FEIYUAN LIN
PORTFOLIO
SELECT WORKS FROM 2018-2020
APPLY FOR MLA, LANDSCAPE ARCHITECTURE

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CONTENT

01. FAFU Old Residential Area Revovation

02. DeBarres Pond Wildlife Habitat Restoration Design

03. Time Trace Tour-Tamatagouche Creamery Square Design

04. Downtown Truro, NS, Parking Lot BMPs Stormwater Management Planning

05. Other Works

Graphic Design
Pencil Sketch
Pen and Ink Drawing
Marker Pen Drawing & Painting
01. FAFU Old Residential Area Revovation

Problem Statement
How can we increase the outdoor space satisfaction of residence from FAFU retired faculty’s residential area?

Concept Statement
The concept behind this design is improving the functional utilization of the outdoor open space of the residential area to fulfill demands of different groups of residences. Spaces are designed to improve overall wellbeing of residences, promote sense of community, enhance space functionality with regard to environmental sustainability.

- Stormwater managements: Different design methods increase the drainage and stormwater collection to combat with waterlogging problem caused by heavy rainfall weather. Stormwater management designs also increase green space and beautify public spaces.

- Vertical design: Stepped leisure platforms are designed for the mountain on the northern part of the site to provide quiet private space. The design also improve the entrance view of the school hostel.

- Children and the elderly friendly space: Activity and relaxing spaces are designed for the two major groups of this site to improve their physical and mental wellbeing.
Groups and behavior of site users analysis

- Children
- School staffs
- Students
- The elder

- Communication
- Activity
- Relax
- Experience
- Entertainment

Weather analysis

Site problems analysis

1. No entrance space
2. Traffic safety problems
3. Green space is occupied
4. Green space is lack of management
5. Lack of planting area
6. The activity space is not dried clothes
7. The school buildings do not have new
8. The narrow area for students to have activities

Design strategies

- Physical & Mental wellbeing
- Sense of Community
- Sustainable Environment
- Functional Requirements
Master Plan

Legend
1. Pedestrian walkway
2. Stormwater management slope
3. Driveway
4. School hostel entrance walkway
5. Open parking lot
6. Underground parking lot
7. Entrance Square
8. Rain garden viewing platform
9. Children playing area
10. Roof garden
11. Building entrance sitting area
12. Horticulture therapy garden
13. Mini greenhouse
14. Gallery frame
15. School hostel entrance space
16. Stepped leisure platform
17. Mountain top gallery frame
1-1 Section map

Stormwater managements for the slope
Children Playing Area

Stepped leisure Platform
Guysborough Turtle and Bird Park Design

Location

North America  Canada  Nova Scotia  Guysborough

The town of Guysborough is a Rural Location, population in 2016 was 4670 (Government of Canada, 2017). It is underdeveloped (not uncharacteristic for the Province of Nova Scotia).

Views & Landscape Character Assessment

1. Rural
2. Heavily Forested
3. Topography does not support open (vast) views unless standing along the coast, waterways and roads cut through forest enabling best views.
4. Underdeveloped Port/ Harbour
5. Mostly privately owned
6. High degree of development potential.

Site Infrastructure Analysis

Main road  Sidewalk  Historic Walking Trail  The Trans Canada Trail  Hiking Trail  Tourism "Time-to-Walk"

Regional Circulation and Transportation Infrastructure and Flow Analysis Plan

Infrastructure Statement

Elements
- Main roads
- Trails and sidewalk
- Scenic routes
- Tourism* Time-To-Walk* Distance
- Important sports

Existing Conditions
- Cracked road and indentation of heavy vehicle
- Lack of sidewalks, not convenient and unsafe
- Insufficient public parking lots

Importance
- Conflicts between some roads and trails

Circulation flow provides a connection between areas and helps to determine the access to attractions which may shorten the distance between two locations. It provides references to design an organized circulation and transportation system.
Master Plan

Vertical greening wood gallery frame and wood viewing platform
Located at the opposite side of the bird island.
Provide extended wood platform to the wetland pond, which is surrounded by emergent aquatic plant. It could create quiet viewing space for small number of people.
Wood Desks on the small slope planted with local plant species on the opposite

