GEORGE BROWN COLLEGE BICYCLE STORAGE STRATEGY

DESIGN CHARRETTE

April 2009

INSTITUTE WITHOUT BOUNDARIES

GEORGE BROWN COLLEGE
BICYCLE STORAGE STRATEGY CHARRETTE

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PHOTO ON COVER: Bike sign and post | by A Svensson

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GEORGE BROWN COLLEGE

BICYCLE STORAGE STRATEGY

DESIGN CHARRETTE

FOREWORD

When the Institute without Boundaries was approached to explore new uses for an under-used space on the St James campus, they saw an opportunity to partner in creating significant change on the campus. George Brown College's commitment to supporting sustainable behaviour combined with the growing popularity of cycling in Toronto made this an opportune moment to rethink the creation of public space, while also finding a better way to manage bicycles on campus. Through discussion with George Brown administration, the College's Green Team, members of the local cycling community, representatives from the City of Toronto and other stakeholders, it became clear that the best approach would be to create a strategy for bicycle storage for all the campuses, including the new waterfront campus, and would need to consider broader personal transportation needs for the entire College, creating a model that would benefit the entire city.

To fully explore these opportunities the Institute without Boundaries used its holistic charrette process: a comprehensive approach that brings together community stakeholders, professionals from various disciplines and expert advisors to create innovative solutions that meet the needs of all the stakeholder groups effectively and creatively. Over a few short days of brainstorming, discussion and expert consultation, participants developed a range of ideas around the central theme. Because users are involved at every stage of the problem-solving process, the results are practical and meet community objectives thoroughly.

The **George Brown Bicycle Storage Charrette** gathered professionals from many different fields. Members of the cycling community, George Brown College students, staff and faculty and representatives from many local organizations came together to explore the issues and opportunities around a bike storage solution for the College and specifically the proposed St James campus site. Initial brainstorming teams produced a wide variety of concepts that were developed, analysed and refined until the most appropriate single concept was selected. This final outcome is an innovative and practical solution: **The Bike Line** is a modular design that offers different bike storage options, public furniture and planter designs, site improvement plans, and suggestions for cross-campus installations all aimed at meeting the needs of the typical commuting cyclist.

The Institute is pleased to continue to support this project by coordinating next steps, including engaging a team to complete working drawings for the components, directing a project management team to oversee the implementation, creating a project work plan and gathering quotes to begin construction and installation.

As Director of the Institute, I would like to thank the George Brown College Green Team and facility staff for working with us, President Anne Sado and Vice-President Eugene Harrigan for their vision, and Magna Marque for their enthusiastic support and sponsorship and for inspiring us all with their pedal-assist BionX bicycle. We look forward to further development and future collaboration as we see this project through to completion, creating benefits for the College's riders on a daily basis.

Luigi Ferrara
Director
Institute Without Boundaries

INTRODUCTION

The solution proposed during the George Brown College Bicycle Storage Charrette has received widespread support from the college's Green Team, the George Brown College Council, local cycling advocates, the City of Toronto, Metrolinx and many of the staff, students and faculty of the College. These endorsements reflect both a strong need for improved bicycle storage on the campuses and the effectiveness of the solution created during the charrette.

With a wider goal of investigating and supporting changing transportation needs of students, faculty and staff of George Brown College, this charrette considered user needs, physical site constraints and legal concerns during the process. This specific concept implementation was designed for an L-shaped residual space on the St James campus that bounds the Financial Services Building at 290 Adelaide St along the North and East sides. This site, an under-used piece of land, could support improved social functions with spaces for benches, tables and attractive spaces as well as expanding bicycle storage. The solution would be modular, so it could be constructed in phases, and easily adapted for potential installation at other sites, such as the Casa Loma campus or the planned Waterfront campus.

Above all, it needed to create added value for the staff, students and faculty by encouraging them to cycle more often. Choosing to ride a bike to commute is more than just an environmentally responsible decision; there are also significant health benefits from adding regular exercise to daily activities. Cycling is one of the quickest ways to travel for short trips within the city centre, and with little to no operating costs it is an inexpensive choice as well. More cyclists on the street means fewer cars on the road, something that reduces traffic congestion and makes travel easier for everyone.

The top barriers to cycling include widespread car culture and social pressure (although there are signs that this is shifting, especially in urban centres), and risk of theft and vandalism to locked bikes. Fear of having a bike stolen or vandalized is one of the biggest deterrents identified by potential cyclists. This can be addressed through the inclusion of varying levels of secure bicycle storage, active security monitoring such as site surveillance but more importantly by creating a vibrant and occupied social space that monitors itself.

The timing for this project is excellent, and the installation of The Bike Line will establish George Brown College as a front-runner in supporting environmental stewardship by supporting the growth of campus bicycle culture. This solution holds the promise of physically linking campus buildings, creating a backbone for expanded wayfinding and public information sharing, and raising the college's visibility in the emerging urban landscape of bicycle friendly initiatives.

PHOTO: Road bike | by Bastiaan Slabbers

CONTEXT

CONTEXT

Understanding the project context is a vital stage in preparing for a charrette. Identifying and profiling the target users, setting design, logistic and cost considerations and identifying additional project parameters are important factors in the development of a successful design concept. These parameters and considerations guide the brainstorming process and create the criteria that early concepts will be evaluated against.

This research supports the charrette process and forms the foundation of the design process. All the information needed for the charrette is gathered and assembled to create a background presentation used at the beginning of the process. This created a big picture context for the design team to consider, and provided detailed information about physical constraints like dimensions, site plans and usage patterns.

For the George Brown College Bicycle Storage Charrette, this research included gathering data about the area and dimensions of the site, measurements and dimensions of bicycles, demographic and physical characteristics of users and also delved into topics as broad as the risks and rewards of cycling as an activity, bicycle culture around the world, and other forms of personal urban transportation. Physical constraints, legal and zoning considerations were also fully explored during this phase, ensuring that the project teams had all the information they needed at their fingertips during the concept generation phases.

Research focused on:

- Physical characteristics of bicycles
- Bike culture in Toronto, North America and the rest of the world
- Existing bicycle storage options
- Target users
- Site analysis
- Other modes of personal urban transportation
- Intermodal transportation

For the full scope of the research, please see the accompanying research document George Brown College Bicycle Storage Strategy Research Report.

TARGET USERS

Based on market research that included a web-deployed survey of existing George Brown College staff, students and faculty, interviews and precedent evaluation, these target user groups were identified:

- The primary target users of this bike storage solution are faculty and staff living within a 10km radius of their primary campuses. This group is already most likely to be cycling on a regular basis and has the fewest barriers to year-round commuting to their campuses. They also tend to be older and more likely to live in urban neighbourhoods or inner suburbs, better fitting the profile of the existing average North American cyclist.
- The secondary target users are students, both those who live within the 10km radius and those who might commute part of the distance by transit or other means. Cultivating these user groups may require marketing and/or programming support but would ultimately represent the largest user group of bicycle storage on campus. This group is likely to take up cycling as a regular means of transportation for both economic and cultural reasons.

PHOTOS, ON PAGE 6-7: George Brown College | by Reza Vaziri, rezalution.ca, **ON PREVIOUS PAGE:** St. James campus site | by Michelle Hotchin, **ABOVE:** Cruiser-style bicycle | by Simon Whitaker

DESIGN PARAMETERS

A bicycle storage system that will:

- Set new standards for environmental mandates and corporate social responsibility policies within George Brown College
- Identify and address issues around personal bicycle storage including theft, damage and accessibility
- Store bikes efficiently
- Address personal safety and security issues for cyclists
- Acts as a social hub for cyclists and community members
- Consider varying ability levels of users
- Fit well into the local environment
- Use modular designs that can be configured to fit into a variety of sites
- Address financial planning that may support future maintenance or programming
- Take advantage of small, unused pieces of land that occur around campus buildings

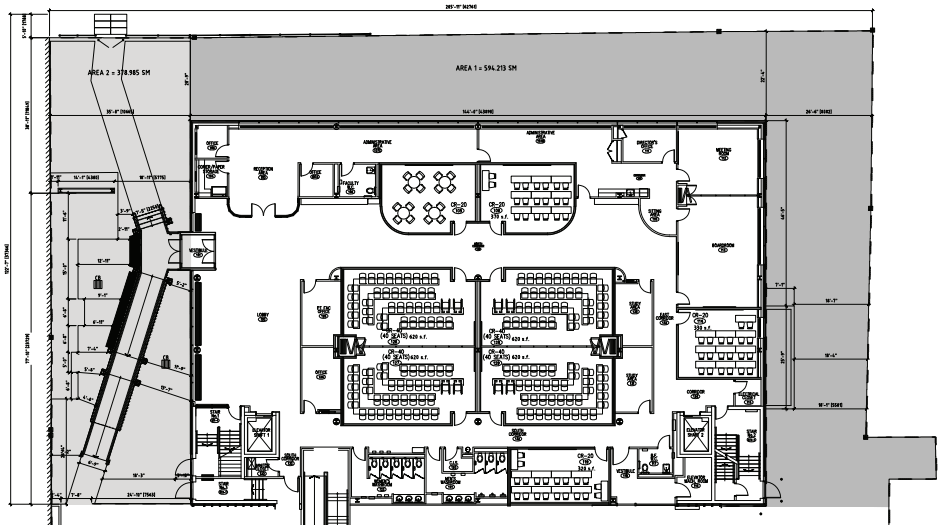
DESIGN CONSIDERATIONS

Other considerations include:

- Personal hygiene facilities such as shower/change rooms
- Maintenance and customer service
- Bike-sharing partnerships
- Sense of ownership by users
- Enrichment of public space and offering complementary activities outside of bike storage
- Engage the community, possibly offering skills' workshops and volunteer programming
- Phased construction
- Bicycle maintenance facilities
- Impact on the public realm
- Impact on the environment
- Innovative sustainable product design
- Material exploration (fabric, wood, wire, mesh, glass, resin, steel)
- Other modes of personal urban transportation such as scooters, roller blades, skateboards, motorboards, motorcycles, mopeds

THE SITE

The final concept was designed to fit flexibly into many spaces, however, the first application was developed for a specific location on the St. James campus. This site is an L-shaped space of approximately 594 square metres (6,400 sqft), bounding the Financial Services building at 290 Adelaide St East along the North and East sides. The site is approximately 50 metres (164 ft) long along the North side, 30 metres (98 ft) long along the East side and roughly 6.5 metres (21 ft) wide all around.



