are undertaken by the Island Commons initiative.

Programming Series Suggestions

Educational Program: Aquidneck Land Trust - Trail Program

This program will stress the importance of the land we live on in Rhode Island by providing activities that can be conducted on the trail system. The program can be held for the public or for school trips at the new facility. As the second most densely populated state in the nation—with the largest percentage of farmland lost to development—the importance of exposing attendees and students to their local ecology and illustrating why it is important to protect the land in their area is of utmost importance.

As students hike the trail, this program will provide participants with an experiential education connection with their natural environment.

Some of the key concepts to be taught could include:

- Learning science vocabulary.
- Discovering similarities and differences in the living environment.
- Comparing and contrasting animals and plants.
- Protecting agricultural land and fresh local farm products.
- Preserving wildlife habitat and biodiversity.
- Maintaining the Island's desirability as a place to live, work and visit.
- Securing public recreational space and healthy fun outdoor opportunities.
- Conserving water resource areas and clean drinking water.
- Keeping scenic vistas and the charming beauty of our Island.
- Saving money for municipalities and taxpayers.



Educational Program: Sustainable Aquidneck - Community Garden

Designed for students in grades 9-12, this program will educate participants about how Sustainable Aquidneck is dedicated to helping local residents grow their own foods. The program will emphasize the work of Sustainable Aquidneck, mainly that the best way to fix our food system is to reconnect people with the source of their food and to make it possible for them to grow it.

The program will educate students and participants on the benefits of growing their own foods and the benefits of buying locally made products. This program can also include a lecture series on the importance of community gardens and sustainable farming. Participants will have the opportunity to help with planting, watering and harvesting the garden plot at St. Mary's.

Educational Program: Guest Lecture Series

Designed for adult participants, the Guest Lecture Series will be directed towards individuals who want to learn about sustainability and get involved with programs taking place at Island Commons. Professionals from Roger Williams University and the local community will offer sessions about environmentalism and sustainability.

When considering education programming for schools, it is important that Island Commons remember that programming should follow the Grade Span Expectations for Science for the State of Rhode Island. These expectations can be found at the Rhode Island Department of Education's website at www.ride.ri.gov.



Students volunteer to build trellises for garden vegetables.

Possible Sources of Funding for Island Commons

Community Development Block Grant Program

CDBG provides funds to individuals and community-based, non-for-profit organizations that implement programs and/or projects addressing affordable housing, economic development and public service and needs. CDBG-funded programs and projects carry out a wide range of community development activities directed toward neighborhood revitalization, economic development and the provision of improved community facilities and services. Activities must benefit low and moderate-income persons, address slum and blight, or address an urgent community need. As the public sustainability center, St. Mary's could be eligible for CDBG funding.

State Preservation Grants

St. Mary's is advised to apply for the State Preservation Grants Program, which is funded by the Rhode Island Historical Preservation & Heritage Commission "to fund capital preservation for renovation projects at public historic sites, museums, and cultural art centers located in historic structures in the State of Rhode Island."³

Alletta Morris McBean Charitable Trust

The Alletta Morris McBean Charitable Trust "has been instrumental in the preservation of many historically significant buildings located in Newport, as well as the preservation of open space on Aquidneck Island."⁴ The AMMCT assists in funding preservation undertakings as well as open space conservation; as such, projects at St. Mary's are eligible for consideration.

Newport Restoration Foundation

The NRF annually distributes the Doris Duke Preservation Awards to "encourage exemplary historic preservation efforts within the City of Newport, Rhode Island, by recognizing and rewarding activities or accomplishments that strengthen, broaden and advance the appreciation, understanding and involvement in Newport's historic preservation."⁵ While projects at St. Mary's are knowingly outside of the City of Newport, the projects may still be eligible for consideration. It is recommended to contact the NRF and review the application guidelines.

Prince Charitable Trusts

The Prince Charitable Trusts award grants to projects in three areas across the United States. In Rhode Island, the Trusts "support programs that improve the quality of life for residents of the city of Newport and Aquidneck Island."⁶ A preservation undertaking at St. Mary's certainly meets the aforementioned qualifications.

³ State of Rhode Island, Historical Preservation & Heritage Commission, <http://www.preservation.ri.gov/grants/spg.php>.

⁴ GuideStar, <http://www.guidestar.org/organizations/94-3019660/alletta-morris-mcbean-charitable-trust.aspx>

⁵ http://www.newportrestoration.org/preservation/awards_grants

⁶ <http://princetrusts.org/ri.html>



Students visit St. Mary's to walk the current trail system.



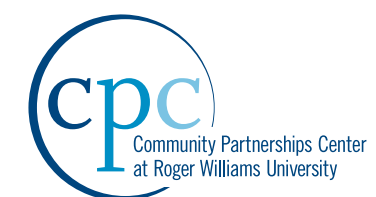
The current garden and ADA-accessible raised garden bed at the Island Commons Community Garden.

Conclusion

Working toward sustainability requires small changes that can act as catalysts for larger movements and societal change. The Island Commons initiative epitomizes a collaborative sustainable effort. The multi-faceted project addresses numerous aspects of sustainable living as a means of promoting environmentally friendly lifestyles to the Aquidneck Island Community.

As the project proceeds, the foundation work that has been completed will need to be expanded to include material research and cost estimates. It is this team's recommendation that the planning process be emphasized in order to undergo the "greenest" construction possible, as the Island Commons Initiative will be expected to idolize sustainable choices.

In future years, Island Commons will function as a model sustainable center, both regionally and nationally. As such, the vitality of proper planning and implementation of this project cannot be overstated.



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