Concept Statement
The Guysborough Turtle and Bird Park provides habitat for the local wetland bird and turtle. People can view the habitat, and engage in the wetland. The concept of the design aims to seek balance between wildlife and human activities. The turtle and bird habitat designs are based on the living habits and local climate conditions; for example, sun path. The form of the design is based on the pattern of the turtle shell. The park will be divided into two zones, quiet restful viewing zone, and entertainment zones. People can have opportunities to get close to the turtle habitat through walking on the overhanging wood board, and observe the turtle habitat through walking on the overhanging wood board, and observe the turtle without disturbance. Visitors can also relax under the vertical greening wood gallery frame. People can go to the extended wood viewing platform to see the bird habitat island, listen to the song of bird and enjoy the quiet private time. The park also allow people gathering, educating and socializing in the turtle theme children playing space and cafe.
Turtle Habitat Design Diagram

- Planting barriers provide spaces for hiding, breeding and foraging
- Rocks and wood block provided for resting and basking
- Shallow water and slow currents
- Vegetation provides aquatic and terrestrial plants, invertebrates like snails, slugs, earthworms, crayfish and insects, and even vertebrates like fish, amphibians
- Soft mud at the bottom and aquatic vegetation for turtle to hide and hibernate

Deciduous or mixed forest and thick understory of tall shrubs with and other vegetation for Canada Warbler Habitat

Short conifer trees (usually Black Spruce) near or over water for Rusty Blackbird Habitat

Bird Habitat Design Diagram

Canada Warbler  Olive-sided Flycatcher  Rusty Blackbird
Enlarged Plan 1
Turtle Theme Children Playing Area

Create different size and height of round slopes, some are small caves that mimic the nest of turtle; some are raised slopes for children to climb.

Enlarged Plan 2
Extinct Wetland Wildlife Memorial Space

The Memorial Space has small wooden monument with different height that stand for the different levels of disturbance suffered by local wetland species.

Turtle Habitat Perspective

Extinct and Endangered species Memorial Wall (made with wood)
The Mi'kmaq name Tatamagouche (Tatamagoouch) – The French Acadians arrived in 1745, the Battle of Tatamagouche British naval supremacy. 1755, British Government decide to expel the Acadians. For the next 16 years, the area remained unoccupied. Joseph Frederick Wallet DesBarres received land and brought settlers. 1777, Scottish settler came followed by Irish and English settlers. The first registered ship, the Fish Hawk, was launched. 1827, the first census. 1846, Nova Scotia grantess, Anna Swan was born. 1864, the Striling Rifles organized in direct response to the Fenian threat. 1870, the onset of the Age of Steam, many former shipyard workers went to the USA to work. Shipbuilding lost its place due to steam craft. 1887, the building of the railway. During the 1920s and 30s, one of the big attractions was horse racing. (Central Park Raceway). 1925, the establishment of Tatamagoouch’s own Creamery. Development of the project...
CONCEPT STATEMENT

The concept behind this design is the sensory? visual and feeling stimulation through the extension of the indoor activities to outdoor space better display the history and culture of shipbuilding. All spaces are designed to provide better understanding and experience the history and culture of the site. Through the touchable and interactive signage and creating space enclosure, deeper impression of the shipbuilding industry history is posed on visitors.

*Narrative type pedestrian circulation: Narrative type pedestrian flow is established based on the timeline of shipbuilding history through interactive signage and structures.

*Interactive landscape features interpreting shipbuilding and creamery square history: Exhibition walls and various structures, for example, painting walls, touchable stereo signage, and ‘real scale experience gate’, will be design to be touchable and human interactive for people to feel engaged with when they visiting the outdoor exhibitions. The design will also take diverse height and interest points of different age groups into consideration for better visiting experience.

*Multi-functional ‘shipbuilding’ entrance plaza: ‘ship shape’ entrance plaza is designed for multiple purposes, including exhibition, guidance, open-air cinema and concert space, outdoor farmers’ market, and winter skating area to enhance the all year round use. Also, sense of space enclosure will be created by using different staggered placed wood walls to guide people’s site of spaces standing for the different historical periods.