THE ST JAMES CAMPUS

The St James campus is located in the heart of the historic neighbourhood of St. Lawrence, a district that contains some of the oldest buildings in the city. With a history of factories and densely populated neighbourhoods inhabited by workers, this area is now undergoing widespread gentrification as industrial buildings are converted to lofts and high-end businesses.

Existing bike storage on and around the St James Campus is primarily the traditional “post-and-ring” type commonly found throughout the city of Toronto. There are approximately 90 of these in the immediate area mostly found in groups of 5-6, spaced 1 metre apart. At the North-west corner of King St East and Frederick St there is a larger grouping of bike racks where students, faculty and staff can lock their bikes, and there are also bike lockers at the nearby St. Lawrence Market on the West side of Jarvis Street South of Front Street.

MUNICIPAL REQUIREMENTS

The campus area of St James is zoned RA (Reinvestment Area) and structures are limited to less than 30m in height. No specific regulations prohibit bicycle storage or parking structures.

PHOTO, FACING: Existing walk-way on site | by Michelle Hotchin

RESEARCH CONCLUSIONS

George Brown College is recognizing a growing trend in transportation shifts. Car use is becoming more expensive and the cost of the infrastructure required to sustain single-person car travel is increasing even more quickly. Improving support for people who choose to ride their bicycles to the campuses of George Brown College is a smart move that will have many positive long-term effects.

- Cycling is an efficient method of transportation with benefits that include improved health, sustainable behaviour, low cost, rapid travel and fun
- Common factors that deter people from riding include risk to personal safety, discomfort, physical inability, distance, weather, and the greatest barrier, potential theft and vandalism
- People are willing to ride an average of 11.75km to their destination
- Bike ridership in Toronto's urban zones is increasing rapidly
- Suburban bike travel remains limited due to poor infrastructure support
- Inter-modal (using multiple methods of transportation for a single trip) travel offer the most promise in terms of covering the distances involved in many people's commutes
- The City of Toronto is demonstrating a commitment to encouraging cycling by fully funding bike plan improvements and opening an innovative new bike station at Union Station
- Use of other methods of transport including scooters, skateboards, electric-assist bikes, in-line skates and Segways is also increasing as people seek viable alternatives to car travel
- There are a wide range of existing bicycle storage options ranging from simple "post-and-ring" to full-blown bike station structures to automated bike storage systems
- The most important factors for choosing a bike storage location included security, convenience, personal safety and the ability to lock two points (both frame and wheel) to a secure structure
- Bicycle storage must be constructed from durable materials that can withstand weathering over time and resist the ingenuity of persistent bike thieves
- Short, medium and long term bike storage options are needed
- Accessory features such as air pumps, water refill points, gear lockers, showers, changing rooms, seating, greenery, benches and tables may make cycling more convenient

PHOTOS, FACING: Cycling is rewarding | by Benson Kua, **ON FOLLOWING PAGE:** Sketches for the bicycle charrette | by Michelle Hotchin


Storage Bike
Locker + Bike
Angled
TRACK
MODEL
MODULAR UNIT

PROCESS


PARKING UNIT
ARC

PROCESS

The Institute without Boundaries assembled an interdisciplinary design team and engaged the College, the City of Toronto, local community members and cycling advocacy groups in a collaborative design process. The results were refined and developed by our core design team into a comprehensive design solution that incorporates a system of bike storage stations for existing and future George Brown College campuses.

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5 Days

43 Participants

16 Ideas

3 Preliminary Concepts

1 Final Concept

WHAT IS A CHARRETTE?

A charrette is a collaborative and creative process that brings together designers, developers and prospective investors with end users and operators. This intensive process connects community members and professionals from various backgrounds to generate concepts for complex situations. Over a few short days of brainstorming, discussion and expert consultation, these teams create a broad range of ideas around a central theme. Because users are involved at every stage of the problem-solving process, the results are practical and meet community objectives comprehensively.

Charrettes originated as a design process used by architects, urban planners and designers to bring together community members, developers and professionals, groups that often hold competing interests and agendas, to address complex projects such as neighbourhood planning, urban development and construction projects. By working together in a charrette, these groups are able to develop feasible solutions that meet everyone's needs. The term charrette is drawn from the late 1800's, where proctors at the Ecole des Beaux-Arts in Paris would circulate a cart (charrette) to collect drawing submissions, as students rushed frantically to finish their work. The word has since been adopted by the architectural and design community at large.

The Institute frequently hosts charrettes for community, commercial and institutional projects, as part of its mandate to share its research with a wide audience. Each charrette is based on combining the principles of social innovation and sustainability with practical and feasible considerations and produce comprehensive, holistic solutions and concepts.

The process results are detailed in:

- A **Research Report** that fully details the project context including target users, design precedents, project specific research areas, site analyses, community factors, legal restrictions, physical constraints and characteristics and material investigation.
- A **Design Concept Presentation** that outlines the charrette results including a concept statement, schematic drawings, cost estimates, material specifications, site maps and plans, municipal impact evaluation, programming options, feasibility evaluation and implementation planning.
- A **Final Report** containing everything needed to actually begin the process of implementing the design results. This document will include a refined design concept statement, research summary, schematics, 3D model images, plans and elevations, site maps and plans, material specifications, impact evaluation, programming options, feasibility evaluation and a detailed implementation strategy, budget and project schedule.

CHARRETTE SUMMARY

DAY ONE: MONDAY, APRIL 27

After kicking off the project with presentations about the context and background to participants and guests, participants broke out into 4 smaller teams to brainstorm around the central theme of bicycle storage on the George Brown Campus. By the end of the day these teams had produced more than 16 concepts and presented them as sketches, slides and feature lists. These concepts represented a wealth of material to build upon following one day's work.

DAY TWO: TUESDAY, APRIL 28

The second day began with the selection of the 3 best concepts from the 16 concepts generated on day 1. New teams were formed and the process of development and refinement began. After some design development in the morning, each concept was presented to a panel of expert advisors that included 2 industrial designers, an urban planner, a contractor and a bike specialist.

DAY THREE: WEDNESDAY, APRIL 29

Based on the feedback from the expert advisors, further refinements were made to the 3 concepts in preparation for a co-creation session with members of George Brown College's Green Team. These concepts were titled The Ribbon, The Garden and The Rail and each used a unique approach to addressing bicycle storage needs on the St. James Campus site. After discussion and review, the Rail was selected for final refinement because of its modularity, its suitability for cross-campus applications and excellent branding potential.

DAY FOUR: THURSDAY, APRIL 30

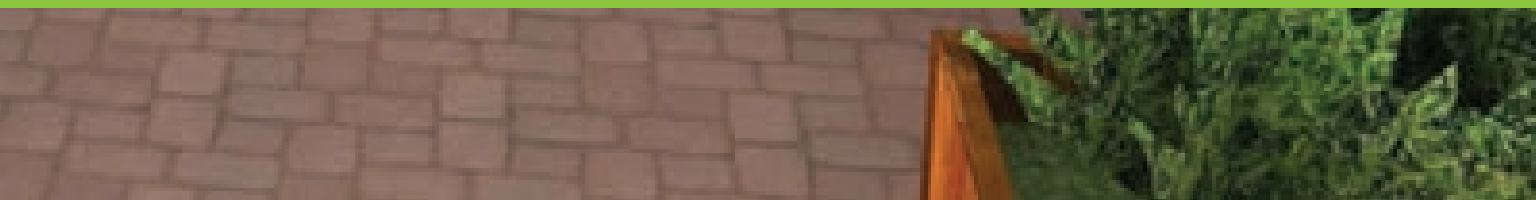
With a single final concept selected, the core project team began in-depth analysis and refinement of smaller details of the concept, which was re-titled The Bike Line to express the parallel with other transit systems, reference the bike lane and emphasize its linearity. SWOT (Strengths, Weaknesses, Opportunities & Threats) analysis was applied to the concept to identify areas in need of improved design solutions and anticipate future threats. Further evaluation from a user perspective, a feasibility perspective and an operations and maintenance perspective also contributed to detail development.

DAY FIVE: FRIDAY, MAY 1

This intense week of work culminated in a presentation to stakeholders and guests, detailing the project goals, revisiting the charrette process and introducing the finished concept, The Bike Line. The audience was made up of representatives from a number of the organizations who were following this project including George Brown College administration and Green Team members, various Toronto bicycle community organizations, Metrolinx, the Canada Mortgage and Housing Corporation, and the City of Toronto's Transportation Services Division and Waterfront Toronto.

PHOTOS, ON PREVIOUS SPREAD: Day One site visit | by Michelle Hotchin, **FACING, TOP LEFT:** Participants are briefed on-site | by Michelle Hotchin, **TOP RIGHT:** En route to site | by Michelle Hotchin, **MIDDLE:** Brainstorming sketches | by Michelle Hotchin, **BOTTOM LEFT AND RIGHT:** Presentation of results | by Perin Ruttonsha

RESULTS



PRELIMINARY CONCEPTS

The three concepts prepared for day three of the charrette were reviewed in a co-creation session with several members of George Brown College's Green Team. These concepts synthesized many of the original ideas that resulted from the 16 concepts created on the first day. Many of these features would later feed phases of the design process.

CONCEPT ONE: THE RIBBON

The Ribbon concept is a wood and concrete structure that creates a kinetic wave form, guiding visitors into the site while providing different types of bike storage. Seating areas are integrated into the structure and encourage social interaction around the site. This concept incorporates 3 levels of bike storage types. An enclosed "bike room" provides secure storage for longer use, the middle section provides partially covered rack storage, and exterior bike racks enable easily accessed shorter term bicycle storage for users in a hurry. The site also features multi-level social spaces, improved green elements and public furniture in keeping with the aesthetic.

