



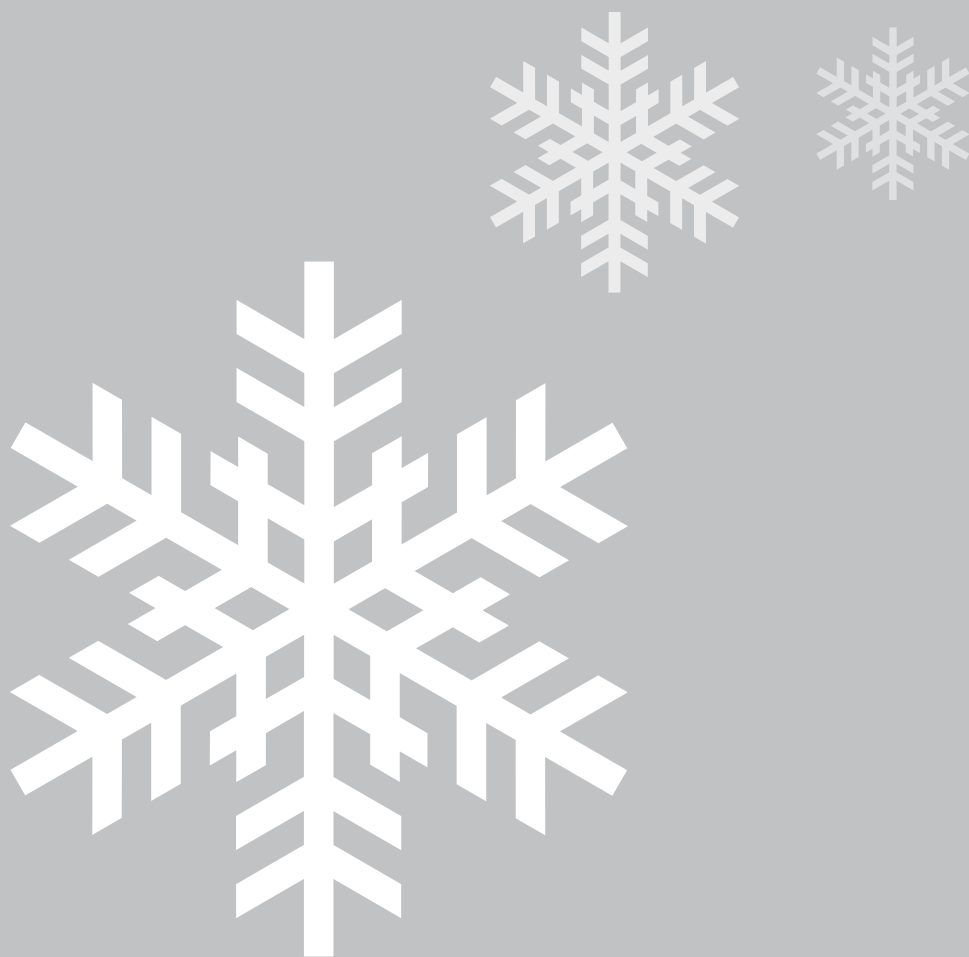
Winterscape

A Design Strategy for Ryerson Campus Vitality in Winter

November 2011

RYERSON
UNIVERSITY

Everyone Makes a Mark





A Design Strategy for Ryerson Campus Vitality in Winter

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Winterscape

A 3D architectural rendering of a city block, viewed from an elevated perspective. The scene features several building footprints of varying sizes and shapes, arranged around a central courtyard. The buildings are rendered in a dark, monochromatic style, with some showing internal structures and courtyards. The ground is a light gray, and the overall lighting is soft, creating a sense of depth and shadow. The title 'Winterscape' is overlaid in the top left corner in a white, dashed font.

Original and high quality urban design solutions to help the University become a winter friendly campus. Building on innovative techniques from current and international best practices, strengthens relationships with the neighbouring communities and stimulates communal essence of the urban landscape.

Illuminate




Throughout winter months darkness prevails. Shades of grey and shadows dominate the landscape. Breathe life into the urban environment with light, colour and texture to invigorate the human spirit.

Feel the beat, the rhythm of
the urban campus and the
winter season. Bring together
the unique experiences that
are shared by students and
our surrounding neighbours.



Experience

Figure 3

A photograph of a university campus scene. In the foreground, a calm pond reflects the surrounding environment. A large, light-colored rock sits in the water. To the left, a blue building with the 'RU Campus' logo is visible. Several trees with yellowing autumn leaves are scattered throughout the scene. People are walking on the sidewalk, and some are sitting on the rock. A street sign for 'Victoria St' and a speed limit sign for '40' are visible in the background.

Create a sense of belonging.
Appreciate the space and enjoy the
environment without being hindered
by obstacles. The creation of warmth
enhances the atmosphere and our
well-being.

Comfort

Figure 4

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Winterscape: A Study for the Winter Season

Ryerson University has had a long and varied history. From its roots as the Normal School to the days as the Ryerson Institute of Technology, to its rebirth as Ryerson University, the campus grounds have seen many changes. Currently Ryerson is embarking on its most ambitious and comprehensive expansion to date. Projects include the renovation of the famous Maple Leaf Gardens building on College Street and the brand new Student Learning Centre on the former site of Sam the Record Man. The University stands proud as a city innovator and builder, and as a visionary and architect of student minds. As part of this proud new future, the University has engaged a team of fourth year Urban and Regional Planning students to undertake the Winterscape Study: a design challenge that seeks to find new and unique ways to engage the winter environment. This study offers a chance for the campus to take advantage of the season: to reassess and reconfigure underutilized space, and to develop economic, social, cultural, and environmental benefits; and to provide partnership opportunities that would benefit students, faculties, and local residents alike.

The Ryerson University campus is located in the heart of downtown Toronto, next to the popular Yonge and Dundas Square. The study area focuses on the heart of the campus compound, with Gerrard Street to the North, Yonge Street to the West, Dundas Street to the South, and Mutual Street to the East.

This includes all of the main pedestrian pathways and alleys that are commonly utilized by students. In particular, the study focus is on the exterior elements of the campus heart, including open spaces like Lake Devo and the Quad. This is where the major urban design interventions take place. It is believed that this footprint represents the core public space enjoyed both by the University's students as well as neighbourhood residents, and the Ryerson identity is tied closely to this locale.

Several research methods were employed to develop the Winterscape Study. This includes multiple site visits to the Ryerson campus to determine obvious and immediate problems, as well the monitoring and video-taping of the Victoria Street parking garage entrance over a twelve hour period. These observations were used to determine appropriate pedestrian and vehicular mobility strategies. Regular meetings were held between the Winterscape Study team members and our advisor, Professor Nina-Marie Lister, as well as with our clients, Julia Hanigsberg, Vice President Administration & Finance and Janet Hercz, Executive Director, Office of the VP of Administration & Finance. Additionally, several key individuals and stakeholders were interviewed and consulted to inform the report and explore numerous winter strategies.



Site Map

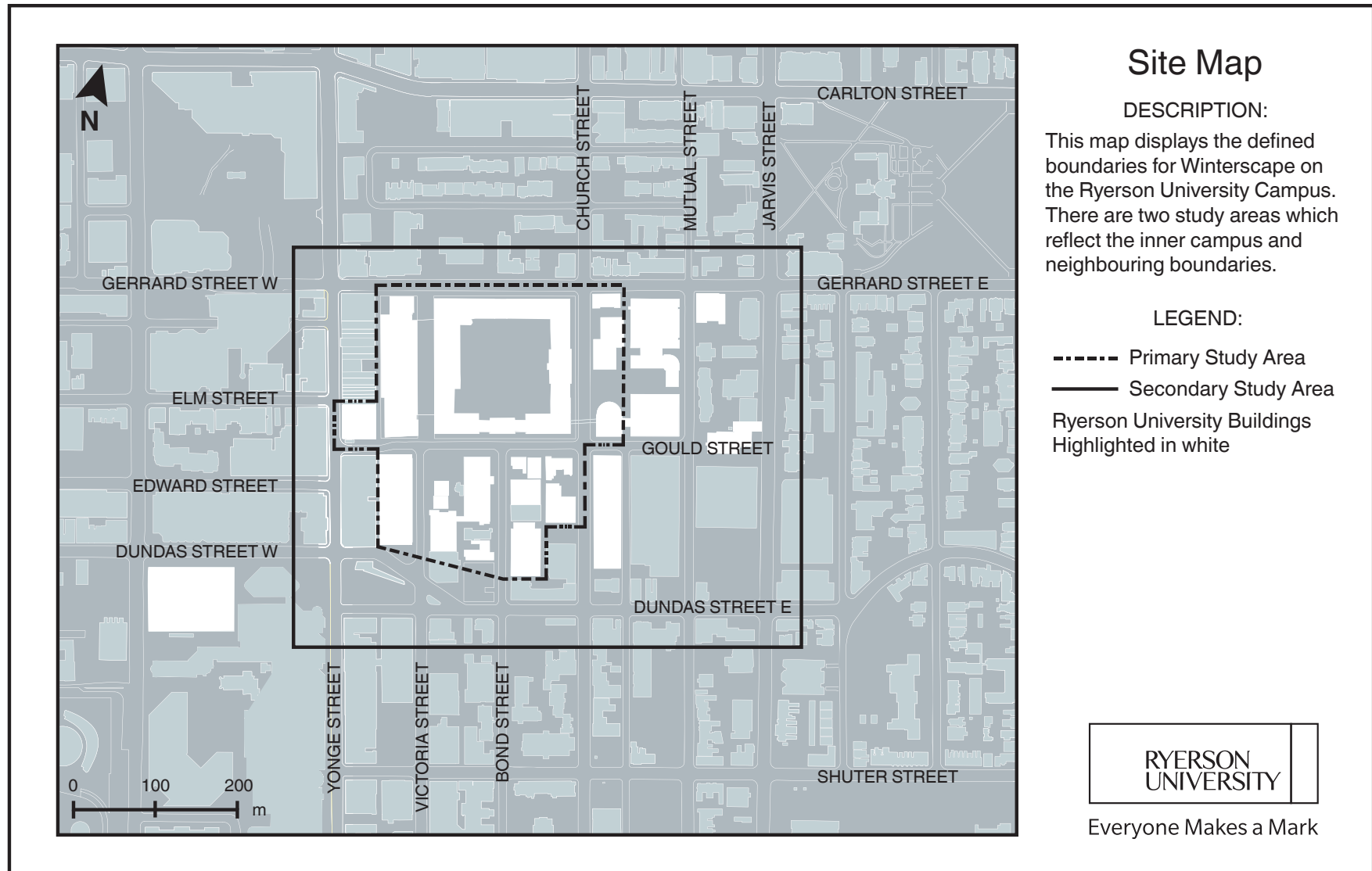


Figure 5 - Site Map

Winterscape

A Study for the Winter Season

(continued)

The Winterscape Study has made certain assumptions in order to proceed forward with this design. At present, Ryerson's Master Plan has introduced several proposals that are set out as visions but have not yet been realized. Many of our interventions instead deal with the existing campus and not the future plans. We have worked under the belief that the Daoust Lestage Design will be followed, although much of the plan has yet to be implemented, this includes the raising of the street level through the pedestrian corridor and the removal of the elevated planters along Gould Street. As well, although the current closure and pedestrianization of Gould Street is a pilot project, we believe that it will be approved. At this point we also operated under the understanding that a new subway entrance at Yonge and Gould Streets will be included in or near the new Student Learning Center. And finally, although the primary focus of this Winterscape Study is the campus during the winter season, we have worked under the limitation that this study was conducted during the summer and fall seasons. This restricts our ability as consultants to truly understand the issues and challenges of the winter campus.

To inform our design strategies we focused our research around five themes; policy, programming, environment, built form and mobility (see Background Study). The following are a summary of our findings;

The three major policy documents that guided the Winterscape study were the Toronto Official Plan, the Ryerson Academic Plan, and the Ryerson Master Plan. The Official Plan seeks positive and resident friendly initiatives that promote a safe, welcoming, and beautiful city, with plenty of open space and public interaction while also emphasizing environmental sustainability for existing and growing communities. The Ryerson Academic Plan recognizes the need for multiple strategies, which enhance student living as well as academic life, and encourage partnerships. The Ryerson Master Plan is about 'city building' and long-term sustainability. The plan seeks to encourage positive development through three broad goals: urban intensification, the pedestrianization of the urban environment, and design excellence. As part of the Master Plan, the Daoust Lestage Design provides a vision that promotes casual student spaces, as well introducing designs that enhance the entire university. Through ecologically sound designs, the Winterscape team can support the goal of sustainability and encourage the university's research into "green" technologies. These policies present a set of guidelines to direct our Winterscape study, as well as provide us with further insight towards our surrounding community.