CONCERN STATEMENT

How can we increase Creamery Square’s the outdoor space utilization to display the history and culture of Tatamagouche and Nova Scotia’s shipbuilding industry for both tourists visitors and locals?
LEGEND
- GRASS
- PAVING
- PARKING LOT
- EXISTING TREES
- NEW TREES
- GUIDANCE ENTRANCE PLAZA
- OUTDOOR ART GALLERY
- INSTRUCTION PLAZA
- MI'KMAQ HUT VIEWING PLATFORM
- CAMPFIRE AREA
- WAR MEMORIAL AND RELAXING SQUARE
- FLOATING BOARD
- ALTERNATIVE PAVING PATH
- SKATING AND GRAFFITI SQUARE
- RAILWAY TRAN DEVELOPMENT AND HISTORY INTRODUCTION WALL
- VENDORS' TENTS
- FARMERS' MARKET
- OUTDOOR SITTING AREA
- THE SAILBOAT SQUARE
- THE GRAIN ELEVATOR OUTDOOR SITTING PLAZA
- VENDORS' PARKING
- BIOSWALE
- STAIRS AND RAMP
- VISITORS' PARKING

ENLARGEMENT PLAN-1
MI'KMAQ HUTS VIEWING PLATFORM

ENLARGEMENT PLAN-2
INTRODUCTION PLAZA

1-1 PROFILE SECTION
DESIGN SUBJECTS

EXHIBITION WALL AND ABOVE GROUND SIGNAGE OF THE INTRODUCTION PLAZA:

THE WALLS HAVE DIFFERENT HEIGHT AND DIFFERENT WINDOWS OPENED FOR VARIOUS AGE GROUPS.

ABOVE GROUND SIGNAGE SHOWS THE IMPORTANT HISTORY TIME OF SHIPBUILDING.

WALL HEIGHT:
0.7-1.8 M

INSTRUCTIONS ON THE WALL

ABOVE GROUND SIGNAGE:

EXIST GATE

ENTRANCE SIGNAGE:

ROCK SIGNAGE SHOWING IMPORTANT HISTORY TIME PERIOD THROUGH TOUCHABLE INTRODUCTION. THE FOUR ROCK SIGNAGES ALSO POINT TOWARDS THE DIRECTION OF THE FOUR MAIN SPACE DESIGN OF THE SITE.

THE MATERIALS USED (WOOD, RUST STEEL, ROCK) AND COLOR REPRESENT THE FOUR HISTORY PERIODS.

ROCK SIGNAGE
HEIGHT:
0.6-1 M
WIDTH:
0.6-0.8 M

WOOD FRAME
HEIGHT:
1.8 M

RUST STEEL BASE
HEIGHT:
0.1 M

MULTI-FUNCTION SITTING BENCH AND MOVEABLE VENDORS’ SPACE:

SHAPE OF THE WOOD BENCH AND VENDORS’ TABLE COME FROM THE SHAPE OF MI’KMAQ WOOD BOAT. THE LONG BENCH AND TABLE BELIEF ON THE TRAIN TRACK ALSO REPRESENT THE SITE HISTORY OF THE INDUSTRY CHANGE.

IN SUMMER, VENDORS COULD USE THE THE HIGHER TABLE FOR SELLING.

IN WINTER PERIOD, THIS AREA COULD BE USED AS SIMPLER SITTING AND RELAXING AREA THAT ALLOW PEOPLE TO EXPERIENCE THE SITE HISTORY.

VENDOR TENT
HEIGHT:
2 M
WIDTH:
2.5 * 2.7 M

SHIP SHAPE BENCH
HEIGHT: 0.45-0.6 M
WIDTH: 0.45 M

VENDOR TABLE
HEIGHT: 0.8-1.2 M
WIDTH: 0.45 M

TRAIN TRACK

FLEXIBLE FLOATING BOARD:

THE FLOATING WOOD BOARD IS CONSISTED BY STABLE WOOD PLATFORM AND SMALL FLEXIBLE WOOD BOARD. SOME WOOD SEATS ARE ALSO PROVIDED ON THE BOARD.

THE FLEXIBLE WOOD BOARD COULD RISE ACCORDING TO THE TIDE AND WAVE CHANGE, WHICH PROVIDE PEOPLE WITH BETTER EXPERIENCE OF SAILING ON THE BOAT.