CONCEPT TWO: THE GARDEN

The Garden uses modular elements to make different shapes that can serve a variety of functions. A simple L-shaped base of tubular steel can be arrayed radially and become a bike rack, a bench and table or a raised planter. These shapes are designed to for installation around the base of trees or plant bases. They would act as protection for young saplings while they are growing into the space. These added trees and other greening of the space would create a garden-like feeling in the space, which would draw people the space and add a security in the form of public surveillance.

CONCEPT THREE: THE RAIL

The Rail is a modular system with interchangeable components that perform a range of functions. The bold red rail is both physical infrastructure for the different types of bicycle storage, planters and seating elements as well as visually connecting the features and directing users through the space. This is a solution that could be expanded to connect other areas and buildings on the campus, tying together the separate buildings and branding the College in a highly visible and distinctive manner. The modular components include several types of bicycle storage, bike lockers, gear lockers, planters that could be deployed at varying heights, tables and benches and bike-friendly amenities such as air pumps and water dispensers.

PHOTOS, ON PREVIOUS PAGE: Eye-level view of final concept | Artist's rendition, **FACING, TOP:** Ribbon concept | Artist's rendition, **MIDDLE:** Garden concept | Artist's rendition, **BOTTOM:** Rail concept | Artist's rendition

FINAL CONCEPT: THE BIKE LINE

The Rail concept was selected for its flexibility, capacity for expansion and branding potential as the main direction for the final concept. Elements from the Garden were incorporated as public furniture to enhance the space. Many design iterations were explored and visualized during the final stages of the charrette, resulting in a solution that supports the growth of bicycle culture on campus by providing different bike storage options and creating new public spaces that enhance the college's exterior.

This final concept became **The Bike Line**, a reference to the creation of a new visual brand language for cycling infrastructure on the campus and beyond. It is a tangible symbol of the College's commitment to sustainable development and a comprehensive strategy for improving bicycle storage on campus. A vibrant, red steel rail provides a visual and physical infrastructure for a variety of modular elements that are suspended from this central spine. These elements include 3 distinct types of bicycle storage that provide short, long and medium term storage. Additional modules could include energy capture elements like solar panels or micro-turbine arrays, high efficiency lighting and generative public exercise equipment.

One of the primary advantages of the system is its flexibility: elements can be replaced or moved around to accommodate alternative uses or to add new ones. It can be easily adjusted to fit at another location and supports the development of new modules that might add new functions in the future. Complementary public furniture constructed of modular steel tubing elements and FSC (Forest Stewardship Council) certified woods provide seating and planters that increase site greening and make the space more inviting for social gathering. This use of wood also softens the overall design and adds texture and warmth to the space.

In addition to these site improvements, **The Bike Line** can become a physical link for the campus, connecting different areas and buildings and acting as a backbone for wayfinding throughout the campus and surrounding neighbourhood. This can serve as a visual indicator of the College's presence within the City of Toronto's bike-friendly network, connecting with the urban environment and turning the in-between spaces into places that support cycling and social engagement.

The Bike Line sets a new standard for socially and environmentally responsible campus development for George Brown College. Addressing the development of a college-wide bicycle strategy and the exploration of alternate means of transportation, this concept responds to issues of bike safety, storage and security and anticipates the changing face of personal urban transportation.

PHOTO: Aerial oblique perspective | Artist's rendition

ANALYSIS

The development of The Bike Line involved critical analysis in support of design development. Each part of the design was compared against the original criteria and evaluated based on how well it met all the projects parameters. Variations were compared, discussed and evaluated and a variety of techniques were employed to choose the very best solution for each element of the design concept. One of the most important tools used during this analysis is the SWOT (Strengths, Opportunities, Weaknesses, Threats) analysis. A traditional business evaluation tool, this process allowed the team to project how the concept would unfold from both a design and business perspective and enabled the team to fully explore and exploit all the design's strengths and opportunities while addressing and mitigating its weaknesses and threats.

PHOTO: Close view of arc-shaped rack | Artist's rendition

STRENGTHS

- Modular and reconfigurable
- Potential for many different types of components
- Seasonal flexibility
- Allows for in-the-field evaluation of usage patterns
- Adaptable and flexible with the ability to evolve over time
- Bold, highly visible design
- Provides a physical conduit for water and electricity
- Physically connects buildings and spaces
- Can fit into a variety of spaces

WEAKNESSES

- Could look dated if not carefully designed
- May involve long-term commitment to one supplier
- Seasonal components require storage space
- Mechanical services may be complicated to deliver
- Linear form-factor may restrict application in certain types of spaces

OPPORTUNITIES

- Brings a visual sense of cohesion to the campus(es)
- Generates a sense of community within the college
- Creates areas for social interaction
- Supports social activities that improve the security of the area
- Provides more usable outdoor space, something the College lacks
- Brands the College with an iconic, connective structure
- Potential structure supports wayfinding, displays of art or information
- By nature it can be adapted to other uses as demands change over time

THREATS

- Materials might be costly
- Custom work required
- Custom parts may create maintenance issues in the future
- Modules must be both secure and mobile
- Wear and tear due to movability may be increased
- Vandalism or damage is always a concern in public spaces

FEATURES

The Bike Line is composed of a steel rail that runs along an L-shaped corridor around the North and East faces of 290 Adelaide St East on the St James campus. This rail is the backbone of the system and supports the different components both physically and mechanically. The rail is supported at 4.5m (15 ft) intervals by vertical posts, and each segment is designed to hold one component or cluster of bike storage components with generous space for moving around them.

In the full configuration proposed for the St James site, these components will provide storage for a total of 108 bikes in a space of about 550 square meters (6000 sqft) that will also provide seating and amenities for social applications in the same space. Build and installation will be phased in 3 parts, beginning with 6 sections in the north west corner of the site.

The different types of bike storage accommodate various user types: “post-and-ring” locking racks provide secure, short-term storage in a familiar form-factor that fits well within the modular system, the arc-shaped racks provide additional storage in a more efficient footprint and fully enclosed bike lockers provide a solution for users staying for extended periods of time and looking for a higher level of security and protection for their bikes. The character of the rail fits well with the parkette feeling proposed for this site as well as with the surrounding neighbourhood.

BIKE STORAGE

THE “POST & RING”

Capacity: 8 (per cluster of 4 posts, each post supports 2 locked bikes)

These reference a common style of bicycle storage found widely around the City of Toronto. Easily accessed for short-term use, they would be the most common component on **The Bike Line**. The large ring ensures two points of contact with any bike, allowing users to lock both frame and wheel, and generous spacing allows users to negotiate around them even when they are fully occupied with locked bicycles.

The supporting post descends from the rail to this ring, which has a diameter of 0.5m (20in) and is suspended approximately 0.4m (16in) above the ground. Both the ring and post would be constructed of steel bar or tube. A pipe collar will attach each post to the rail and a cross brace will strengthen this structure and reduce movement. This cross brace also provides a space for signage or community posting. A curved polycarbonate shelter element provides some protection from rain and snow.

PHOTOS, ON PREVIOUS SPREAD: Aerial oblique view of components | Artist’s rendition,
ABOVE: Proposed design for ring and post component | Artist’s rendition

THE ARC RACK

Capacity: 12 bikes

The arcs are locking structures that use a metal track to guide the bike into a semi-upright position. These racks suit medium-term bike storage best, and the vertical park position on the curve means that more bikes can be stored on a smaller footprint. This creative use of space also creates visual appeal with its striking form.

Bikes are rolled up the track until the rear wheel falls into place, supported by a recess or block support at the base of the curved track. The bike can then be locked to the centred rings using standard bike locks that connect both the wheel and frame. On the underside of the curve, the rings accommodate an additional six bikes that can be locked with wheels on the ground.

Each rack is made up of six parallel curved tracks backed by a perforated metal sheet with six intersecting ring-shaped support braces. The black, powder-coated steel tracks are designed to be approximately 2.3m (7.5ft) in height, and a curved polycarbonate shelter element can be attached to provide protection from the rain and snow.