A city is often defined, not only by the physical structures it presents, but also by the activities it offers to residents and visitors. Marketing strategies such as 'Place Branding,' can be used to promote a physical site and its services. Social media and other traditional forums can be used to market campus programs and events. The pedestrianization of Gould Street presents an opportunity for street food vendors to enhance campus activity during the winter season. This includes healthy alternatives to traditional street food as well as international flavours. Year-round winter markets serve as examples of winter programming that have seen success in other cities. Due to the geographical location of the campus, nestled between several neighbourhoods, local residents travel daily through the campus to work or other destinations. The local Business Improvement Areas such as the Downtown Yonge and the Church Wellesley Village BIAs provide opportunities to connect these areas through various events such as Illuminite and Window Wonderland. Other examples of programming such as visual arts, performances, dance, film, music, video, photography and digital technology, can also be used as a powerful way for a community to celebrate its culture. Strategies for winter engagement from around the globe show that events can be successfully held outdoors in the colder season. These components make up the true fabric of programs, and are vital in creating a distinctive campus life.

Consideration of environmental features can capitalize on the unique opportunities that winter presents by making people feel more comfortable and safe in their surroundings. The campus can benefit from the inclusion of year-round vegetation choices and modified landscaping practices that allow a connection between the plantings, creating an inviting and diverse atmosphere. Vegetation on the campus includes individual planters and elevated planting areas. As well, because the campus is heavily exposed to cold temperatures, precipitation, gusting winds, and sunlight, it requires specific material choices that guard from these elements. Overall, attention to the urban landscape can enhance the university compound as well as limit seasonal concerns.

Winterscape: A Study for the Winter Season

(continued)

Built form seeks to ensure that the necessary infrastructure is robust and resilient, yet is also aesthetically pleasing. Different lights, sounds and colours can enhance the energy of winter. The element of lighting is key to offsetting the natural winter gloom and introducing a range of colours that exhibit a warm atmosphere can create a welcoming campus. Gould Street, Lake Devo, the Quad, Victoria Laneway, and the Pitman Hall courtyard are assets to the University and offer opportunities to enhance the campus through the use of materials able to withstand the climate year-round. Street furniture should have a purpose but also be interactive, create visual interest and allow for winter use. Examples include public art sculptures, shelters, seating, heaters, lighting, and art murals. Additionally, lighting, furniture, and building materials need to be low maintenance and cost-effective. These innovative and unique ideas can create an inviting physical character within the campus.

Mobility includes pedestrian accessibility as well as other forms of transportation such as cars, bicycles, and transit. Ryerson students rely primarily upon foot traffic and public transportation options. Promoting pedestrianization by creating an environmentally sound, safe, accessible, and visually appealing environment reflects the University's commitment to supporting pedestrian issues. Effectively separating vehicular traffic from all other forms of mobility to ensure a safe and accessible campus is key in addressing certain traffic issues.





The goal of a successful commuter campus is to provide basic services to inbound students, as well as enticing them to stay for more than just their classes, which will improve campus life and atmosphere. Cycling is becoming a significant part of student transportation, however more needs to be done in terms of education and safety precautions for continued winter riding. Mobility is an important aspect of the campus and the community at large, connecting students and neighbours alike.

In conclusion, North American cities are continuously challenged by winter; a season commonly ignored and undervalued during the urban design and planning processes. The Winterscape Study's primary goal is to discover and recommend innovative urban design interventions that promote better use of the Ryerson campus space during the winter season. Our recommendations seek to celebrate winter and the different experiences it has to offer through built form and landscaping, colourful, well lit, and creative designs, and programs that embrace outdoor winter activities. We aim to attract not only the student body, but also the surrounding communities and neighbourhoods through engaging and memorable programming that encourage pedestrian traffic and activity on campus throughout the winter months. Interventions pursued seek to be cost effective both in the short term and long term, yet embrace high quality design, entertainment and activities, with a focus on liveability that helps Ryerson University become a winter-friendly campus, as well as contribute to the University's greater vision as city-builder.

Winterscape Strategy

The encompassing themes of Illumination, Experience, and Comfort are integral to the concept of this report. They connect the fabric of our thoughts and are woven throughout; they are part of every design idea and solution offered. However, most of the recommendations in this report are self-contained and are focused on short-term or soft interventions. The goal was to offer solutions that could be implemented quickly, easily, and with little cost, while also creating a sense of place and engaging the population that uses the campus.

Some interventions, including Lighting, Colour, Promotions, and Partnerships unite the various designs and solutions and need to be considered as part of all recommendations. Other contributions, such as Street Furniture, Vendors, and Events, can be selected and implemented independently of other strategies. They offer simple solutions that are easy to employ and may be used discreetly or in conjunction with other designs. And others yet, such as Landscaping, Safety, and Signage, can be considered part of the broader design or applied individually.

Simply said, while we have conceived Winterscape as a total package, it can be looked at as a collection of ideas that may be taken one at a time, with the intent that the entire suite may be eventually realized.

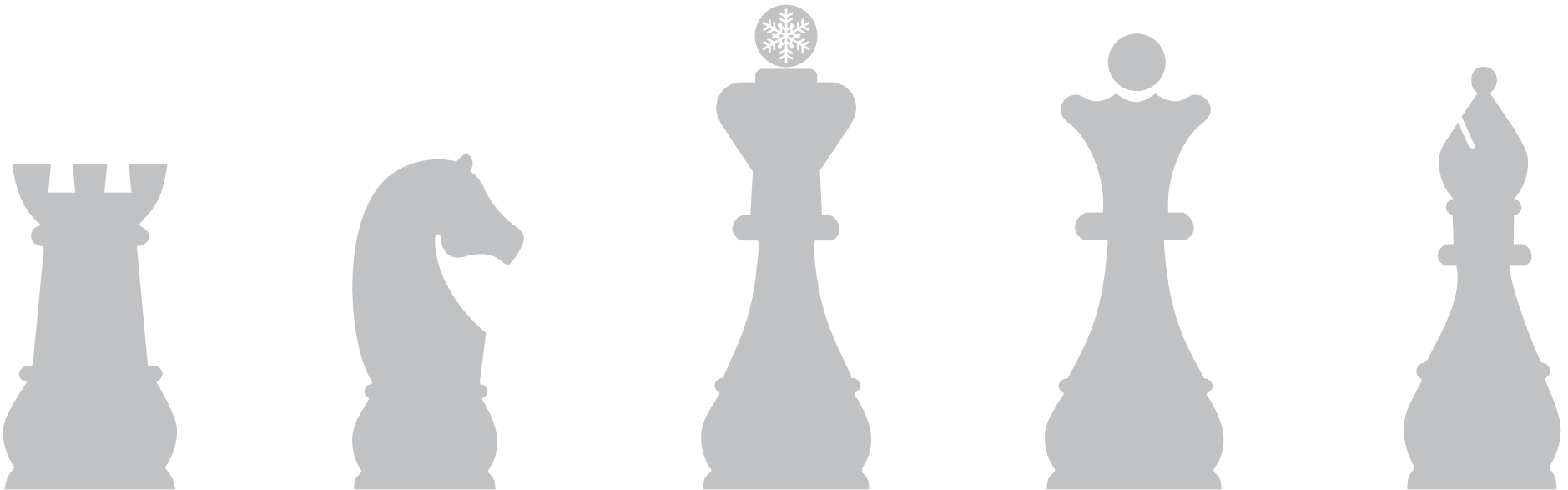




Figure 6 - Statue of Egerton Ryerson



Figure 7 - Winterscape Illuminate Interview



Illuminate

Winter brings with it shorter days and more hours of darkness. With the need to maximize daylight in the dark and dull corners, bright and lit places around the campus can create a whole new sense. The campus should be a vibrant and welcoming place that encourages individuals to be outside during the harsh winter months. Through illumination, interventions such as lighting, colour, and landscaping can fashion the campus into an exciting, refreshing and unique place.

Attractive and decorative street lighting can enhance the atmosphere of any day of the winter environment. Enhanced lighting can guide users to campus pathways and also provide a sense of connectivity. Light has the power to illuminate colours and create a kinder atmosphere. Concentration on specific areas around the campus such as dark pathways, existing dimmed streets, Lake Devo and the unlit Quad will be highlighted with different mediums of lighting, colour and intensity that will have the ability to stimulate and brighten individual's moods. Simple light projections can illuminate the campus and create a world of wonderment, an experience of visual delight.

Colour in certain places has the great value of making the outlines and structural planes seem more energetic. The use of specific colours can impact one's daily experiences and attitudes towards an environment. Colour will be activated throughout the campus by using hues of different gradients, as well as the Ryerson's logo colours.

With the use of colour and light designs, campus illumination will attract individuals and allow them to be embraced by the safe and welcoming ambiance of the campus.

Lighting

Cast brightness where there once was shadow, light where there was dark

Incorporate lighting into all areas of the campus to increase safety, way-finding, and comfort. Winter sees increased darkness, which can be mitigated by utilizing new technologies and systems.

- Stimulate a playful outdoor atmosphere along Victoria Lane. Accentuate the large trees, fountain, sculptures and benches, and brighten the walls of Kerr Hall with lighting. String the whole of Victoria lane with enticing and visually stimulating types of lighting. Heighten the natural features of this area through a Sensory Zone that distinguishes the garden from the pathway itself. Different forms of lighting colour and intensity can be used in order to draw individuals to this area that will stimulate and brighten their mood during the winter nights.

Figure 8 - Back Lighting



Figure 9 - Lantern Lighting



Figure 10 - Shadow Lighting

Figure 11 - Stake Lighting



Figure 12 - Shadow Lighting



- Create an active node consisting of lighting used for different activities and events such as ice-skating and social gatherings at Lake Devo. The reflective lighting from the image arts building will project onto the ice surface, as well as the rocks surrounding the ice. Lighting will be used to define the area from other parts of the campus. Being predominately for social uses, Lake Devo will have lighting that is very bright and inviting for individuals to congregate around. The lighting in this area will define Lake Devo as the main focal point on the campus through lighting all sections of the area while avoiding any null zones.



Figure 13 - Flood Lighting

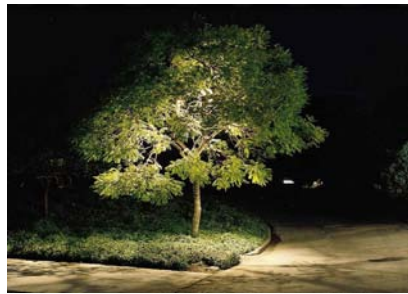


Figure 14 - Moon Lighting



Figure 15 - Spot Lighting

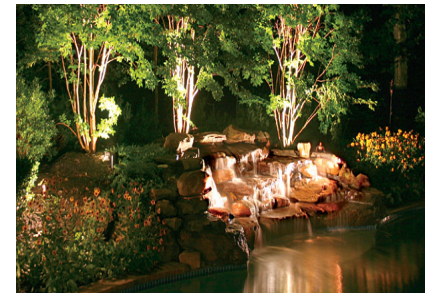


Figure 16 - Up Lighting

- Increase safety and liveability of the Quad's natural features with special lighting. The pathways should utilize a motion sensor system where individuals who enter certain areas will experience raised lighting levels. As they depart from these zones, the lighting will dim in order to conserve energy. The vegetation between the buildings and the pathway will have light projected through it in order to put emphasis on the landscape features within this area.

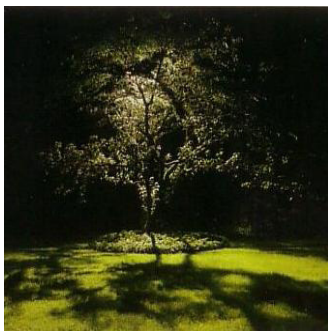


Figure 17
Down Lighting



Figure 18
Rope Lighting

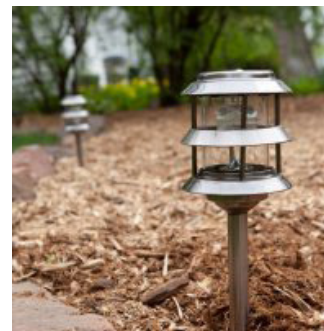


Figure 19
Tier Lighting



Figure 20
Soft Lighting

Lighting (continued)

- Provide a safe and welcoming atmosphere in the Kerr Hall Archways. The gateways require additional light to facilitate transitioning between different parts of the campus. The ceilings of the archways should be strung with lighting that is bright and interesting. The lighting in these archways will be warm and inviting also acting as a shelter for individuals waiting around for the weather to clear, a friend or transitioning between classes.