THE STABLE PLATFORM AND SMALL FLEXIBLE WOOD BOARD ARE CONNECTED BY ROPE. BOTH OF THE TWO STRUCTURES ARE COATED WITH WATERPROOF COATING TO REDUCE CORROSION AND DAMAGE OF THE SEA WATER TO THE BOARD.

THE FLOATING BOARD COULD INCREASE THE INTEREST OF VISITING BY GIVING PEOPLE CHANCE TO GET CLOSE TO THE WATER.

SPACE DESIGN REFLECTING THE FOUR IMPORTANT HISTORY PERIOD

1. MI’KMAQ CULTURE: THE BEGINNING OF SHIPBUILDING.

2. FRENCH BRITISH WARS FOR LAND OWNERSHIP

3. THE DEVELOPMENT AND THRIVE OF SHIPBUILDING INDUSTRY

4. THE LOSS AND FAIL OF SHIPBUILDING INDUSTRY DUE TO INDUSTRY CHANGE, CREAMERY COMMUNITY DEVELOPMENT AND POPULATION MIGRATION.

1. BEHIND:

USE WOOD MATERIAL AND HUT MODELS AND BONFIRE TO CREATE ATMOSPHERE

2. WAR:

USE BROKEN AND IRRIGULAR SHAPE TO CREATE ATMOSPHERE. HUMAN SHAPE HOLLOW OUT STATUES SHOW FORM OF SOLDIERS. WOOD AND RUST STEEL PAVING CREATE SOUND CHANGE ALSO CREATE THE FEELING OF THE WAR.

3. THE FIRST SHIP GET IN THE WATER. THE DEVELOPMENT AND THRIVE OF SHIPBUILDING:

USE WOOD FLOATING BOARD ALLOWING PEOPLE TO EXPERIENCE THE FEELING OF SAILING ON THE SEA.

4. SHIPBUILDING LOSS AND FAIL:

THE ALTERNATIVE PAVING( WOOD PILE AND STEEL TRAIN TRACK ) SHOWING THE CHANGE OF INDUSTRY CHANGE. PAINTING WALL AND
BMPs as stormwater management
For a parking lot in downtown Truro, NS

Site Location

The study site of this project is a public parking lot in the downtown Truro, which takes up 3000m² in total, and is surrounded by a small church and several stores.

This project is a public parking lot in the downtown Truro, which takes up 3000m² in total, and is surrounded by a small church and several stores.
### Problems
- Truro suffers from serious stormwater problems (Figure 1)
- Lack of green space near the site (Figure 2)

### Objectives
- Reduce the possibility of flooding
- Reduce future maintenance costs
- Improve the quality of rainwater discharged into rivers
- Reduce erosion of roads and soil
- Improve the development of economy

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**Figure 1 sources:** [https://www.ihearradio.ca/purecountry/nova-scotia/ctv-news-atlantic/back-to-back-flood-years-have-fredericton-looking-to-shore-up-riverbank-1.10187601](https://www.ihearradio.ca/purecountry/nova-scotia/ctv-news-atlantic/back-to-back-flood-years-have-fredericton-looking-to-shore-up-riverbank-1.10187601)
Methods

BMPs Design for the Site

Permeable Pavement | Rain Gardens | Green Roof

1. Permeable Pavement

The calculation of quantity of discharge of the initial natural forest and site with existing hardscape are conducted compared to investigate the level of land use change and impermeability of this parking lot. In addition, due to the fixed area for rooftop (480m²), parking space (920m²), and the existing green belt of the site (160m²), the area of rain garden is designed as 290m² in order to increase the runoff infiltration. The remaining concrete pavement space is 1150m². Besides, the total quantity of runoff discharge of existing hardscape and the total quantity after the establishment of the three BMPs are calculated to analyze the overall effectiveness and suitability. The quantity of discharge after BMPs' establishment: \( Q \) (permeable pavement) + \( Q \) (rain garden) + \( Q \) (green roof) + \( Q \) (original greenbelt) + \( Q \) (removing concrete pathway)

\[ Q = 0.3 \times 320 + 0.5 \times 290 + 0.5 \times 480 + 0.5 \times 160 + 0.7 \times 1150. \]