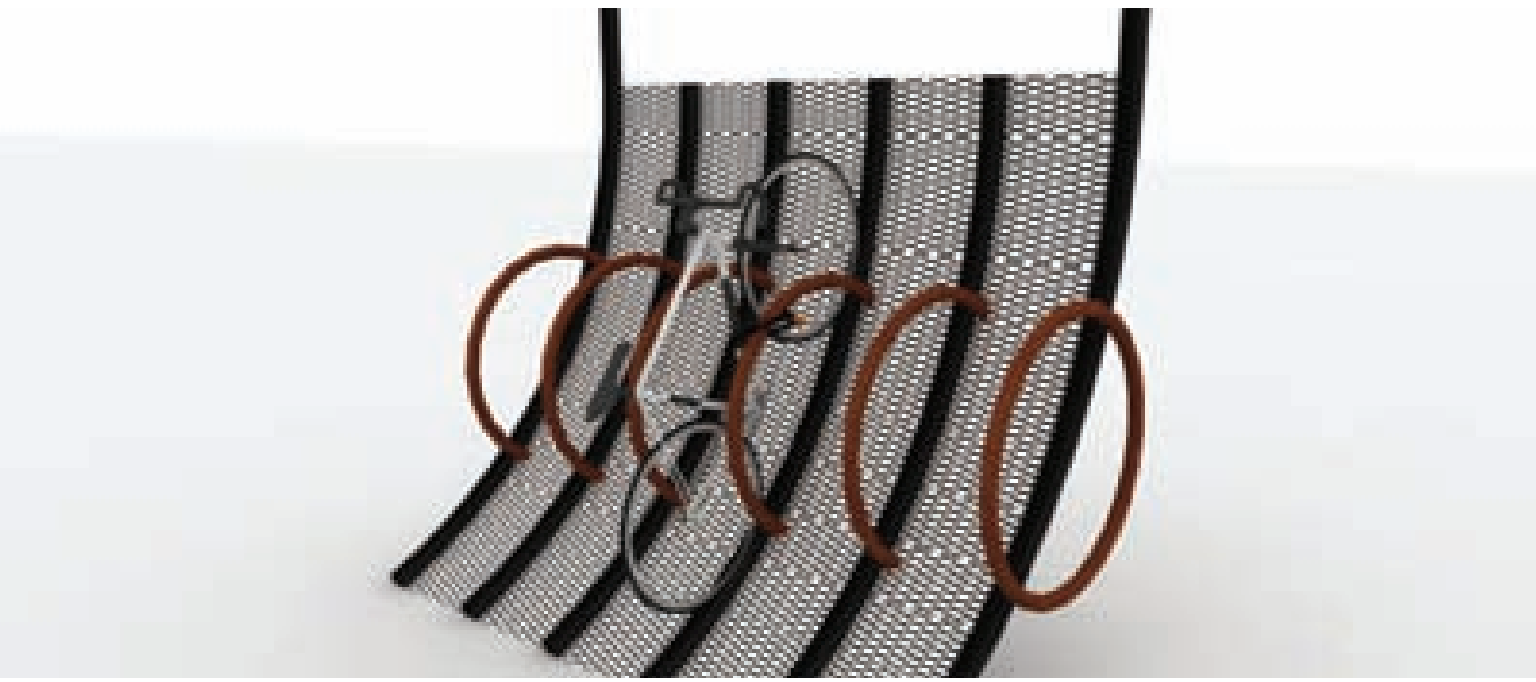


PHOTO: Proposed design for arc-shaped racks | Artist's rendition

THE BIKE LOCKER

Capacity: 2 bikes (each locker is made up of 2 separate bike enclosures)

Fully enclosed bike lockers are available for rental by the month or semester. This service would be administered through existing College service channels such as the book store or student services office. These lockers accommodate standard bicycles, keeping them protected from foul weather, theft and vandalism while offering additional security compared to standard racks.

Cyclists would use a dedicated locker, accessed by a key or a swipe card provided at the point of purchase. Bikes are stored in the locker with the rear wheel at the back and the handlebars and front wheel at the wider front. This tapered shape means the lockers can be staggered, making more efficient use of the space. Gear such as helmets, jackets or gloves can be stored in the locker using the wider front space as well. These lockers would be constructed of strong steel, so that they are weather-proof and tamper-resistant.

PHOTO: Proposed design for bike storage lockers | Artist's rendition

BIKE AMENITIES

RAIN SHELTERS

Clear, polycarbonate shelter panels can be combined with any component to protect both bikes and users from the elements.

STAIR RAMP

One of the access points to the St James site is via a shallow staircase at the north west corner. To make access with a bike easier, retrofitted bike ramps with a wheel groove could be added, these would run up one side of the existing stairway in order to facilitate access to the site while still allowing unimpeded foot traffic. This is an extremely low-cost modification that doesn't require reconstruction of the stairs themselves.

AIR PUMP & WATER DISPENSER

The Bike Line could also feature water dispensers and air pumps to provide added amenities for cyclists using the space. A hand-operated air pump could be mounted on the rail, allowing cyclists to top up their tires. Water dispensers could also be integrated into the site for quick bike and hand-washing.

E-BIKE PARKING & CHARGING

E-bike charging stations will provide power for electric and pedal assist bikes, a growing trend in personal transportation in the city. Charging stations could be located in the northwest corner of the site, to the west of the stairs. This central location highlights George Brown's innovative development and commitment to alternative energy sources. The stations may be powered entirely or partly by energy captured on the site.

BASIC AMENITIES

WASTE DISPOSAL

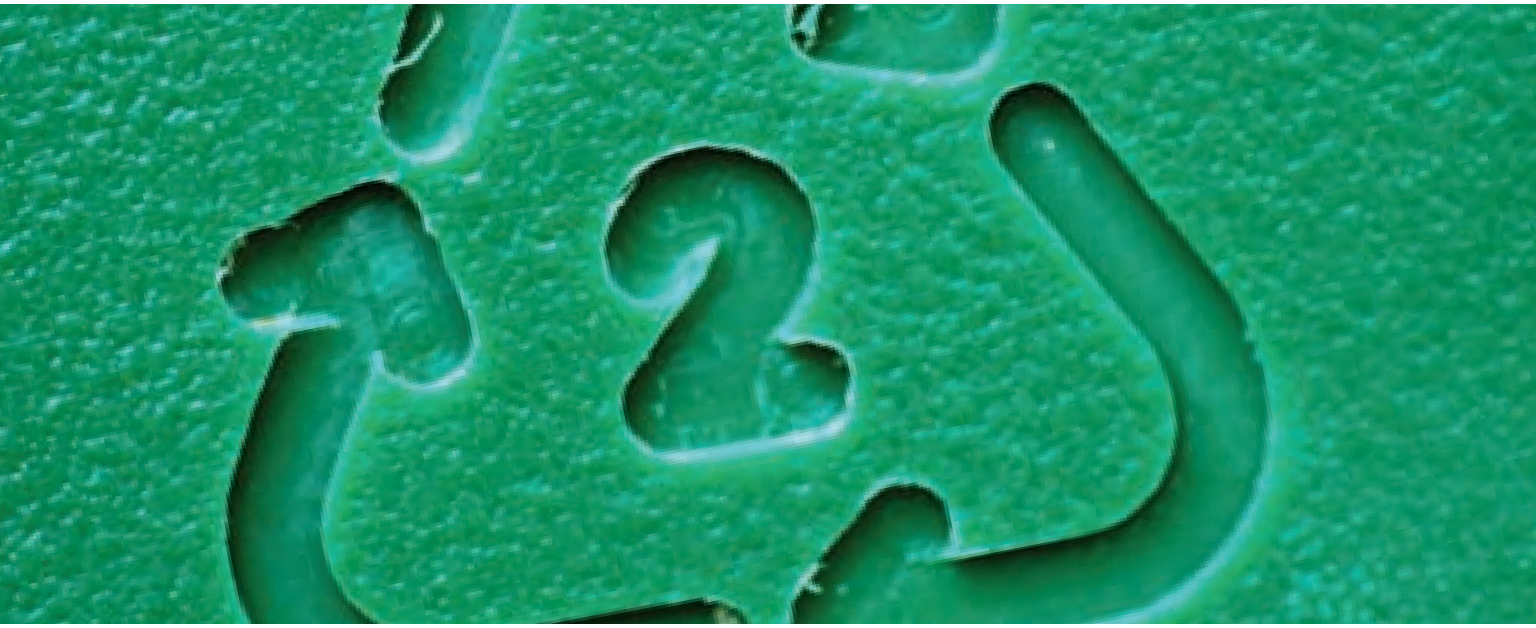
Waste and recycling receptacles will be placed throughout the site in the most trafficked locations. The St. James campus corridor will feature garbage and recycling receptacles with secure lids and locking mechanisms. Waste collection will be integrated into existing campus maintenance routines.

RECYCLING

Recycling is an important part of the existing campus strategy. In anticipation that the space will be used for eating and short-term socializing, bins will be placed to recover recyclables such as paper, glass and plastic beverage containers and food cartons. These will be signed appropriately.

ENERGY-EFFICIENT LIGHTING

Low-power, energy-efficient lighting will be used throughout the space and might be powered by on-site energy capture. Preferred lighting types include strip-LED or LED flood arrays. This kind of lighting is both low-draw, low-heat and provides excellent lighting levels inexpensively and efficiently.



SOCIAL FEATURES

Social features encourage people to use the space for more than just bicycle storage. This kind of use both adds value to the George Brown College campus and also provides a kind of passive security in the form of “eyes on the street”.

BENCHES

Ample seating encourages people to socialize and hang out in the area, improving passive security and creating an outdoor student lounge. Benches are made up of a simple steel frame module that repeats to support tables, planters and seating depending on their configuration. Seat elements are made of FSC cedar, a sustainable and durable product that will also bring a warmth and texture to the space in contrast to the steel and red rail elements.

PHOTOS, FACING: Recycle | by Will Merydith, **ABOVE:** Modular bench and planter | Artist’s rendition

INFORMATION DISPLAY

COMMUNITY BOARDS

Community boards can be posted in the space, taking advantage of the social nature of the site and accommodating messages and postings. This will tie the space to events taking place within the George Brown community and work as a point of connection to the campus for students and the public alike.