Figure 21 - Globe Lighting



Figure 22 - Hanging Lighting



Figure 23 - Twinkle Lighting

- Cover pathways on campus with lighting that projects up as well as down in order to encourage safe passage the full length of the laneway. This will enable the user of the paths to visually see where they are going. Pedestrians are thus provided a directional way-finding tool in order to travel safely and comfortably.



Figure 24 - Outdoor Lighting



Figure 25 - Path Lighting



- Appeal to all forms of transportation and individuals going through campus along the streets with lighting. Null zones should be eliminated by way of street lamps and pathway lighting, as well as reflective lighting from the vegetated areas off of the buildings. The streets can be strung with lighting that is uniform and symmetrical throughout the campus. The lighting along the streets should be placed strategically in order to create a continuous section of connectivity.



Figure 26 - Sconce Lighting



Figure 27 - String Lighting

Projections

An interactive and creative use of light

Install creative and interactive lights to brighten and provide a form of outdoor entertainment on campus, especially on the pedestrianized Gould Street, Image Centre, Lake Devo and Kerr Hall clock tower. This unique use of lighting instils a vibrant, lively and luminous atmosphere that can be enjoyed in winter through creative light shows.

- Brighten the campus with different types of light projections that transform the campus. Create visual playgrounds that light up the campus while providing a fun and playful environment for the university and neighbourhoods.



Figure 28 & 29 - Night Lights Projection
Auckland, New Zealand

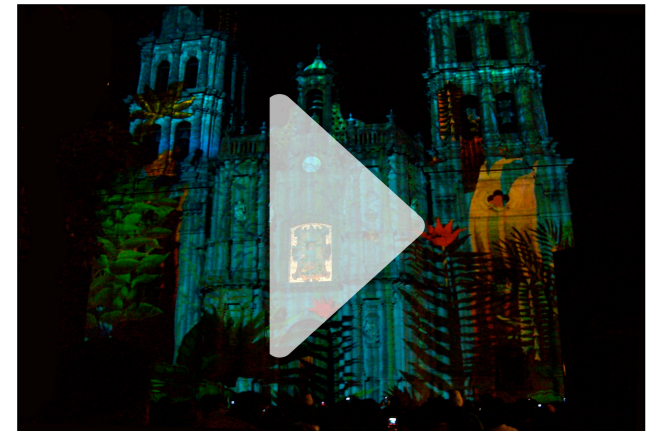


Figure 30 - Light Projection
San Luis Potosi, Mexico



Figure 31 - Artistic Interpretation of Projections on Campus

Projections (continued)

- Incorporate the University's assets into light displays. Images from the Black Star Photography Collection can be projected onto the Library building or Lake Devo. It can promote this wonderful and exclusive collection while exhibiting notable historic moments through projected photographs.



Figures 32 to 35
Black Star Collection





- Re-design dull and dark pathways with creative lighting such as 'Goes Before Optics' or (GOBO) lights that use a physical template through which light is projected onto buildings, grounds and surfaces.



Figures 36 & 37 - Public Space Lighting for Winter at Docklands Waterfront City

Colour

Generate an aesthetically pleasing environment for the population to enjoy

Unify the campus with colour, thread it through the landscape, the banners and the furniture. Brighten the winter with colourful and significant signage, that both identifies, enlivens and informs.

- Integrate warm colours along Gould Street to make the area more inviting. Warm colours are often said to be hues from red through yellow and brown. Orange, yellows, and light reds are effectively used around food vendors. Using warm colours in design can help reflect passion, happiness, enthusiasm, and energy.
- Incorporate cool colours in receded areas along Victoria Street. Cool colours are often said to be the hues from blue-green through blue violet. Avoid creating “visual noise” by using complementary colours. They are the colours of night, of water, of nature, and are usually calming, relaxing, and somewhat reserved.

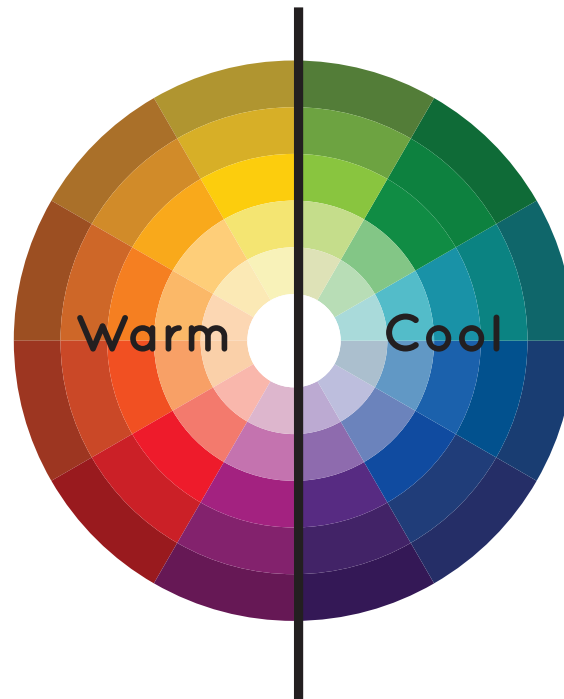


Figure 38 - Colour Wheel



- Use the RU visual design colours as a campus brand through integration of the Ryerson colours of PANTONE 294 (blue) and PANTONE 124 (deep yellow). Exclusive use of the colours enhances the profile of the campus and illuminates the university's footprint.

Blue



PANTONE 294
Use for both coated
and uncoated papers.

CMYK
C 100, M 56, Y 0, K 18

RGB
R 28, G 90, B 152

HEXADECIMAL
1C5A98

Deep Yellow



PANTONE 124
Use for both coated
and uncoated papers.

CMYK
C 0, M 27, Y 100, K 6

RGB
R 223, G 177, B 46

HEXADECIMAL
DFB12E

Figure 39 - Ryerson Logo Colour Palette

Colour (continued)

- Paint the planters that demark the pedestrian zone yellow; other planters can be painted yellow gold and blue to retain aesthetics (should be consistent with Ryerson's school colours).



Figure 40 - Colours Example on Ryerson University Campus

- Embed colour lights in walkways to create pathways that lead one through the campus. It enhances security and improves way-finding, while enhancing the visual landscape.

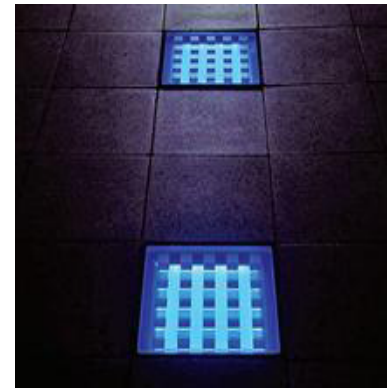


Figure 41 & 42 - Solar Power Garden Lights



- Vegetation should exhibit bold colours to offset the drab hues that occur during winter in the city. This will enhance the moods of people on campus.



Figure 43 - Showy Mountain Ash



Figure 44 - English Holly

Colour Examples



Figure 45 - Colourful International Food Carts



Figure 46
Colourful International Food Carts



Figure 47 - Light Trail



Figure 48 - Winterscape Experience Interview



Experience

Experience integrates all the interactive components of the campus. It includes food, events, partnerships and promotions. It is a celebration of the world on our campus, bringing together international flavours, ethno-cultural festivals, students and local residents. It makes Ryerson a place, a destination, a home and a friendly harbour. It offers the chance to engage all the senses; the mind, the heart, the eye, and the stomach.

To set the campus apart and give it a clear identity branding, bring together colour, visual themes, and styles. Use multiple platforms and media to create a sense of place. Technology and mobile applications are key components in creating an experience that makes a name for Ryerson.

Relationships are important to campus life. Whether it is with the local residents or between faculties and schools, interaction and cooperation can stimulate the campus compound. Not only can we introduce programming from neighbouring areas but we can create challenges that showcase our collective talents and elevate the entire university experience.

Winter conjures images of snowflakes and Christmas lights, but it also a time for numerous cultural festivals and activities. Special events are an opportunity to celebrate the season through carnivals, art exhibits, celebrations and light events.

Food is the music of life. It feeds the body and nurtures the mind. The experience of international flavours and spices can be realized by attracting vendors that offer more than the average street fare. Stalls and carts can include crafts and non-perishable wares that reflect the winter season, and can extend the life of the open-market that encourages all residents through the campus grounds.

Partnerships

Knitting a diverse community together

Develop external and internal partnerships with different groups and stakeholders. Construct programs that emphasize the Ryerson campus as a public realm, while fostering an exuberant winter atmosphere.

Downtown Yonge BIA

- Build an arms length partnership with the Downtown Yonge BIA to strengthen community ties and develop neighbourhood cohesion. Opportunities to attract special events on campus will break the boundary between the Downtown Yonge BIA area designation and the university. Attract events such as “Illuminite”, and integrate the lighting décor the event brings. Create activities within the campus that are not for just the students, but neighbourhood residents as well.
- Use “Winter Magic” lighting along Victoria Street and Gould Street adding a subtle integration of the décor into the campus. Incorporate “Illuminite” festivities throughout the Gould/Victoria Corridor and the Quad.



Figure 49 - Downtown Yonge BIA



Figure 50 - Downtown Yonge Winter Magic Street Décor Lighting that can be Softly Integrated at the Entrances of Gould and Victoria Street



Digital Media Zone

- Create a platform using an interactive forum, which allows students and staff to consult and exchange ideas with the school. This can be setup through the start up screen when students log onto school computers, as well as the interactive touch screen strategically placed throughout campus.
- Utilize the student created 'Soapbox' as an interactive and easy to use system of feedback and information about campus wide issues and systems. Integrate the system with safety poles and information kiosks, as well as computer terminals around the campus.

Digital Media Zone

Figure 51 - DMZ Logo

Partnerships (continued)

Intra-University

Strengthen the relationship between the Ryerson faculties to create an avenue where students can collaborate and showcase their talent.

- Students can display and demonstrate their work through booths along the Gould/Victoria corridor during the Farmer's and Winter Markets. Opportunities exist to work with engineering and architecture through design challenges in the enhancement of the Quad and Pitman Hall courtyard spaces. Engineering students can develop unique solutions to the urban agriculture concept. They can also design and implement built forms that are used for special winter shelters.



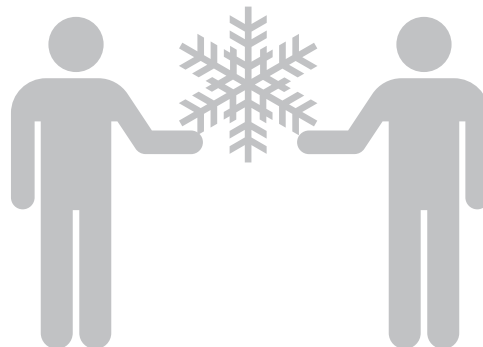
Figure 52 & 53 - Ryerson Logos



- Utilize the Ryerson Student Union stage for performance acts. Furthermore, there can be opportunities for other components of the University, such as Ryerson Athletics, to organize events on the Gould/Victoria corridor, as well as other focus areas such as Lake Devo, that promote sport and school spirit.



Figure 54 - "Eggy" the Ram showcasing Skating on Lake Devo



Promotions

Create a buzz, make a name, build a reputation

Unite the campus through a campaign of branding that brings together themes, styles and mediums. Make this a place, a destination, that incorporates technology and applications that engage and interact with students.

Branding

- Create a unified branding identity for the purpose of community engagement. A branding identity should be universally applied so that all events on campus take place under one name for marketing purposes. This will allow for a single medium where all events from different faculties and organizations are promoted in one place.
- Unify campus events and campus news under the new identity. Individual faculty promotions should be coordinated to ensure the brand remains intact. This will allow the University to establish strong place branding and encourage the surrounding community to take notice of the talents and ambitions of the people within this institute.
- Use seasonal branding to provide key promotional dates for launching events and raise awareness of what is happening on campus. Each season would kick off a series of new events and promotions which will also help to increase attendance for the many events, as students will be looking forward to attending the ones that interest them.





Social Media

- Promote events that take place on campus thorough social media. Utilize free social media websites such as Facebook and Twitter. This would allow students and staff to keep up to date with all events on campus from every faculty and student organization by simply viewing their favourite social media website. Social media has many benefits, such as retrieving real time feedback from students about events and determining which ones are successful. Continually monitor the use of social media for promoting events to ensure a positive experience for the students.