<table>
<thead>
<tr>
<th>Ground Cover</th>
<th>Runoff Coefficient, c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete pavement</td>
<td>0.7 - 0.93 (use 0.7)</td>
</tr>
<tr>
<td>Roofs</td>
<td>0.75 - 0.95 (use 0.75)</td>
</tr>
<tr>
<td>Forest</td>
<td>0.05 - 0.25 (use 0.25)</td>
</tr>
<tr>
<td>Turfstone</td>
<td>0.15 to 0.6 (use 0.3)</td>
</tr>
<tr>
<td>Rain garden/Green roof</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 1. Rational Method Runoff Coefficients

Source: https://www.lmueng.com/Hydrology/rational.php

2. Rain Gardens

The study site of this project is a public parking lot in the downtown Truro, which takes up 3000m² in total, and is surrounded by a small church and several stores. The datum was collected by field investigation and literature review. The study would investigate the effectiveness of the three BMPs on runoff mitigation through calculating and comparing the disparity of the three strategies’ before and after peak discharge quantity according to the formula, \( Q = C \times I \times A \), \( Q \) = quantity of total discharge, \( C \) = coefficient of runoff, \( I \) = intensity of the design local storm, \( A \) = area of watershed; to pretend \( I \) is regarded unchanged due to the same area, the figures of \( C \) for various types of ground cover is provided in the Table 1 below. Owing that the limiting condition to conduct experiment of pollutant removal ability, the effectiveness of this aspect would be based mainly on literature review of previous researches.

It covers a total area of 290 square meters, with a peak of 203l (\( Q = C \times I \times A / 0.75^2 \times 290 = 203 \)) before conversion and 145l (\( Q = C \times I \times A / 0.5^2 \times 290 = 145 \)) after, which absorbs about 58l of water. Rain garden is a landscaped depression that receives runoff from the impervious surfaces, and consists of several layers for example, filter media, vegetation, an optional underdrain.

3. Roof Garden

By adding a roof garden in the parking lot, the green roof’s total cover area is 480 square meters, with a peak of 360l (\( Q = C \times I \times A / 0.75^2 \times 360 = 360 \)) before conversion and 240l (\( Q = C \times I \times A / 0.5^2 \times 360 = 240 \)) after, which means that the green roof absorb 120l of water.

Green roof composition:
- vegetation, substrate
- filter layer
- drainage material
- insulation
- root barrier
- water proofing membranes
Benefits:

Flood control. They could detain a large portion of the runoff volume and releases it at a slow rate, which limits flooding.

Improved Water Quality. They could remove pollutants from the water. Some of good water quality benefits are reduced soil erosion, lower contaminant loadings and cleaner bottom sediments.

Save money. On-site infiltration or detention of rainwater can have a direct effect on the size and number of drainage pipes needed for handling runoff, resulting in lower construction costs.

Improve the development of economy. They are highly valued and can increase property values and enhance tourism opportunities.

Increasing biodiversity. The increase of diversity of plants and the density of plants can increase the diversity of animals

Problems for construction:

1. Renovating a lot of the road
2. Considering the capability of adaptation of the roof (structure)
3. Considering the location of the rain garden and the effects of roads.
4. Considering the noise when construction
5. Considering engineering delay

Conclusion:

The vegetated surface area of the three strategies could greatly improve the water permeability percentage and contamination adsorption of this parking lot, which provide water treatment before entering the larger water body and improve the water quality.

The construction of three BMPs will not affect the life interests of the people, they won't take up too much space or need to transform a large parking lot, but they produce benefits is larger.
The logos aims to present the mild, simple and introverted personality. Though these logos, I would like to communicate to other people about green and sustainable design that could be integrated into changing our urban environment. The logos contain some types of my initials, LFY or my first name or last name using lines, negative space or simply words. The logos use simple lines or colors with low saturation and lightness to express the mild and simple and straightforward personality. And the logos also shows my interests in green design by using leaf pattern and lines representing tree ring. It would also be seen from the logos that the simple and methodical create style and paint medium I prefer.
This design presents the world from the perspective of an atom. I imagined my body to be only the size of an atom. I can see that the world is fantastic and in constant motion like liquid. The drawing on the right hand side is an enlargement of a 2x5 inches rectangle. The design is intended to express that it is the constant changing of life that contributes to the colorful world.
Pencil Sketch Drawing

Pen And Ink Draw

Marker Pen Drawing & Painting

Hand Drawing Design