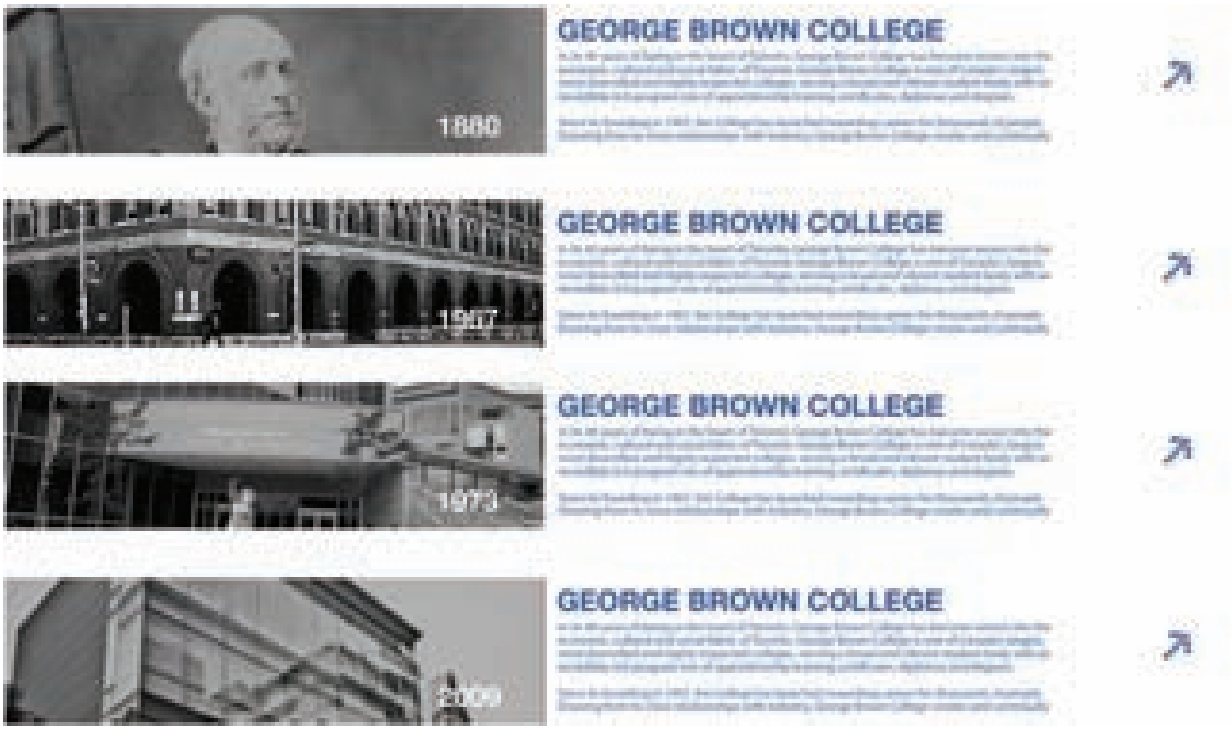
WAYFINDING

The nature of the concept makes it a natural point for attaching wayfinding signage. This could be branded in accordance with the College's branding strategy and increase visibility further.

PHOTOS, FACING: George Brown, A History concept | Artist's rendering, **ABOVE:** Vertical signage concepts | Artist's renderings

ART PROJECTS & DISPLAY

The Bike Line can also be used as a kind of outdoor exhibit space, supporting art installations of student or community work, or might be used to tell a story about George Brown College or the surrounding neighbourhood.

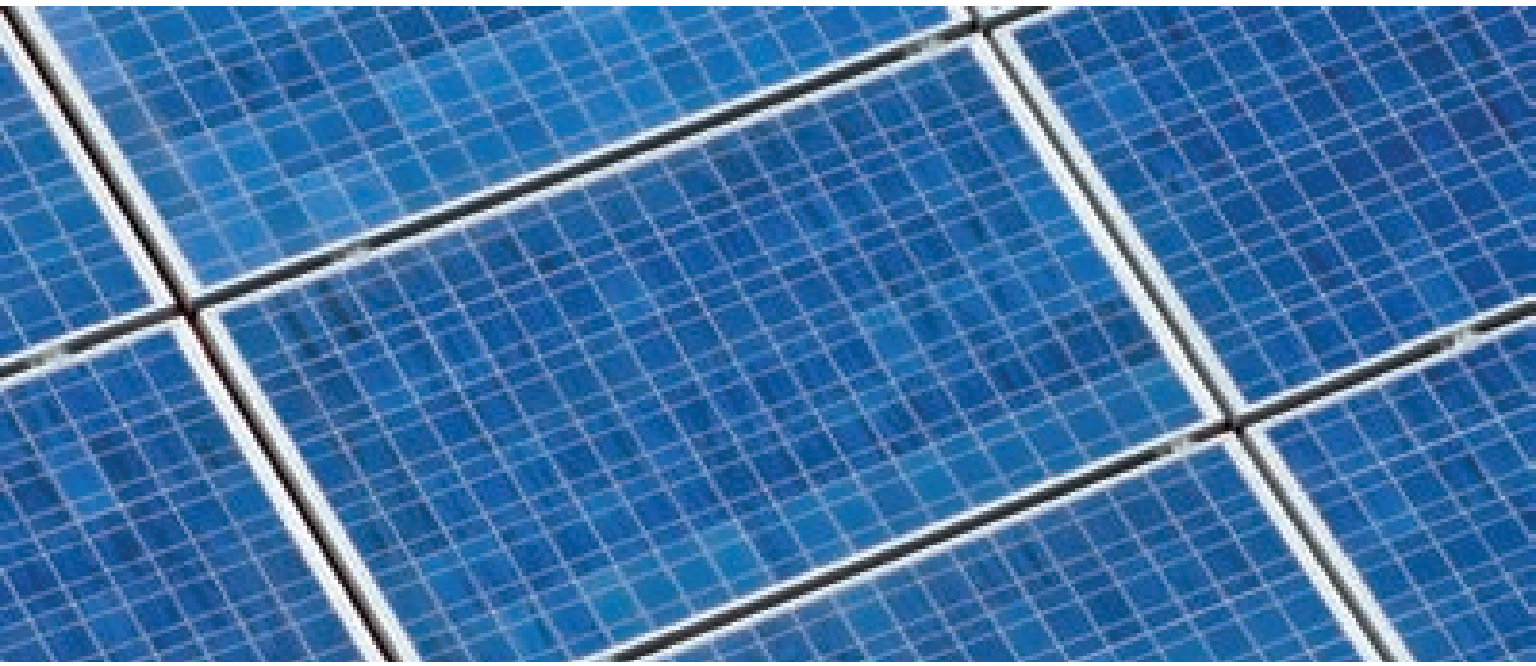


ENERGY CAPTURE

Energy Capture features on the site help to create a closed-loop system that recycles energy resources and power some of the amenities of the site, like lighting and e-bike charging stations.

SOLAR PANELS

These panels can be used on the site to capture energy from the sun. These would be either roof-mounted or attached to the rail and provide emission-free electricity, reflecting a growing trend in southern Ontario for solar-farming to subsidize the cost of energy for both small and large-scale applications. The panels will also generate positive discussion about George Brown's presence as a force of corporate sustainability in the City of Toronto.



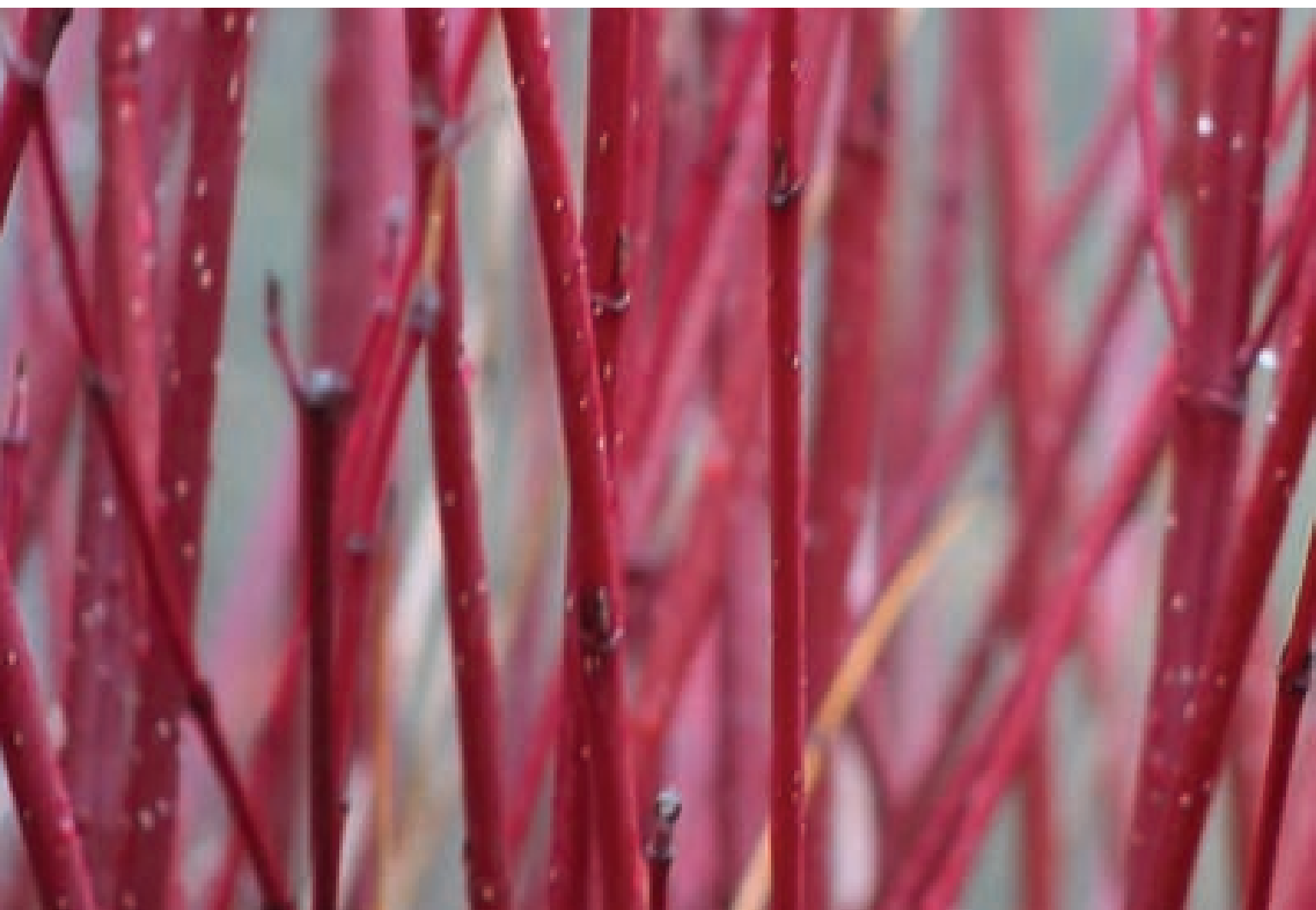
PHOTOS, FACING: Wind Turbine, the Delta Project | by Random_Fotos, **ABOVE:** Wayne National Forest Solar Panel Construction | by Wayne National Forest

WIND CAPTURE

Wind capture through the use of turbines or micro-turbines contribute to the recycling of energy resources, capturing energy from the movement of air currents through the space. In a narrow corridor, such as the St. James campus site, wind currents are focused and roof, rail or wall mounted units can supply additional power generation and can act as a distinctive decorative element.