Figure 55
Facebook



Figure 56
Twitter



Figure 57
YouTube

Mobile Apps

- Develop and use mobile apps for promotions to tie together branding and social media. A mobile app can potentially allow students to learn about upcoming events, set reminders of when they are taking place, and invite their colleagues to attend them as well. A mobile app for the sole purposes of promoting events and encouraging community engagement should be developed for the major smart phone platforms: Android, BlackBerry OS, and iOS. Furthermore the placement of QR Codes on campus signage and street furniture can link pedestrians to upcoming event information.



Figure 58 - Android



Figure 59 - Blackberry OS



Figure 60 - iOS

Vendors

Feed the Body & Feed the Spirit

Expand opportunities for commercial vendors throughout the campus, especially though the Gould/Victoria Corridor, along Victoria Lane and in the open spaces of the Quad and Pitman Hall Courtyard. Although winter is often a time to go indoors, many markets and vendors continue to sell their merchandise year round. International models suggest that seasonal markets and kiosks can be well received regardless of the temperature.

- Offer a wide variety of international flavours and styles of food, such as kebobs, satays, spring rolls and dumplings. Involve local merchants and restaurants, such as Salad King, as the supplier.



Figure 61 - Roasted Corn Vendors in Columbia



Figure 62 - Satay seller in Singapore



Figure 63 - Pita and Gyro stand in NY

- Incorporate food evocative of warmth into the offerings. Carts with roasted chestnuts and popcorn, beaver tails, apple cider and hot chocolate can make the coldest days warm.



Figure 64 - Roasted Chestnuts



Figure 65 - Apple Cider



Figure 66 - Hot Chocolate



Figure 67 - Beaver Tails



- Re-invent the Farmers Market into a Winter Market by appealing to retailers that offer non-perishable goods such as meats, cheeses, breads, sauces and preserves. Allow inclusion of crafts from both the student population and local artisans. Include vendors with seasonal items that appeal to the entire range of winter month cultural celebrations.



Figure 68 - Salt Crystal Merchant
Bonn Germany



Figure 69 - Outdoor Farmers Market
St. Paul Minnesota



Figure 70 - Christmas Market Basket Merchant
Riga Latvia

Special Events

A distinct set of occasions fabricated with activities full of enjoyment

Experience the wonderment of the festive winter season with an array of multicultural, magical, and dazzling activities on the pedestrianized Gould Street or the open spaces of the Quad. Immerse into a world of lights, exhibits and events that fashion an outing full of enjoyment.

- Expand opportunities with the local neighbourhood and business improvement areas to activate the campus into a platform where everyone can indulge in all sorts of activities. Affiliate with the Downtown Yonge Business Improvement Area and invite events like 'Winter Magic' and 'Illuminite' onto the campus.



Figure 71 - Winter Magic

- Illuminate the buildings, trees and open spaces using different events, which draw in lighting and atmosphere to campus. Different festivities such as Diwali, Christmas, or the Chinese Lantern Festival can be enjoyed through the decoration of the campus.



Figure 72 & 73 - Zoolights Festival, Lincoln Park Zoo
Chicago, Illinois



Figure 74 - Christmas
Singapore



Figure 75 - Diwali Lights



Figure 76 - Lantern Festival



Figure 77 - Floral Lanterns



Figure 78 - The Bay "Enchanted Christmas" Windows



Figure 79 - Chinese Lantern Festival at Ontario Place



Figure 80 & 81 - The Bay "Enchanted Christmas" Windows



Winter Carnival

Fun in the winter sun

- Revive the Winter Carnival. Bring back the week long celebrations that had been enjoyed in the past and open it to the surrounding community. The university played host to a Winter Carnival until the mid 80's. Reintroduce the many winter activities such as ice or snow sculpting competitions, giant snow slides, live music, log sawing, and possibly bed racing.



Figure 82 - A large ice installation on Ryerson campus 1973



Figure 83 - Students enjoying the Winter Carnival 1971

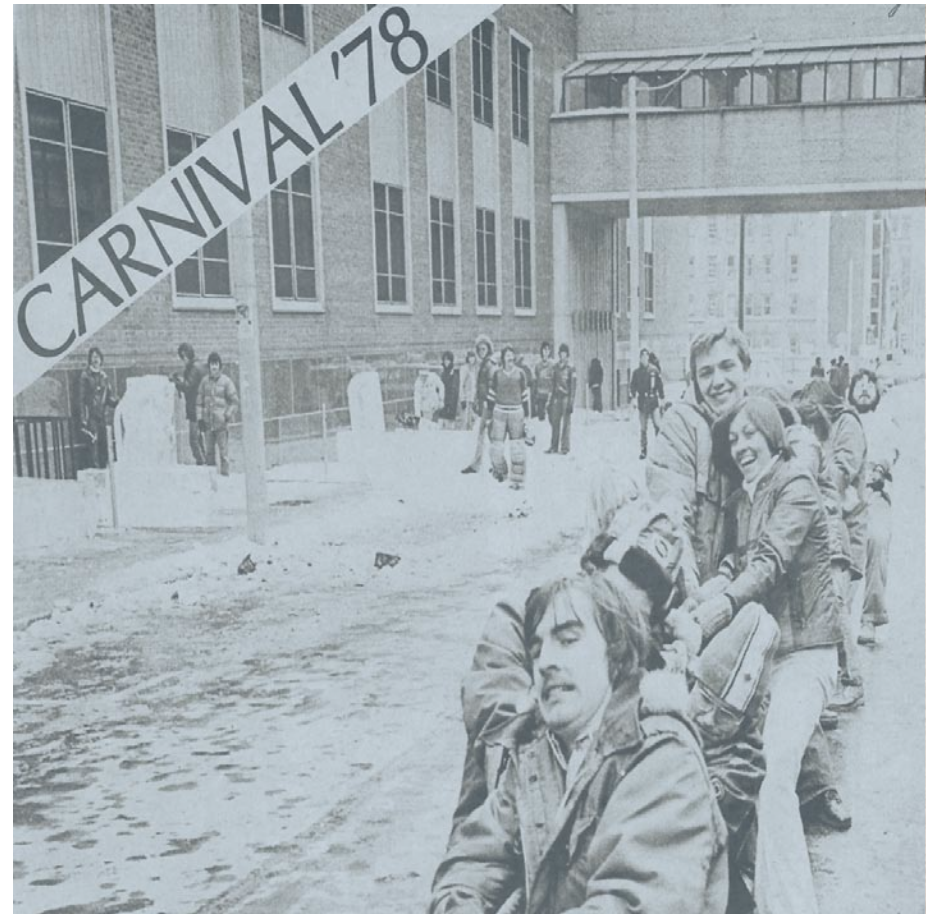


Figure 84 - Students enjoying the Winter Carnival in 1978

Art Installations

“Where the spirit does not work with the hand, there is no art” -Leonardo Da Vinci

- Brighten, colour, and make the campus a more attractive public space by including murals, statues, and other forms of public art. The exhibits can be created by students, local residents in cooperation with other schools such as OCAD. Draw inspiration from Nuit Blanche, the city-wide art festival, by locating installations all over the campus and in the pedestrian outdoor areas like the Quad and the Pitman Hall Courtyard. These pieces or works could be featured anywhere on campus, but are preferred outdoors in an effort to encourage traffic.



Figure 85 - Lake Devo: Egerton Falls



Figure 86 - Lake Devo: Smoking Corner



Figure 87 - A 3D musical score of the passing of Hurricane Noel



Figure 88 - A playfully deconstructed rotating sculpture, a white Dodge Ram van is shot through with holes, a sort of vehicular doily, through which light pours out



Figure 89 - Winterscape Comfort Interview



Comfort

Comfort-oriented recommendations include safety, signage, landscaping, and street furniture. Physical and emotional well-being is emphasized to ensure users can experience a different kind of winter campus; it encourages the minimization of the winter elements, allowing one to stay within or enhance their 'comfort' zone. Current campus users tend to avoid existing conditions rather than find comfort in the outside spaces and built environment, guiding the study to carefully considered the relationship between buildings and space throughout the design process. The urban campus is a familiar place for the student body, but Winterscape looks beyond, designing for those who work, visit and live near by as well as study at the campus.

With the challenges and barriers of snow and minimal sightlines during the winter season, safety is an important aspect of comfort. Our state of being is affected by unpredictable or irregular occurrences. Safety recommendations for the campus maximize comfort levels through integration of both campus-wide and site-specific solutions, which focus on existing physical infrastructures, abandoned spaces, and more specifically the parking garage entrance on Victoria Street. Education and awareness are the foundation of our safety measures.

Strategic arrangement of signage enhances way-finding and ensures one is aware of their surrounding environment. By offering a sense of direction, one can acquire spatial information to recognize an unfamiliar place. Signage also comforts us by creating a stronger identity for Ryerson University. Identity significantly affects how one feel about a place and how we to connect to it.

The introduction of vegetation and well placed landscaping can sculpt the campus compound into a warmer, more attractive and inviting place. Attention to building materials can mitigate the winter cold. Vegetation can also add colour to the grey winter scene and brighten the dullness of the shortened day.

Street furniture animates the winter streetscape, making outdoor spaces more attractive and interactive. Well-designed areas for shelter and seating can encourage pedestrians to be outdoor for longer periods and, if tailored to climatic conditions, enables year round comfort. Benefits to investment in comfortable street furniture are long-lasting. It results in increased human interaction and traffic during the winter season, allowing people to gather, rest, and enjoy themselves, thus changing the dynamic of outdoor participation.

Through this winter-sensitive approach to safety, signage, landscaping, and street furniture, this study endeavours to improve the comfort and enjoyment of the surrounding urban environment.

Safety

Meet standards of safety provision practices so campus patrons can truly enjoy the space programmed for them

Campus Wide Interventions

Address safety as a whole for the campus, looking at ways to enable enhanced mobility and security as well as remain proactive. Look at the system as a whole through both the layout and follow through of efforts. Safety interventions should not be high cost, and must be practical in nature, working within current maintenance practices. Although it is important to provide physical improvements which promote the overall safety of all on campus, visual components assist the sub-conscience through “curb-appeal” tactics.

- Elevate street corners to divert both snow and slush and allow for accessibility and safer pedestrian crossings. In particular, widen the pedestrian crossing into a raised triangle at Dundas St. and Victoria St. to demark the pedestrian way and clearly identify it to vehicular traffic.
- Place snow clearings in dedicated areas, allowing for both visual appeal, and practical functionality. Snow can be laid into lanes to provided varied routes of mobility, while increasing safety.



Figure 90 - Snow Clearing



Figure 91 - Sidewalk Clearing



Figure 92 - Bike Path Clearing



- Integrate the use of interactive kiosks and mobile apps allowing patrons to report problem areas. The incorporation of “Q-Codes” can highlight up-coming events, and direct navigators away from unsafe areas.
- Interactive maps shall be incorporated to allow for way-finding through the use of minor nodes which promote site reognition. Maps that promote “Way-Finding” will highlight the optimal routes of travel, allowing navigators to avoid problematic settings.



Figures 93 - The use of interactive maps can inform patrons of current events and issues on campus.

Safety (continued)

- Place security stations at high traffic areas to reinforce the underlying mindset that Ryerson is a safe campus to navigate. Install interactive security stations at high traffic areas to provide instant access to assisting personnel.



Figure 94 - The intention is to have poles high and visible with bright marker lights

- Notify students and residents of all safety implementations and new measures through increased signage. Signage shall also highlight newly implemented routes of mobility, including the “Kiss-and-Ride” route. Above all, signage should display optimal routes of travel.
- Use colored bollards to create a visual barricade and discourage access of all on wheeled transit in the pedestrian zone. As well, the signage shall reinforce the closure of Gould Street by placing additional signs before the entrance of the new precinct.
- Introduce various lighting mechanisms to provide increased illumination creating a feeling of comfort and safety throughout the campus.



Figure 95 - Painting existing planters at current closure points can reinforce the mental notion of the closure



Figure 96 - Way finding maps shall incorporate distinctive elements throughout the campus to guide mobility



Figure 97 - Lit paving bricks can aid in achieving pathways of light

Safety (continued)

Ryerson Parking Garage

The parking garage located at Victoria St. and Dundas St. has been identified as a major campus safety hazard. Solutions have been divided into short term and long term interventions so that the best results can be achieved quickly and easily. Short-term solutions will focus on the 'Quick Win', however, should time and money allow, other interventions can be used.