GENERATIVE FITNESS EQUIPMENT

Generative fitness equipment to capture energy is becoming a real possibility, with precedents in Beijing and Europe. Outdoor fitness equipment constructed of a sturdy weather-proof casing could engage users in the space to exercise and help to power the site features at the same time. Power generated from these devices can be diverted and used to power lighting or electric-assist charging stations. Use of the equipment would be free of charge and accessible to George Brown students, faculty, and the public alike.



SITE GREENING

PLANTINGS

The planting strategy on the site will use native Ontario plant species, both a sustainable and a cost-effective choice as these plantings are suitable for the climate and environment and will not require expensive maintenance procedures in the future.

The major tree at the corner of **The Bike Line** site will be a Basswood (*Tilia Americana*). An extremely good street tree, it is not only tolerant of urban conditions, but has a fragrant flower. Its dark green colour will complement the red rail dramatically. With an attractive permeable canopy of heart-shaped leaves, the Basswood will cast dappled shadows on the rail in summer.

In the boxed planters, Red Osier Dogwood (*Cornus Sericea*), deciduous shrubs of vibrant red will reference the bright, playful red of the rail. Their dense clusters of tiny white flowers in the spring will contrast black boundary fence they are planted against.

In the planters against the tiled wall in the narrower east-west corridor are Eastern White Cedar (*Thuja Occidentalis*) which are very hardy and can take both shade and stress. As a Canadian icon, their characteristic cedar smell will help create a pleasant environment for sitting and staying. These are alternated with Nannyberry (*Viburnum Lentago*), a small native shrub which is softer and more leafy. Extremely shade tolerant, with dark, glossy leaves and cream-coloured flowers, the Nannyberry's edible fruit is also an attractor for birds.

On the wider, brighter, north-south corridor, the plantings against the wall would be Mountain Holly (*Nemopanthus Mucronata*) which has vivid berries that glow against velvety leaves and add year-round interest.

PAVING

Permeable interlocking paving accepts rainwater and drains into underground trenches which hydrate the roots of trees and shrubs in the boxed planters. The boxes are open at the bottom, and planted straight into these soakage trenches. This strategy diverts rainwater from the sewage system and supports the native plants which are accustomed to Ontario's temperate wetland conditions.

Two strips of diagonally arranged paving flank a central concrete area of larger slabs that are reinforced to securely support the weight of the rail and give stability to each module. Visually breaking up the ground plane also helps reduce the aesthetic of uniform site-wide paving. Pea-gravel will be used at the edges of the space to provide additional drainage and texture.

PHOTOS FACING, TOP: Baswood leaves | by Martin LaBar, **BOTTOM:** Red ossier dogwood | by Noel Zia Lee

EXPERIENCE

WINTER

I cannot believe this day. When I got up this morning, it was already freezing, bitterly cold, wind violently blowing. But the snow – the snow is the worst. And Canadian snow in January during rush hour is something I despise with every fiber of my being.

I rode my bike anyways, I do every day. Thank goodness I have a campus bike lockers. I don't think I could bear to ride here if I didn't know I had a safe place to keep my bike and other gear while I'm inside the building. I can keep all of my stuff together, safe and dry, and not worry about having to drag the gear into the classroom with me.

Riding in the winter is tough in this climate. There is so much to contend with: the roads, the snow banks, the weather. But as I stop at a red light and see the crowded streetcar that's pulled up next to me, I am so happy that I am not one of those people, crammed in like wet, cold sardines - or worse, left out in the cold because the car is full and waiting for the next full streetcar to come.

I wonder if the snow will still be this bad by the time I leave tonight. At least I don't have to worry about whether or not my stuff will still be there at the end of the day. And on a day like today, it makes all the difference in the world. Ready to face the day, I look back one last time and run off into the wintry morning.

PHOTOS, FACING: Tree Shadow Lunchbreak | by papalars, **ABOVE:** Bicycle in the snow | by Adam S. Carroll

SPRING

I leave my classroom and hit the street. Overhead, a bold streak of red slices a path through the urban landscape. Strangely compelled, I follow the track as it snakes above the traffic. A cyclist darts between halted vehicles and disappears up a laneway. His path follows the red line above. Following, I enter the park as he is de-biking, resting upon one of the benches while his bike, locked nearby, floats on an arc of brushed steel.

Fellow students mill about in small clusters: some are just parking their bikes, some are storing them in lockers. Some are tinkering, filling tires with air, filling water bottles from a fountain, adjusting chains or bells or baskets. Most are just enjoying the sunshine, eating lunch, and hanging out with friends.

I didn't know this area existed. It is an oasis tucked away, where the traffic seems to disappear. Trees and greenery punctuate the landscape. The area feels like a garden of functional art, a school yard full of beautiful toys. A group of students fire-up an adjacent BBQ. It's a fundraiser--I did not expect to find this kind of community here.

The red rail supports all of the boundless activity around me. Several types of bike racks hang from its structure, most partially filled with bicycles of all shapes and sizes. A smattering of electric bikes are parked near the stairway, charging the stations located there. I follow the pipeline around the corner and it come upon an exercise bike. I've been sitting all day and feel stiff, so I jump on a bike and start to pedal. I can feel the resistance as I do, and I know that I am helping to power the lights that will turn on at night.

I never thought of George Brown as a "safe" place to cycle -- too many cars, busy streets, streetcar tracks - but the number of bikes in this yard amaze me. I really don't live that far away myself...

PROGRAMMING

The best implementation of The Bike Line will include programming support. These range from basic maintenance routines and security to expanded services like the rental of bike lockers and encouragement of social activities in the space.

BIKE LOCKER RENTALS

The rental of these lockers will help to offset the cost of the space, generating revenue through monthly- or semester-based subscriptions with a proposed cost of between $10 and $20 per month. The sale of these subscriptions might be run through Student Services or the George Brown bookstore at 200 King St. East. Subscribing to a rental would mean a dedicated bike locker for your bike and gear.

COMMUNITY INFORMATION

Because of the proposed nature of the space as a social hub, community boards for posting notices, messages and posters would be a natural application in this space. This could be mounted at the North-west end of the rail and would need some monitoring by George Brown staff to prevent build-up of materials and ensure appropriate advertising.

WAYFINDING

Signage directing people from place to place within the campus would need to be planned and updated as necessary, especially if the system is expanded beyond the current site.

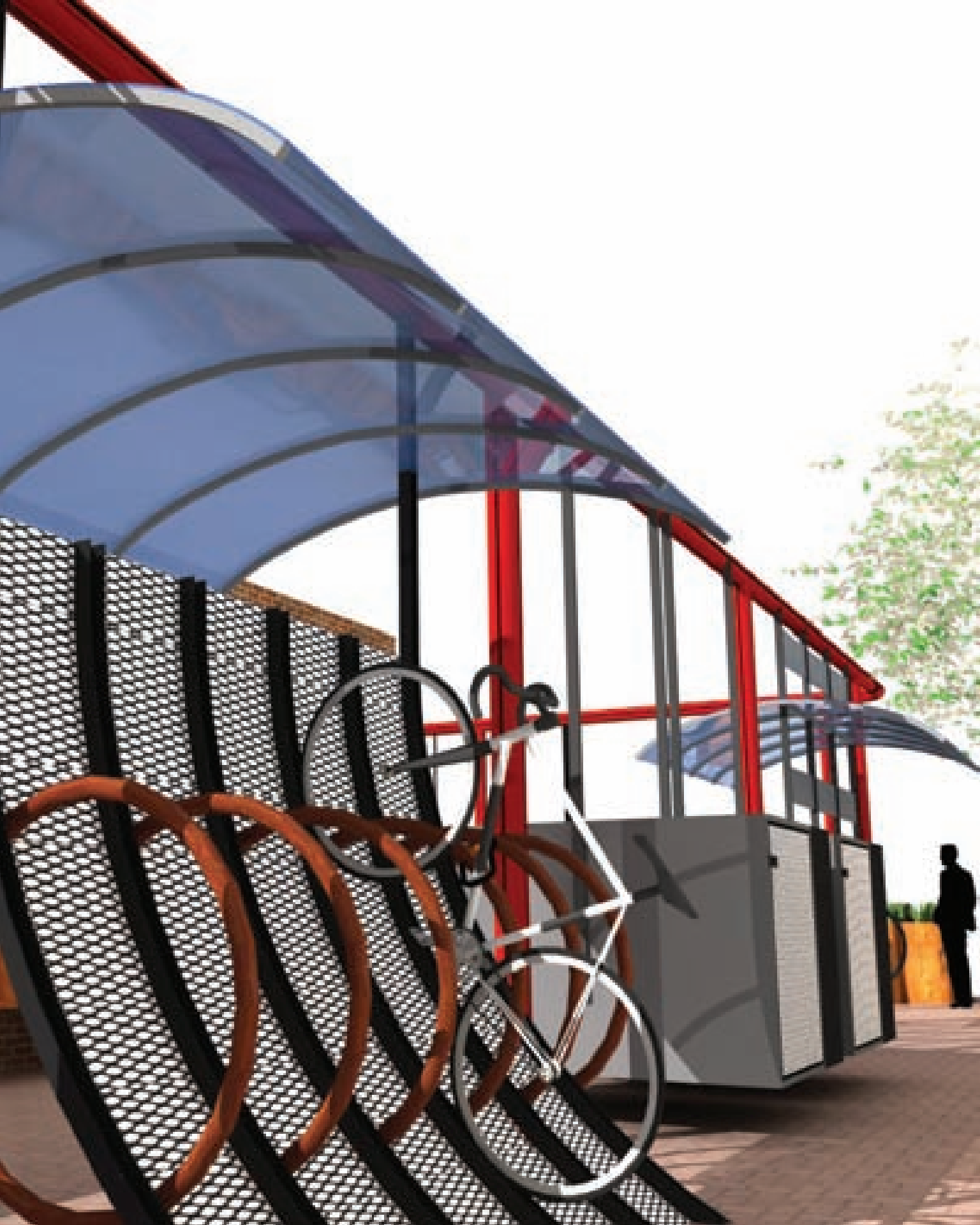
SOCIAL ACTIVITIES

In addition to casual social activities such as eating lunch and studying, the space can be used as a venue for more organized social events. These might centre around bike-related activities, including bike repair and maintenance lessons, cycling skills workshops, and as a meeting place for group rides. The arrangement of benches and components in the site supports this social dynamic, without inhibiting the use of the space for storage. Increased social use of the space improves security and makes better use of the outdoor space.

ART & NARRATIVE INSTALLATIONS

Another potential use for The Bike Line system is the inclusion of art or narrative installations. Art from local community members or George Brown students could be installed along the vertical support posts, allowing for outdoor art exhibits. The linear nature of the system also could be used to tell a story over time, using the rail as a physical “timeline” that displays elements of an ongoing narrative as you travel along the rail. This could be used to tell stories about local history, the history of George Brown, or tell Toronto-based fictional narratives.

PHOTO, FACING: Sunlight in north west corner of site | Artist’s rendering



PHASES

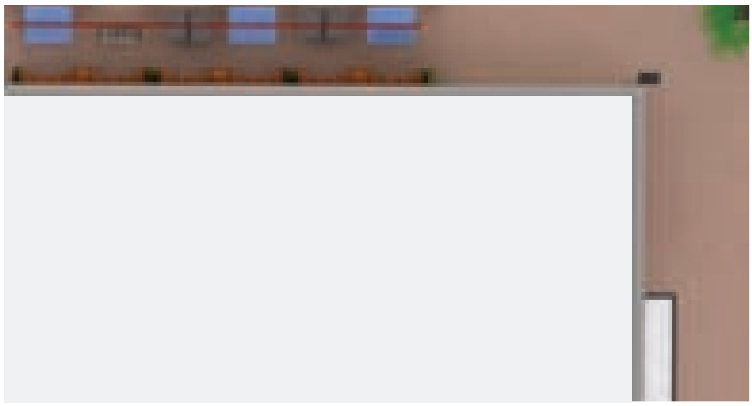
Implementation of this site solution will be phased. Installation would begin at the North-west corner of the site, which is the closest to the main building entrance and the easiest access point for cyclists and other users. Since the features on The Bike Line are designed for different spans of use, more short-term use components would be included in the first phase, with longer-term components installed as the site is improved.

Phase One will be made up of 6 segments, each one 4.5m (15ft) in length for a total span of 27m (90 ft). The first build will be in the section of the corridor closest to the North-west staircase and building entrance. This phase will feature two clusters of ring and posts, two arc components and four bike lockers arrayed in groupings of two per cluster. This represents space for 48 bicycles to be stored in the first phase. Bench and planter arrangements align with the segment length of the rail system so this phase would include 7 taller planters along the fence, each one aligned with a support post, and 6 bench segments along the wall with 6 alternated planter backs and 6 table-tops.

Phase Two will be made up of 4 segments totalling 18m (60ft), making the span 45m (150ft) to the corner of the site. This will accommodate 1 more cluster of ring and post storage, one arc component and four more bike lockers arrayed in pairs, for an added capacity of 28 more bikes, bringing the total storage of the site up to 76. This phase would also extend the bench and planter arrangement and include 5 taller planters along the fence, 3 bench segments along the wall to the corner with 3 alternated planter backs and 3 table-tops. This would be supplemented by an additional bench against the fence at the far end under the tree, and a larger corner planter at the corner of the building.

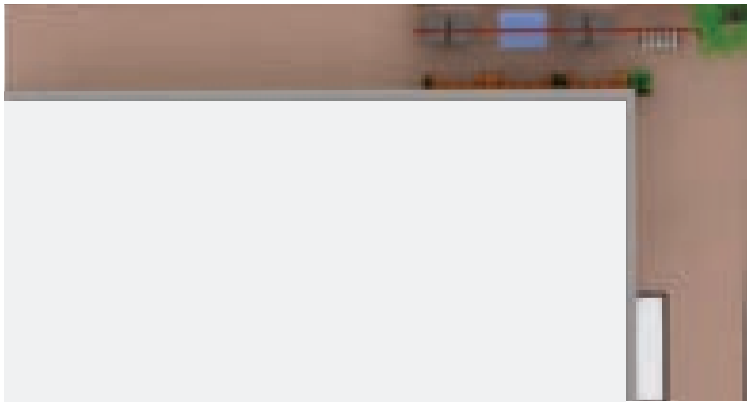
Phase Three will be made up of 5 segments, adding a further 22.5m (70ft) and extending the rail length to a total of 67.5m (220ft). This will accommodate 1 more cluster of ring and post storage, 1 arc component and 3 pairs of bike lockers for a capacity of 32 more bikes, bringing the total site storage capacity to 108 bikes. 3 more bench segments along the wall side of the site will include 4 planter backs and 2 table sections, supplemented by 4 stand-alone benches along the fence side, flanked by 6 tall planters.

PHOTO, FACING: Phasing diagram | Artist's rendition



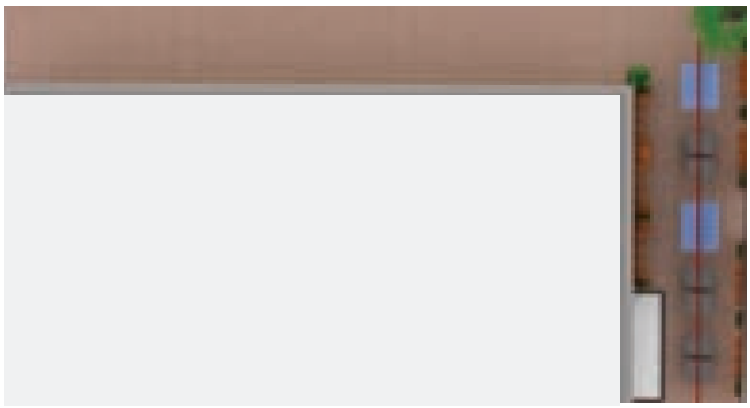
PHASE ONE

6 segments
27m in length
2 ring & post clusters
2 arch components
2 pairs of lockers
58 bikes stored
7 tall planters
6 benches, tables & rear planters



PHASE TWO

4 segments
18m in length
1 ring & post cluster
1 arc component
2 pairs of lockers
28 additional bikes
5 tall planters
4 benches, 3 table & rear planters



PHASE THREE

5 segments
22.5m in length
1 ring & post cluster
1 arc component
3 pairs of lockers
32 additional bikes
6 tall planters
7 benches, 2 table & 4 rear planters

BUDGET PROJECTION

This budget is an estimate based on consultation with expert advisors. It assumes that the site is free of hazardous materials and suitable for an installation of this kind without major construction. This budget projection does not include planters, benches or extra amenities such as energy capture devices or energy-efficient lighting.

	Phase 1	Phase 2	Phase 3
	6 rail segments	4 rail segments	5 rail segments
Hard Costs			
Railing System	$17,500	$11,550	$11,550
Components	$30,000	$20,000	$20,000
Electrical	$16,000	$8,000	$8,000
Water	$2,500	$2,500	$2,500
Pavers	$7,200	$4,800	$4,800
Gravel	$1,000	$650	$650
Site	$4,000	$3,000	$3,000
Soft Costs	$11,640	$7,100	$7,100
Variable			
Access System	$10,000	$5,000	$5,000
Contingency	$15,000	$9,500	$9,500
Sub-total	$114,840	$72,100	$72,100

Total $259,040

PHOTO, FACING: Close view of arc-shaped rack | Artist's rendition

CONCLUSION

CONCLUSION

The Bike Line is an opportunity to improve an under-used outdoor space, increase bicycle storage on campus, provide a much-needed outdoor social space for students, staff and faculty and also to extend and expand the branding of George Brown College. This project will raise the profile of the College and position it as an urban leader in sustainable, socially innovative development.

This concept has been presented and received recognition from the College's Green Team, the George Brown College Council, local cycling advocates, the City of Toronto, Metrolinx, as well as many staff, students and faculty of the College. The need for The Bike Line is clear and well-regarded, and as this project goes forward a wide audience will be watching its progress.

NEXT STEPS

1. Confirmation of phased project funding
2. Creating a committee to oversee project implementation
3. Refining the design and technical details of the components
4. Engaging a team to create working drawings from completed designs
5. Gathering quotes and hiring a contractor to oversee site installation
6. Creating a build schedule
7. Ordering custom pieces and other elements
8. Installation of Phase 1
9. Developing programming solutions
10. User feedback and project evaluation
11. Design construction amendments if necessary
12. Installation of Phases 2 & 3

PHOTOS, ABOVE: The Bike Line, North-east corner | Artist's rendition, **PREVIOUS SPREAD:** The Bike Line | Artist's rendition

APPENDICES

PROJECT PARTNERS

GEORGE BROWN COLLEGE

In its 40 years of being in the heart of Toronto, George Brown College has become woven into the economic, cultural and social fabric of Toronto. George Brown College is one of Canada's largest, most diversified and highly respected colleges, serving a broad and vibrant student body with an incredibly rich program mix of apprenticeship training, certificates, diplomas and degrees.

Since its founding in 1967, the College has launched rewarding careers for thousands of people. Drawing from its close relationships with industry, George Brown College creates and continually enhances relevant programs and curriculum to serve the needs of both students and employers by producing workplace-ready graduates who are highly sought after. Comparative research of Ontario's colleges has revealed that nine out of 10 George Brown graduates get jobs within just six months of graduation.

In addition to its industry connections, George Brown College also nurtures strategic relationships with government agencies, community partners, and educational associations, both within Ontario and beyond. By remaining widely connected to the community in which the College operates, George Brown is better able to provide the programs that will enable our students to achieve their dreams of getting the careers they want.

The College has three main campuses in downtown Toronto at Casa Loma, St. James and Ryerson University, along with 10 training facilities, from which it offers 150 full-time programs, and 1,200 continuing education courses. Students can pursue their career goals choosing from diplomas, degrees and certificates.