Figure 98 - Parking Garage Traffic Study



Short Term Solutions

- Increase size, visibility, and clarity of signage at the intersections of Victoria Street & Dundas Street and Gould Street & Bond Street, as well as any other access points to reinforce the street closure.
- Paint the stand-alone planters, further enforcing the notion of the closure and forcing motorist to immediately turn around, along with other motorized navigators.
- Encourage pedestrian movement along the east side by reducing obstacles and physical barriers like the concrete benches at the Chang School. Redirect foot traffic from the garage entrance by establishing bicycle racks and a pop-up park on the west side of Victoria Street.
- Remove the immediate concrete benches in front of the Change School along the east side of Victoria St. to allow more space for pedestrians to navigate.
- Create a 'Kiss-and-Ride' area along Gould Street, just east of Bond, to allow for a safe and easy transfer point. This will be located in the current north lane of Gould, which is now shut to traffic. Eliminate stopping or parking along the south lane to ease traffic congestion.
- Educate residents and visitors of the "Kiss-and-Ride" with an informational campaign in conjunction with a law enforcement ticketing campaign. Educate people on the hazards of the current parking garage arrangements, the dangers of using Victoria as a turn-around, and the new options (and benefits) of using the Gould Street 'Kiss-and-Ride.'

Safety (continued)

Long Term Solutions

- Relocate the Tim Horton's to the east side of Victoria Street. Pedestrians will naturally be redirected to the east side of the street creating less congestion at the parking garage exit. Exchange space with the coffee shop and use their location as a skate rental/bicycle parking/bicycle repair shop operated by the university. It was noted in Chicago that the skate rental can be a lucrative endeavor during winter months.
- Install a 'Turning Y' at the mouth of the parking garage entrance to allow for safer and more efficient vehicular traffic flow. Re-configuration of the current Tim Horton's space could allow for an internal turning circle to allow for a natural and uninhibited flow of vehicular traffic.



Figure 99 - Rental Shop

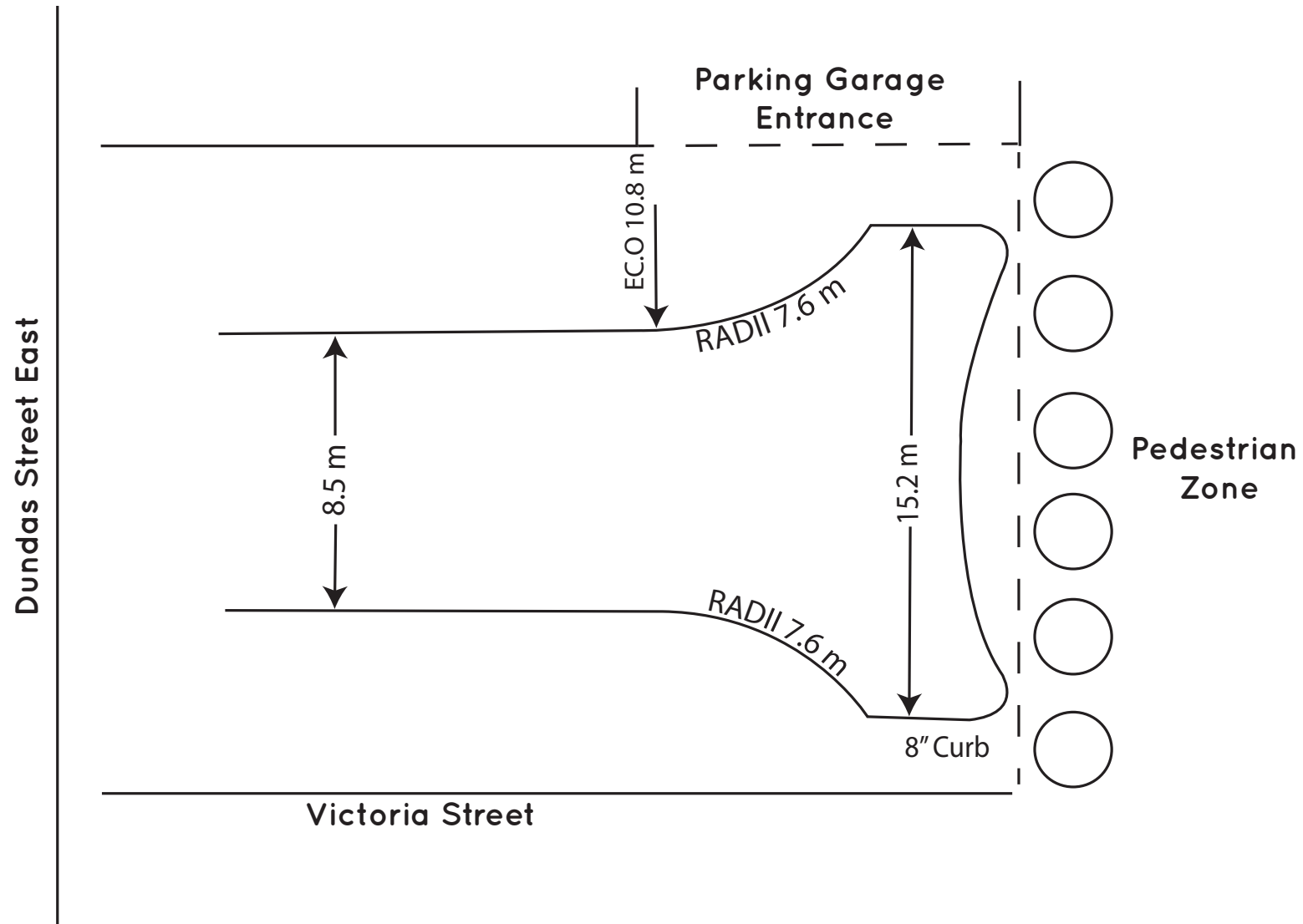


Figure 100 - Potential 'Turning Y' Configuration for Victoria Street Parking Garage

Signage

Provide visually pleasing displays that create a sense of direction and place

Improve signage throughout the campus to assist visitors in moving about in the winter season; a time when a person's senses are hampered by the seasonal climate.

- Promote the use of Ryerson colours and flags at major Ryerson entry points which network with the Victoria/Gould intersection. Signage will be made to make Ryerson University stand apart from its downtown surroundings, but at the same time invite its neighbours to the campus. Add flags to the pedestrian bridges along Victoria Lane to not only identify the campus, but also brighten the walkway.



Figure 101 - Ryerson colors on Image Arts Building

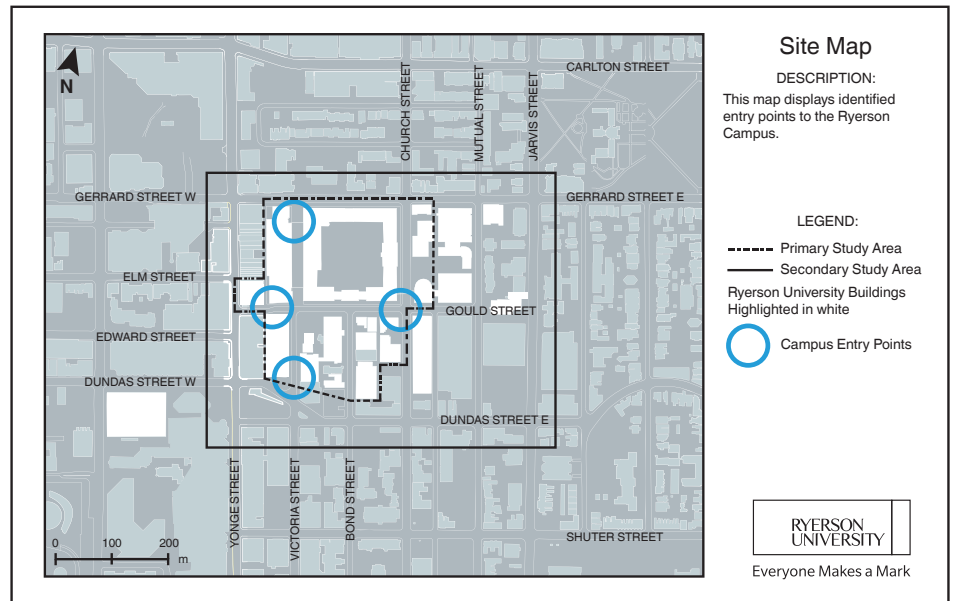


Figure 102 - Ryerson entry points



- Paint the street and large planters to clearly identify the new pedestrian street. The closure of Gould Street has suggested the need for more visible signage and vehicular information about the closure of Gould Street. New street directions and traffic signs need to be installed around the campus.
- Guide motorists to the new Kiss-and-Ride area with highly visible signage around the Dundas & Victoria intersection, reducing the danger of 3 point turns in front of the Victoria Street parking garage.
- Strategically placed information kiosks and security poles, enhancing accessibility and ease of pedestrian way finding through the campus. Electronic, up-to-the-minute, information booths can also be implemented, although this kind system may be expensive. Instead, a single digital informational booth could be located at the major hub of the campus, at Gould and Victoria Streets.



Figure 103 - Crosswalk pavement markings



Figure 104 - Illuminated planter

Landscape

Bring nature into the concrete jungle

Enliven the winter landscape with a range of vegetation and materials. Enhance the entire campus through winter friendly plants and ice-resistant materials that stave off the cold climate.

Short-term initiatives

- Create a sensory zone along Victoria Lane, north of Gould Street; with lighting and a diverse range of vegetation (see appendix). Stimulate smell, sight, and sound. Insert street furniture in this sensory zone, within the natural areas along the corridor allowing people to escape from the concrete jungle. Extend the design along Gould once the existing raised planters are lowered. Enhance lighting to draw attention to Kerr Hall, the sitting areas, and the natural landscape.
- Diversify vegetation in all plantings to encourage a range of colours during all seasons and improve biodiversity. This can be done by replacing plant species as the existing vegetation dies out or ages.
- Increase sitting areas along all pedestrian pathways running through the Quad. This includes the extension of the wooden seating introduced along the Community Gardens.
- Introduce colour and light in the raised planters along Gould Street. Existing stand-alone planters should be painted using school colours to enhance visibility from further distances.
- Utilize more porous and sustainable building materials for structures and campus features. Include paving stones that allow better drainage to reduce icing and the need for winter salt.
Improve pedestrianization, walkability, and sense of place on campus with the levelling of Gould Street with the sidewalk.
- Enhance the Kerr Hall South archway so that the new passenger drop-off area will create a more desirable waiting area. Introduce some form of area heating and improved lighting. Include removable or retractable bollards along the corner of Bond and Gould Streets, and along the drop-off area as clear signage to improve safety.



Figure 105 - Along Victoria Street North of Gould Street



Figure 106 - The Quad



Figure 107 - West side of Victoria Street South of Gould Street



Figure 108 - Daoust Lestage vision of a pedestrianized Gould Street



Figure 109 - Use of ballards in Glasgow, Scotland

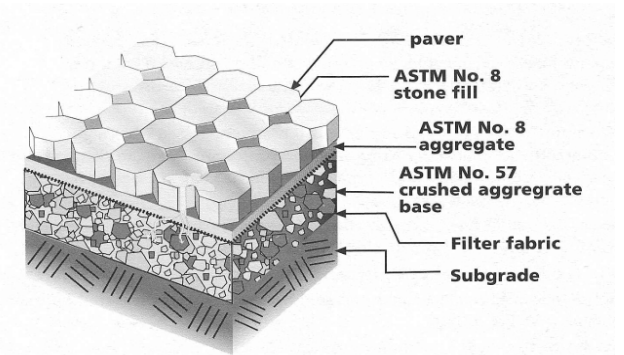


Figure 110 - Section of permeable interlocking concrete paver system

Landscape (continued)

Long-term initiatives

- Lower planters along Gerrard and Church Streets, thereby increasing the amount of sidewalk space available to pedestrians. Replace the stand-alone planters on Victoria Street, at the entrances to the pedestrian pathways with bollards once the street is levelled.
- Conduct a study to determine potential locations for green roofs and increased urban farming on campus. Possible locations include in the pedestrian bridges over Victoria Lane or on top of Kerr Hall. Encourage the continuation and expansion of the Ryerson Community Gardens. Open up membership to resident local gardeners and green-thumbs who wish to participate.