THE GREEN TEAM

The Green Team committee acts as the environmentally conscious voice of the George Brown College council. The team is specifically involved in launching and developing cross-campus initiatives that ensure the College delivers on the environmental targets in its strategic plan. Through task forces, forums, and extra-curricular activities, they focus on accountability surrounding both the school's operations and environmental footprint.

MAGNA MARQUE

Magna Marque is an Aurora-based subsidiary of Magna International, a world leader in auto parts manufacture. The largest Canadian maker of aftermarket products, Magna Marque is moving with the times and cultivating electric propulsion as a major part of their business planning. With the acquisition of the BionX, a Canadian company that produced retrofit electric-assist bicycles, Magna Marque is a Canadian leader in innovative thinking and is working to make transportation healthier and more sustainable. A valuable supporter of the Institute without Boundaries and George Brown College, they are committed to a high standard of research and sustainable thinking.

TEAM BIOS

CORE TEAM

LUIGI FERRARA, DIRECTOR

Luigi is a Registered Architect with seal, a member of the Ontario Association of Architects and the Royal Architectural Institute of Canada. In 2002, Luigi was appointed the Director of the School of Design at George Brown College. In 2006, he also took on the leadership of the Institute without Boundaries, a post-graduate program that aims to foster collaboration between disciplines to create innovative local solutions to 21st century global challenges. Between 1999–2002, Luigi served as President and CEO of DXNet Inc., a network for design and innovation that redefined the practice of design using digital media and advanced computing and telecommunication platforms. Between 1996–2002, he was the Vice-President of Programs and Services at Canada's centre for design and innovation, the Design Exchange. From 1989–1996, Luigi served as a principal of Ferrara Contreras Architects Inc. Prior to this, he worked for the internationally recognized architectural firm Stirling, Wilford Associates, and with local firms Peter Turner Architects, Paul Reuber Architect and Russocki Zawadzki Architects. He is a graduate with distinction of the Faculty of Architecture at the University of Toronto.

SILVIO CIARLANDINI, SPECIAL PROJECTS DIRECTOR

Silvio is an expert in design and project management. In his career he has grown, branded and franchised a successful business in the retail filed. He has a unique appreciation for the needs of business and community and is able to successfully negotiate a dialogue between design and business. He brings disciplines and sectors together to innovate and create sustainable and effective solutions. As Special Projects Director of the IwB, Ciarlandini provides an interface between a select pool of talented design students, faculty and local professionals to coordinate design solutions through the design charrette process. His company P2 is dedicated to bringing inspired and cost-effective solutions to client needs. Projects have included the Canuhome, exhibits at the Interior Design show and World House Interdesign.

MICHELLE HOTCHIN, PROJECT MANAGER

Michelle is a project manager and design researcher with a diverse professional background working in web development, financial services and the mental health services industry. She subsequently completed her Bachelor's degree in Industrial Design at OCAD and brings a unique perspective to solving business and design problems. Before joining the Institute without Boundaries (IwB), Michelle was the Manager of Research and Operations at the Beal Institute for Strategic Creativity, a non-profit research group created in 2005 in partnership with the Ontario College of Art & Design (OCAD) that specialized in providing business consulting services with a design research approach. Some of the clients she has managed projects for in this capacity include Motorola and the Joseph L. Rotman School of Management. She brings extensive experience in project management, design research, IP development, communications and resource management to her focus on sustainable design and social innovation. Michelle has also won numerous design awards, including 2nd place in the international design competition BraunPrize for her thesis project on residential electricity consumption and mitigation.

PERIN RUTTONSHA, DESIGN ASSOCIATE

Perin is an artist who also specializes in strategic planning and, is actively engaged in contemporary discourse regarding environmental and social innovation. Over the years, she has led large and small scale community-targeted projects, including their development, design and delivery. For example, she spearheaded a national social marketing campaign for the United Nations' International Year of Volunteers and researched health solutions for a remote Quechuan community in Ecuador's Amazon Basin. She also spent two years developing a marketing and growth strategy for Alternatives Journal, a non-profit environmental magazine. In addition, Ruttonsha has been delivering interactive, integrated programming for child, youth and adult groups varying in size from 4–4000 people for over twelve years.

GERRY VALENTINO, DESIGN ASSOCIATE

Gerry Valentino has spent the last five years as a marketing strategist, specializing in new media and direct marketing. He is an experienced designer, project and production manager, copywriter and illustrator with expertise which includes design for interactive, print, multi media and video. Now finishing a post-graduate program at George Brown College in Digital Design, current projects include The Eco Road Challenge, an interactive installation for the Toronto Zoo; a series of E-learning portals and flash video commercials for the Research and Innovation Centre; and an iPhone based energy conservation application. Gerry has an Honours Bachelor of Arts degree in Communications Studies and is also a graduate of the Stratford Chefs School.

PROJECT TEAM

William Campbell grew up in the woods of North Vancouver, upon graduating High School, wanted to go into studio art but settled for Business and Economics with a general arts minor before switching back to his first love Architecture & Design. Currently working on putting together applications to finally finish his schooling (in architecture). Has now settled in Toronto after a couple of years studying in Halifax.

Jackman Chiu recently finished a 3-year graphic design program at George Brown College in Toronto where his thesis project was awarded first place. In 2006, He received an Arts and Science Honours Bachelor's Degree in Anthropology from the University of Toronto. Recent projects have included a brand identity for the Psychological Foundation in Ontario, a layout for the Institute Without Boundaries' Chateau Masson charrette book, and a set of business cards templates for George Brown College graduates. Jackman has also worked as a part-time volunteer graphic and exhibit designer at the Hockey Hall of Fame where he assisted in creating graphics and installing the Montréal Canadiens Centennial Exhibit and designed a set of gift certificates for the museum's gift shop.

Najeeb Khan is designer with a strong sense of style. His knowledge in design and project management is from his experience in several architectural firms and his involvement with the Royal Canadian Air Cadets. His strength of working on the larger scale allowed him to work on master plan projects internationally. While practicing as a freelancer, he also runs a design firm specializing in Architecture and Graphic Design.

Sisley Leung has pursued her dream of architecture for the past three years, first in the George Brown College Architectural Technology program, and now at the Institute without Boundaries. Sisley is an easy-going communicative artist that loves the hands-on building process of any challenge. She is a visual learner who is well spoken and thinks out her ideas to great length before enacting the most organized and well assessed option. Sisley is willing to take on any challenge with little background information and has he unique ability to assess the most real world solution for any problem.

Amanda Lo recently graduated from George Brown College for Graphic Design. Through design she continues to learn more each day. Her other interests include printmaking, illustration, dogs, collecting vintage knick knacks and cooking. She is currently working on her personal projects that include her own promotional website and several zines. Her recent professional projects include graphics for the Institute's Bicycle Storage Charrette, helping to rebrand the culinary arts section of the George Brown Bookstore and finishing her design thesis.

Raul Lugo is drawn to design for its ability to transform the way people live. He has a background in philosophy, having earned his degree from the University of Guadalajara, after which he founded Intermedia, a company specializing in short films. In 2009, Raul graduated from George Brown College's program in Architectural Technology. His involvement with the Institute without Boundaries has included work on the Olympic torch relay project and Canuhome.

Connor Malloy is a design consultant and project manager. His consultancy, Supernormal, focuses on fostering environmental sustainability and social resilience in both architectural and design contexts. Connor has worked across disciplines on projects with the Government of Costa Rica, CMHC, Habitat for Humanity, and Gulf Coast Studios, among others. A graduate of the Institute without Boundaries, he holds a BA in Interior Design from Ryerson University, has studied design management at UNISA in South Australia, and, most recently, collaborated on the development of symbiotic industrial systems at the World Design Capitol 2008, Torino.

Michael McMartin holds an undergraduate degree in Landscape Architecture from the University of Guelph, and completed a Masters of Interior Design while living in Italy. Working for top interior firms in the Toronto, Michael brings a critical and detailed eye to all of his projects.

Denise Pinto makes a living playing with words, maps, artifacts and spaces. Currently pursuing a Master's degree in Landscape Architecture at the University of Toronto, she also studies the overlap of technology and ecology at the Knowledge Media Design Institute. Denise has collaborated on a wide range of design projects, having worked at Toronto General Hospital's Centre for Innovation in Complex Care, the Rotman School of Management's Designworks think tank and the Beal Institute for Strategic Creativity. A graduate of the industrial design program at the Ontario College of Art and Design, her dream is to always be inquisitive, passionate, and socially conscious.

Ladan Sharifpour has a Bachelor of Architectural Science degree with honors from Ryerson University. She won the Gould Street International Student Design Competition in 2007, and, in the same year, received special recognition from Ryerson's president, Sheldon Levy, for the project Shift 21, which addressed Ryerson's master plan in the context of energy, mobility and technology issues. Ladan has traveled extensively and collaborated with several international architectural firms, including Ali Kermanian & Associates in Tehran, Centimeter Cube in Dubai and Designio Inc. in Toronto. Her latest work has been in the rural community of Volta, Ghana, where she is involved with the design and build of a school for underprivileged children.

Jane Weber is a graduate of the School of Design at George Brown College and holds a BFA from Concordia University in Montreal. Jane has pursued a varied career in the visual arts field, ceramic arts – including a stint working in the Material Art & Design program at OCAD in the ceramic studio - and graphic design. She currently works in the design and production of publication projects for the School of Design and it's post-graduate program, the Institute without Boundaries.

Slawomir (Slavek) Zajac is a Graphic Designer with a passion for art. By merging the two disciplines he is able to gain a unique perspective on visual language. Slavek holds a degree in Anthropology enabling him to seek out new and innovative research strategies that are an integral part of any successful design. Although young in his design career he is able to draw upon his life experience and past ideologies to convey a fresh and unique vision to his clients. Recent projects include, designing day planners for the Augmented Education Chef and Construction programs at George Brown College, as well as being part of the design team to re-brand the Toronto Centre for the Arts.