Figure 111 - Ryerson Community Garden



Figure 112 - Gerrard Street

Street Furniture

An essential building block that enhances the surrounding human environment

Animate the streetscape with appropriate furnishings; streets become places for people which then adds value to the overall surroundings to secure comfort. Design, function and placement of street furniture are essential to create connections between space, people and built form. Present a visual language and public art that promotes comfort and enjoyable elements for pedestrians, but also communicates to people about the recognition of space. Furnishings can change people's attitudes toward winter and influence travel behaviours.

Furniture will be visually attractive and functional, exhibiting high quality design incorporating materials that harmonize with the existing conditions and environment. Ease of maintenance, durability, the ability to be universal accessibility and barrier-free from snow removal operations, and the cost-effectiveness of furniture are all contributes to the selection and recommendations of street furniture.



Figure 113 - Artistic Interpretation of Street Furniture on Campus

Street Furniture (continued)

Seating

Encourage social interaction and engagement through different seating orientations and formation. Benches are means to provide short-term relaxation for pedestrians. Sufficient seating areas that are visually attractive and welcoming shall be placed along high traffic corridors.

- Extend the wooden seats and offer additional seating options on the cement planters along Gould Street to promote casual seating. Materials such as wood or fibre that offer durability and warmth as well as ensure minimal of maintenance should be used.
- Integrate lighted benches within areas that lack night time lighting – along the Quad pathways, Victoria Laneway, and Gould Street to improve security and aesthetics
- Promote active use of underutilized space with group oriented seating such as the Victoria Lane balcony and Pitman Hall Courtyard. Additionally, single pebble seating can be used in low-lighted areas, avoiding interference with snow removal.



Figure 114 - Lighted benches to be placed along high traffic and low lighted areas



Figure 115 & 116 - Series of illuminated benches can create a path and increase visibility in low lighted area





Figure 117
Different formation of illuminated benches can increase interaction



Figure 118 & 119 - Single or Group seating options

Street Furniture (continued)

Fire installations offer short-term warmth and comfort to pedestrians. Heated furniture or furniture that provides heating can increase pedestrian activity at street-level and promote the enjoyment of the outdoors for longer periods of time.

- Include same day build-and-tear temporary fire shelters during special events and programs to attract people outdoor to key nodes within the campus. Enclosed and sheltered fire pits can be installed in areas that lacks pedestrian activity, but also in visible areas to ensure outdoor safety.
- Permanent or long-term heat installations for the winter season can be accomplished through automatically managed and controlled heating units mounted to existing light posts throughout the major pathways such as Victoria Lane and Gould Street. Heated units can also be incorporated within enclosed temporary street shelters, such as the Kerr Hall archways, offering warmth for those who prefer the winter air.

Figure 120 - Fire Hut



Figure 121 - Fire Hut



Figure 122 - Designed by Haugen and Zohar Achitects, Fire huts provide heat and shelter

Figure 123 - Fire Hut

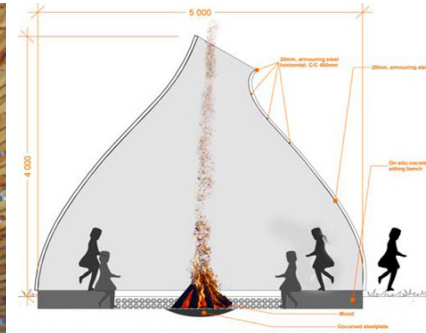


Figure 124 - Fire Hut

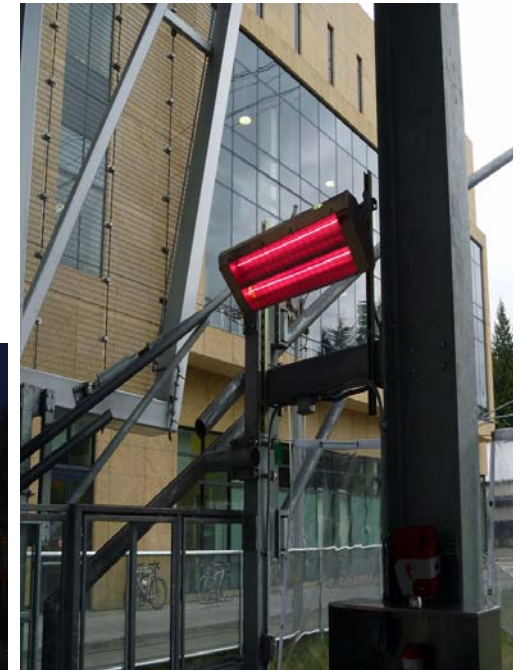


Figure 125 - Outdoor Heating



Shelter

Protect pedestrians from harsh weather through shelters: short-term accommodations placed within the outdoor environment. Users may be waiting for someone or enjoying outdoor events and views. Shelters and canopies encourage people to stay outdoors while offering comfort and protection.

- Create sustainable shelters, with build-and-tear down features, as short term shelters within key node areas of the campus such as Lake Devo, the Gould and Victoria intersection, or the Pitman Hall Courtyard. Opportunities to partner with the Faculty of Engineering can be realized, by offering a yearly design challenge that incorporates the construction and decommissioning of the structure.
- Place shelters at key traffic points and in visible areas. Incorporate information and lighting, as well as the use of warm colours to draw out pedestrians and increase the visibility and attractiveness of these shelters.



Figure 126 - Thermal installation can be incorporated within other street furniture such as shelters

Street Furniture (continued)

Garbage & Recycling Bins

Waste management during the winter becomes difficult with the amount of snow accumulation. Durability also becomes challenging from the wear and tear of the harsh winter and road salting.

- Invest in highly durable products and locate waste collection units in key traffic areas within close proximity to each other. Clearly identify the different types of waste for collection. Bin placement should occur in visible areas across the campus, major edges, intersections, and pathways.

Newspaper Stands

Collective structures for local newspaper, magazines, community news and public promotional material that offer informative knowledge.

- Place multi-unit dispensers of newspaper and media shelves on one single platform at key entrances of the campus. Stand shall be highly attractive and visible from a distant using RU colours. Designs shall address ease of access during the winter season and limit snow accumulation



Bike Racks

Provide sufficient bicycle storage areas across campus to accommodate seasonal cyclists. Encourage riders to use proper bicycle storage rather than on railings, light poles and other street furniture.

- Divert and guide human traffic away from the parking garage entrance through the installation of additional bicycle storage units. Through increased signage, reinforce the prohibition of bicycle parking around Lake Devo trees to prevent vegetation damage and reduce physical barriers to pedestrians.
- Implement the use of organized racks with shelter above to prevent snow accumulation on bicycles and minimize the challenges of commuters storing bicycles.
- Install bicycle storage throughout the campus: at main intersections and key entrances, but also smaller units between buildings where sufficient space permits.



Figure 128 - Urban commuters in Copenhagen during the winter season



Figure 129 - Bicycle storage with overhead shelter





Conclusions

Although Ryerson University has a very small footprint in the City of Toronto, the scope of this project is vast. The members of the Winterscape Study team have done extensive research on various methods and interventions that are viable design ideas for the Ryerson University campus. Therefore, all conclusions are clear and well supported by primary and secondary data. Themes that will invigorate the campus during the winter season include enhancing illumination, the campus experience, and comfort.

The Winterscape Study has considered solutions that are financially viable, ecologically sensitive, as well as those exhibiting good design and engineering. The proposals offer resilience and sustainable strategies. Consideration has been made for all forms of traffic in and around the campus. Partnerships should be enhanced that involve the various faculties, neighbours, and groups that live, work or study in the area. The strength of studio-based and interactive education has been realized through great, innovative and cutting edge ideas that will make the university proud.

Evaluation of strategies is a key component to ensuring their success. Evaluation of interventions will be performed by students and staff on the campus over time. Problems which arise should be catalogued and dealt with as they occur. The Ryerson administration should create a dialogue with the Ryerson Students' Union to gain a perspective on whether recommendations are working. As well, social media and the interactive program Soapbox can be utilized to gather ideas and evaluations from students and staff of how successful each implemented strategy is.

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Appendix Item 1:

Winterscape Background Report

(stand alone document)

Appendix Item 2:

Intervention Considerations

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Lighting	Quad	Motion sensor Lighting pathway around the Quad	Cost of installation, maintenance Cost of installation, snow removal to ensure lights are visible	
	Victoria Lane	Lighting vegetation Lighting street furniture Lighting vegetation	Cost of installation Cost of installation	
	Lake Devo	Path lighting	Cost of installation, snow removal to ensure lights are visible	
	Kerr Hall Archways	Light projections, Lighting Devonian rocks	Cost of installation, snow removal to ensure lights are visible	
	Pathways	Hanging lights under archway	Cost of installation	
	Streets	Path lighting Reducing null zones	Cost of installation, snow removal to ensure lights are visible ensure adequate amount of light sources, cost of installation	
Projections	Visual Playground Black Star Photography GOBO Lights		Projection equipment Lighting costs Experts in lighting; projections On Site technical crew Assembly of lighting	
Colour	Inclusion of warm colours around campus	Making students want to stay on campus longer	Hiring painters	
	Activating spaces	Make areas of the campus look more inviting	New outdoor furniture or re-colouring of existing ones	
Partnerships	BIA expansion	Attracting events onto the campus	Taking into account the cost for the university to facilitate and accommodate these events and not letting the university become branded.	
	Digital Media Zone (DMZ)	Student integration through forums	Integrating the software requirements among desired destinations.	
	Intra-university	Strengthening relationships between faculties and organizations.	No immediate costing.	
Promotions	Unified Branding Identity	Ryerson University Brand Place Branding Seasonal Branding	Marketing consultation quote may be required	

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Vendors	Street Food	Enough foot traffic Warmth/shelter Willing retailers/partnerships Full range of offerings Regulations	Advance street clearing Locations with minimal weather effects Market location to viable vendors Marketing/agreements with vendors Complicated and restrictive street food regulations can hamper vendor selection and viability	
	Winter market	Retailers willing to be present Enough foot traffic Warmth/shelter Full range of offerings Maintenance	Market location to viable vendors Advance street clearing (manpower) Power/electricity Marketing/agreements with vendors	
Special Events	BIA expansion	Winter Magic Illuminite	Partnership with BIA Assembly of events	
	Outdoor Cultural Events	Christmas Diwali Chinese Lantern	Lighting costs Assembly of event Programs within events	
			Promotion/Marketing Administration On Site Maintenance Staff	
Winter Carnival	Revival of the carnival	Ice/Snow sculpting Log sawing Bed racing	Expanding winter festival budget from its current \$3000	
Art Installations	Addition of art on campus	Sculptures Murals	Financing/labour costs can vary	
Safety	Elevated Street Corners	Incorporation Into elevated Gould St.	Labour cost to re-design and form corners.	Diversion of snow and slush accumulation to street drains.
		Impact assessment.	Alteration to proposed "Elevated Gould St."	

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Safety	Elevate Street Corners	Feasibility of implementation.	Possible changes to current snow clearing methods.	Safe pedestrian crossings.
	Interactive Kiosk's / Security Poles	Placement at high-traffic areas. Consolidation of Campus resources. Ability to incorporate safety updates, and allow others to update through mobile apps.	Cost of actual Kiosk's/programming. Traffic study to determine optimal location. Staff to manage updates/operation.	Efficient and effective access to information. Show patrons optimal route. Visible security poles for quick response.
	Signage Improvements	Consultation with City on acceptable sign design. Ensuring new signs do not replicate existing signage. Placement/size/color.	Ensuring signs do not confuse motorists/pedestrians. Signs notify travelers in advance to avoid congestion.	Efficient and effective signage.
	Kiss n' Ride Program	Impact assessment.	Volunteers to assist in info campaign.	Diversion of congestion.
		Feasibility analysis. Approval by City of Toronto. Approval by Ryerson University. Traffic study to determine optimal positioning/placement.	Cost to provide designated areas (lane painting / separated waiting area). Consultation services. Alteration to current snow clearing. Safety implications/considerations.	Designated area to pick-up and drop off. Better flow of traffic.
	Parking Garage	Impact assessment. Feasibility analysis. Approval by City of Toronto. Approval by Ryerson University.	Consultation services. Alteration to current snow clearing. City fees for various alterations. Staff/Volunteers for campaign/management.	Avoid conflict between pedestrian and motorist. Provide a southern gateway entrance, centered on pedestrian/cyclist mobility.

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Safety		Traffic study to determine optimal positioning/placement. Style of "pop-up-park"/bike racks. Allowance for emergency vehicle access. Impact of surrounding community.	Feasibility of Relocating Tim's Hortons. Construction costs.	
Signage	Lit planters	Electrical outlets	\$240 per lit planter	
	Interactive maps	Security of unit and winter conditions	Cost of an outdoor unit costs roughly \$5000	
Landscape	Sensory Zone	Increase vegetation diversity Increase seating areas Cost of new vegetation and maintenance	Design, planting, and maintenance of vegetation and landscaping in sensory zone Cost of new seating infrastructure Does the current budget allow for purchase?	
	Increase vegetation biodiversity	Phasing of replacement Cost of new vegetation and maintenance	Replacing vegetation will occur when existing vegetation dies or ages Does the current budget allow for purchase?	
	More seating around the Quad	Enough foot traffic Cost of new benches	Retain current level of path clearing (manpower) Does the current budget allow for purchase?	
	Utilize more porous and sustainable materials	Relating infrastructure projects Cost of materials Required maintenance of materials	Incorporate building materials with similar appearance to existing infrastructure Does the current budget allow for purchase?	
	Enhance the Kerr Hall archways	Warmth/shelter Lighting	Locations with minimal weather effects Placement, efficiency, and cost of lighting	
	Lower planters along Gerrard and Church Streets	Change in foot traffic along streets as population of University grows Cost of intervention	Advance street clearing (manpower) Does the current budget allow for purchase?	
	Replace planters on Victoria Street with bollards	Retractable bollards vs. removable bollards	Cost and efficiency	

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Landscape	Conduct a study to determine potential locations for green roofs and increased urban farming on campus	Time and capital to conduct research	Does the current budget allow for expenditure, who will conduct study	
		Need for new locations for green roofs and urban farming	Time will need to be allocated to conduct study	
Street Furniture	Extend wooden seats and offer additional seating options on the cement planters along Gould Street	Material, Proximity between seats	The installation and purchase of wooden seats in harmony with existing cement planters	
	Integrate lighted benches within areas that lack night time lighting – along the Quad pathways, Victoria Laneway, and Gould Street to improve security and aesthetics	Quality of light source used	The lifetime of the lights within the benches.	
			The purchase of lighted benches.	
			Electricity source for lighted benches	
	Promote active use of underutilized space with group oriented seating such as the Victoria Lane balcony and Pitman Hall Courtyard. Additionally, single pebble seating can be used in low-lighted areas, avoiding interference with snow removal	Space that allows group seating. Define underutilized space. Snowfall removal operation.	Trade off of space for group seatings.	
	Lighted benches to be placed along high traffic and low lighted areas	Quality of light source used	Replacement costs of lights within the benches.	
			The purchase of lighted benches	

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Street Furniture	Include same day build-and-tear temporary fire shelters during special events and programs to attract people outdoor to key nodes within the campus. Enclosed and sheltered fire pits can be installed in areas that lacks pedestrian activity, but also in visible areas to ensure outdoor safety	Safety Duration of fire operation	Staff to monitor fire shelters. Taking down and building the shelters Storage of the individual pieces Purchase of fire shelters Replacement costs	
	Permanent or long-term heat installations for the winter season can be accomplished through automatically managed and controlled heating units mounted to existing light posts throughout the major pathways such as Victoria Lane and Gould Street. Heated units can also be incorporated within enclosed temporary street shelters, such as the Kerr Hall archways, offering warmth for those who prefer the winter air	The selection of potential light poles to have mounted heaters	Monetary cost of purchasing outdoor heaters. On-site staff for maintenance. Staff for installation of mounted heaters Additional wiring	

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Street Furniture			Replacement cost	
	Create sustainable shelters, with build-and-tear down features, as short term shelters within key node areas of the campus such as Lake Devo, the Gould and Victoria intersection, or the Pitman Hall Courtyard. Opportunities to partner with the Faculty of Engineering can be realized, while offering a yearly design challenge that incorporates the construction and decommissioning of the structure	Hinder to snow removal operation, durability. Need intra-departmental cooperation.	Building and tearing down of shelter Storage of shelter pieces during off season Coordination with Faculty academic programming/ curriculum planning	
	Place shelters at key traffic points and in visible areas. Incorporate information and lighting, as well as the use of warm colours to draw out pedestrians and increase the visibility and attractiveness of these shelters	Location of shelters. Loitering of public users within shelters	Maintenance of shelters	

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Street Furniture	Invest in highly durable products and locate waste collection units in key traffic areas within close proximity to each other. Clearly identify the different types of waste for collection. Bin placement should occur in visible areas across the campus, major edges, intersections, and pathways	location of units	Ease of maintenance and collection Replacement cost	
	Place multi-unit dispensers of newspaper and media shelves on one single platform at key entrances of the campus. Stand shall be highly attractive and visible from a distant using RU colours. Designs shall address ease of access during the winter season and limit snow accumulation	Vandalism and restock of materials	Newspaper/magazine company will have to coordinate to refill the shelves	
	Divert and guide human traffic away from the parking garage entrance through the installation of additional bicycle storage units. Through increased signage, reinforce the prohibition of bicycle parking around Lake Devo trees to prevent vegetation damage and reduce physical barriers to pedestrians	Permanent installation. Size of rack. Increase traffic on the east side of Victoria Street. Increase cyclists towards west side of Victoria Street	Replacement costs Purchase of rack with shelter	



Winterscape

Section	Intervention	Considerations	Cost (man power, financial, etc.)	Benefits
Street Furniture	Implement the use of organized racks with shelter above to prevent snow accumulation on bicycles and minimize the challenges of commuters storing bicycles.	Location and space of rack should be wide enough. The number of bikes the rack can store	Purchase of bike racks Snow removal	
	Install bicycle storage throughout the campus: at main intersections and key entrances, but also smaller units between buildings where sufficient space permits	The number of bikes the racks can store	Snow removal Purchase of bicycle storage.	

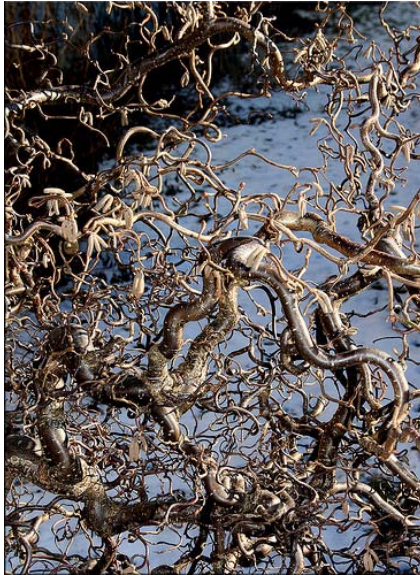
Appendix Item 3:

Vegetation Characteristics

Appendix 3 Vegetation Characteristics

English Name	Latin Name	Tree/Shrub/Ground Cover/Vine (Broadleaf Evergreen, Evergreen, Deciduous or Coniferous)	Mature Height/Width	Winter Attraction
Corkscrew Hazel	<i>Corylus avellana</i> 'Contorta'	small tree (deciduous)	8m/10m	curly, twisted stems
Globe Maple	<i>Acer platanoides</i> 'Globosum'	small tree (deciduous)	5m/5m	dense globe head/street tree
Maidenhair Ginkgo	<i>Ginkgo biloba</i>	tall tree (deciduous)	17m/11m	pollution & pest resistant
Showy Mountain Ash	<i>Sorbus decora</i>	small tree (deciduous)	8m/6m	small red berries
Canadian Hemlock	<i>Tsuga canadensis</i>	tree (coniferous)	20m/5m	green arching branches & cones
Hoopsi Blue Spruce	<i>Picea pungens</i> 'Hoopsi'	tree (coniferous)	20m/6m	blue needles & cones
Globe Blue Spruce	<i>Picea pungens</i> 'Glauga Globosa'	shrub (evergreen)	80cm/1.5m	globe shaped/blue needles
Hick's Yew	<i>Taxus x media</i> 'Hicksii'	shrub (evergreen)	3m/1m	green branches & red berries
Scarlet Firethorn	<i>Pyracantha coccinea</i>	shrub (evergreen)	5m/5m	leaves, thorns & red berries
Sunkist Golden Cedar	<i>Thuja occidentalis</i> 'Sunkist'	shrub (evergreen)	2m/1m	pyamidal shape/golden foliage/lacy texture
Icee Blue Juniper	<i>Juniperus horizontalis</i> 'Icee Blue Monber'	green roof /groundcover/topiary (evergreen)	10cm/2.25m	silver blue colour to plum purple in winter
Emerald Spreader Japanese Yew	<i>Taxus cuspidata</i> 'Monloo'	groundcover (evergreen)	80cm/3m	erosion control green needles/red berries
English Holly	<i>Ilex aquifolium</i>	shrub (broadleaf evergreen)	3m/3m	green leaves & red berries
Red Osier Dogwood	<i>Cornus stolonifera</i>	shrub (deciduous)	2m/2.5m	red branches
Yellow Twig Dogwood	<i>Cornus sericea</i> 'Flaviramea'	shrub (deciduous)	2m/2.5m	yellow branches
Cranberry Cotoneaster	<i>Cotoneaster apiculatus</i>	shrub (broadleaf evergreen)	1m/1.5m	green leaves & red berries
Mor Gold Euonymus	<i>Euonymus fortunei</i> 'Mor Gold'	shrub (broadleaf evergreen)	1m/1m	gold leaves
Lee's Dark Purple Rhododendron	<i>Rhododendron</i> 'Lee's Dark Purple'	shrub (broadleaf evergreen)	1.5m/1.2m	dark waxy foliage, large flower buds in winter
English Ivy	<i>Hedera helix</i>	vine (broadleaf evergreen)	50m/1m	green/red leaves (will climb or act as groundcover)
Plume Grass Hardy	<i>Erianthus ravennae</i> /Saccharum ravennae	ornamental grass	3.7m/1.8m	striking, dramatic winter appearance
Ornamental Kale	<i>Brassica oleracea</i>	ornamental plants	30cm/30cm	tolerant to salt cabbage-like green or purple leaves

English Name	Web Site
Corkscrew Hazel	http://www.mobot.org/gardeninghelp/plantfinder/plant.asp?code=C360
Globe Maple	http://www.about-garden.com/e/en/00030-norway-maple-acer-platanoides-globosum/
Maidenhair Ginkgo	http://kwanten.home.xs4all.nl/thetree.htm
Showy Mountain Ash	http://bolt.lakeheadu.ca/~borfor/shrubs/shrub47.htm
Canadian Hemlock	http://hcs.osu.edu/hcs/tmi/plantlist/ts_ensis.html
Hoopsi Blue Spruce	http://www.northscaping.com/Tools/LPS-Engine.asp?CCID=10000000&page=pdp&PID=1064
Globe Blue Spruce	http://www.monrovia.com/plant-catalog/plants/1953/dwarf-globe-blue-spruce.php
Hick's Yew	http://landscaping.about.com/od/evergreenshrubsbushes1/a/japanese_yews.htm
Scarlet Firethorn	http://www.homesecurityguru.com/firethorn
Sunkist Golden Cedar	http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/shrubs/thuja_occiden-sunkist.html
Icee Blue Juniper	http://www.monrovia.com/plant-catalog/plants/1662/icee-blue-juniper.php
Emerald Spreader Japanese Yew	http://www.monrovia.com/plant-catalog/plants/214//emerald-spreader-japanese-yew.php
English Holly	http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/weed-identification/english-holly.aspx
Red Osier Dogwood	http://www.macphailwoods.org/shrub/reddog.html
Yellow Twig Dogwood	http://www.diroger.com/brilliant_yellow_twig_dogwood.htm
Cranberry Cotoneaster	http://search.shelmerdine.com/NetPS-Engine.asp?CCID=11050002&page=pdp&PID=115
Mor Gold Euonymus	http://www.plantstogrow.com/zPlantsDisplay.asp?plantID=834
Lee's Dark Purple Rhododendron	http://plants.makeitgreen.ca/NetPS-Engine.asp?CCID=11090002&page=pdp&PID=1232
English Ivy	http://www.shim.bc.ca/invasivespecies/_private/englishivy.htm
Plume Grass Hardy	http://www.bluestem.ca/saccharum-ravennae.htm
Ornamental Kale	http://www.nj.com/homegarden/garden/index.ssf/2008/11/ornamental_kale_brightens_wint.html



English Name: Corkscrew Hazel

Latin Name: *Corylus avellana* 'Contorta'

Type: Small tree (deciduous)

Mature Height/Width: 8m/10m

Winter Attraction: Curly, twisted stems

Information Source: Missouri Botanical Garden. *Corylus avellana* 'Contorta'.

Retrieved November 1, 2011 from

<http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/c360/corylus-avellana-contorta.aspx>

Image Source: Johansson, Jeanette. (2011). *Corkscrew hazel in winter*.

Retrieved November 18, 2011 from

<http://www.flickr.com/photos/housejohansson/5461117555/in/photostream>



English Name: Globe Maple

Latin Name: *Acer platanoides* 'Globosum'

Type: Small tree (deciduous)

Mature Height/Width: 5m/5m

Winter Attraction: Dense globe head/street tree

Information and Image Source: about-garden.com. (2011). *Acer platanoides*

'Globosum' (Norway maple). Retrieved November 1, 2011 from

<http://www.about-garden.com/e/en/00030-norway-maple-acer-platanoides-globosum/>



English Name: Maidenhair Ginkgo

Latin Name: Ginkgo biloba

Type: Tall tree (deciduous)

Mature Height/Width: 17m/11m

Winter Attraction: Pollution & pest resistant

Information Source: Kwant, Cor. (2000). *GINKGO BILOBA-The Ginkgo Pages-The tree*. Retrieved November 1, 2011 from <http://kwanten.home.xs4all.nl/thetree.htm>

Image Source: Wcisel, Karren. (2009). *Ginkgo Biloba Photo Gallery*. Retrieved November 18, 2011 from http://www.treeidphotos.com/ginkgo_biloba/gallery1.htm



English Name: Showy Mountain Ash

Latin Name: Sorbus decora

Type: Small tree (deciduous)

Mature Height/Width: 8m/6m

Winter Attraction: Small red berries

Information Source: Lakehead University. (2002). *Showy Mountain Ash*. Retrieved November 1, 2011 from <http://bolt.lakeheadu.ca/~borfor/shrubs/shrub47.htm>

Image Source: Vickie. (2010). *Winter Wonderland*. Retrieved November 18, 2011 from <http://montana2.wordpress.com/2010/11/28/1660/>



English Name: Canadian Hemlock

Latin Name: *Tsuga Canadensis*

Type: Tree (coniferous)

Mature Height/Width: 20m/5m

Winter Attraction: Green arching branches & Cones

Information Source: The Ohio State University. (2011). *Tsuga canadensis*.

Retrieved November 1, 2011 from

http://hcs.osu.edu/hcs/tmi/plantlist/ts_ensis.html

Image Source: Michaela. (2011). *The Wonderful Wizard of Winter: Native, Snow-Draped Canadian Hemlock*. Retrieved November 18, 2011 from

<http://www.thegardenerseden.com/?p=18223>



English Name: Hoopsi Blue Spruce

Latin Name: *Picea pungens 'Hoopsi'*

Type: Tree (coniferous)

Mature Height/Width: 20m/6m

Winter Attraction: Blue needles & cones

Information Source: Northscaping. (2011). *Hoopsi Blue Spruce*. Retrieved

November 1, 2011 from [http://www.northscaping.com/Tools/LPS-](http://www.northscaping.com/Tools/LPS-Engine.asp?CCID=10000000&page=pdp&PID=1064)

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Image Source: Robertson's Landscaping Inc. (2011). *Spruce, 'Hoopsi' Blue*.

Retrieved November 18, 2011 from

http://www.robertsonlandscaping.com/glossary_plants3.php?plant_id=147&category=Evergreen%20Trees



English Name: Globe Blue Spruce

Latin Name: *Picea pungens* 'Glauga Globosa'

Type: Shrub (evergreen)

Mature Height/Width: 80cm/1.5m

Winter Attraction: Globe shaped/blue needles

Information Source: Monrovia. (2011). *Dwarf Globe Blue Spruce – Picea pungens 'Globosa'*. Retrieved November 1, 2011 from <http://www.monrovia.com/plant-catalog/plants/1953/dwarf-globe-blue-spruce.php>

Image Source: Grobe's Nursery and Garden Centre. (2011). Evergreens. Retrieved November 18, 2011 from <http://www.grobenursery.com/evergreens1>



English Name: Hick's Yew

Latin Name: *Taxus x media* 'Hicksii'

Type: Shrub (evergreen)

Mature Height/Width: 3m/1m

Winter Attraction: Green branches & red berries

Information Source: Beaulieu, David. (2011). *Japanese Yews and English Yew Bushes*. Retrieved November 1, 2011 from http://landscaping.about.com/od/evergreenshrubs/bushes1/a/japanese_yews.htm

Image Source: OnlinePlantGuide.com. (2011). *Taxus x media 'Hicksii' /Hicks Yew*. Retrieved November 18, 2011 from http://www.onlineplantguide.com/PlantDetails.aspx?Plant_id=2624



English Name: Scarlet Firethorn

Latin Name: *Pyracantha coccinea*

Type: Shrub (evergreen)

Mature Height/Width: 5m/5m

Winter Attraction: Leaves, thorns & red berries

Information Source: Home Security Guru. (2006). *Pyracantha – Firethorn*.

Retrieved November 1, 2011 from

<http://www.homesecurityguru.com/firethorn>

Image Source: Jordan Valley Conservation Gardens Foundation. (2011). Scarlet Firethorn. Retrieved November 18, 2011

from <http://conservationgardenpark.org/plants/919/scarlet-firethorn/>



English Name: Sunkist Golden Cedar

Latin Name: *Thuja occidentalis 'Sunkist'*

Type: Shrub (evergreen)

Mature Height/Width: 2m/1m

Winter Attraction: Pyramidal shape/golden foliage/lacy texture

Information Source: Evans, Erv. (2005). *Shrubs: Thuja occidentalis 'Sunkist'*.

Retrieved November 1, 2011 from

http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/shrubs/thuja_occiden-sunkist.html

Image Source: Pascoe, Michael. *Sunkist Cedar*. Retrieved November 18, 2011

from <http://www.ontarioplants.ca/display.php?id=139>



English Name: Icee Blue Juniper

Latin Name: Juniperous horizontalis 'Icee Blue Monber'

Type: Green roof /groundcover/topiary (evergreen)

Mature Height/Width: 10cm/2.25m

Winter Attraction: Silver blue colour to plum purple in winter

Information Source: Monrovia. (2011). *Icee Blue® Juniper – Juniperus horizontalis 'Monber' P.P. #9,639*. Retrieved November 1, 2011

<http://www.monrovia.com/plant-catalog/plants/1662/icee-blue-juniper.php>

Image Source: Shelmerdine Winnipeg Garden Centre. (2011). *Icee Blue Juniper*. Retrieved November 18, 2011 from <http://search.shelmerdine.com/NetPS-Engine.asp?CCID=11050002&page=pdp&PID=887>



English Name: Emerald Spreader Japanese Yew

Latin Name: Taxus cuspidata 'Monloo'

Type: Groundcover (evergreen)

Mature Height/Width: 80cm/3m

Winter Attraction: Erosion control green needles/red berries

Information Source: Monrovia. (2011). *Emerald Spreader® Japanese Yew – Taxus cuspidate 'Monloo' P.P. #10,335*. Retrieved November 1, 2011

<http://www.monrovia.com/plant-catalog/plants/2147/emerald-spreader-japanese-yew.php>

Image Source: Rose Fitzgerald Kennedy Greenway Conservancy. (2011). *What's in Bloom*. Retrieved November 18, 2011 from <http://blog.rosekennedygreenway.org/2011/10/26/whats-in-bloom-40/>



English Name: English Holly

Latin Name: Ilex aquifolium

Type: Shrub (broadleaf evergreen)

Mature Height/Width: 3m/3m

Winter Attraction: Green leaves & red berries

Information Source: King County. (2011). *English Holly*. Retrieved November 1, 2011 from

<http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/weed-identification/english-holly.aspx>

Image Source: University of Wisconsin-La-Crosse. (2009). *English Holly – One Tough Tree*. Retrieved November 18, 2011 from

http://bioweb.uwlax.edu/bio203/s2009/reberg_kayc/OneToughTree.htm



English Name: Red Osier Dogwood

Latin Name: Cornus stolonifera

Type: Shrub (deciduous)

Mature Height/Width: 2m/2.5m

Winter Attraction: Red branches

Information Source: Martin, Chris. (2011). *Red Osier Dogwood (Cornus stolonifera)*. Retrieved November 1, 2011 from

<http://www.macphailwoods.org/shrub/reddog.html>

Image Source: Housman, K. E. (2010). *Celebrate Winter*. Retrieved November 18, 2011 from <http://naturalmidwestgarden.com/archives/830>



English Name: Yellow Twig Dogwood

Latin Name: *Cornus sericea* 'Flaviramea'

Type: Shrub (deciduous)

Mature Height/Width: 2m/2.5m

Winter Attraction: Yellow branches

Information Source: Moonshine Designs Nursery. (2011). *Bud's Yellow Twig Dogwood*. Retrieved November 1, 2011 from

http://www.djroger.com/brilliant_yellow_twig_dogwood.htm

Image Source: Carlseng Designs. (2011). *January Thoughts*. Retrieved November 18, 2011 from

http://carlsengdesigns.blogspot.com/2011_01_01_archive.html



English Name: Cranberry Cotoneaster

Latin Name: *Cotoneaster apiculatus*

Type: Shrub (broadleaf evergreen)

Mature Height/Width: 1m/1.5m

Winter Attraction: Green leaves & red berries

Information Source: Shelmerdine Winnipeg Garden Centre. (2011). *Cranberry Cotoneaster*. Retrieved November 1, 2011 from

<http://search.shelmerdine.com/NetPS-Engine.asp?CCID=11050002&page=pdp&PID=115>

Image Source: Green Grass. (2011). Plant Library. Retrieved November 18, 2011 from

http://www.greengrasslandscape.com/index.php?option=com_content&view=article&id=91&Itemid=123



English Name: Mor Gold Euonymus

Latin Name: Euonymus fortunei 'Mor Gold'

Type: Shrub (broadleaf evergreen)

Mature Height/Width: 1m/1m

Winter Attraction: Gold leaves

Information Source: Drobot, Paul. (2011). *Plant Data*. Retrieved November 1, 2011 from <http://www.plantstogrow.com/zPlantsDisplay.asp?plantID=834>

Image Source: Sun Valley Garden Centre. *Mor Gold Wintercreeper*. Retrieved November 18, 2011 from <http://www.qscaping.com/NetPS-Engine.asp?CCID=20000011&page=pdp&PID=8623>



English Name: Lee's Dark Purple Rhododendron

Latin Name: Rhododendron 'Lee's Dark Purple'

Type: Shrub (broadleaf evergreen)

Mature Height/Width: 1.5m/1.2m

Winter Attraction: Dark waxy foliage, large flower buds in winter

Information Source: Make It Green Garden Centre. (2011). *Lee's Dark Purple Rhododendron*. Retrieved November 1, 2011 from <http://plants.makeitgreen.ca/NetPS-Engine.asp?CCID=11090002&page=pdp&PID=1232>

Image Source: Schram, Andrew. (2011). *New plant: Gaultheria procumbens*

(*Wintergreen*). Retrieved November 18, 2011 from <http://allandrewsplants.wordpress.com/2011/04/30/new-plant-gaultheria-procumbens-wintergreen/>



English Name: English Ivy

Latin Name: Hedera helix

Type: Vine (broadleaf evergreen)

Mature Height/Width: 50m/1m

Winter Attraction: Green/red leaves (will climb or act as groundcover)

Information Source: Graham, Paul A. (2003). *English Ivy*. Retrieved November 1, 2011 from http://www.shim.bc.ca/invasivespecies/_private/englishivy.htm

Image Source: Winterscape team



English Name: Plume Grass Hardy

Latin Name: Erianthus ravennae/Saccharum ravennae

Type: Ornamental grass

Mature Height/Width: 3.7m/1.8m

Winter Attraction: Striking, dramatic winter appearance

Information Source: Bluestem Nursery. (2011). *Saccharum ravennae - Hardy Pampas Grass*. Retrieved November 1, 2011 from <http://www.bluestem.ca/saccharum-ravennae.htm>

Image Source: Cichorski, Carol. (2011). *OhWhatAWednesday – Grasses Required for Winter Interest*. Retrieved November 18, 2011 from <http://www.ohwhatabeautifulgarden-chicagoland.com/?paged=9>



English Name: Ornamental Kale

Latin Name: Brassica oleracea

Type: Ornamental plants

Mature Height/Width: 30cm/30cm

Winter Attraction: Tolerant to salt cabbage-like green or purple leaves

Information Source: Hlubik, Bill. (2008). *Ornamental kale brightens winter landscape*. Retrieved November 1, 2011 from

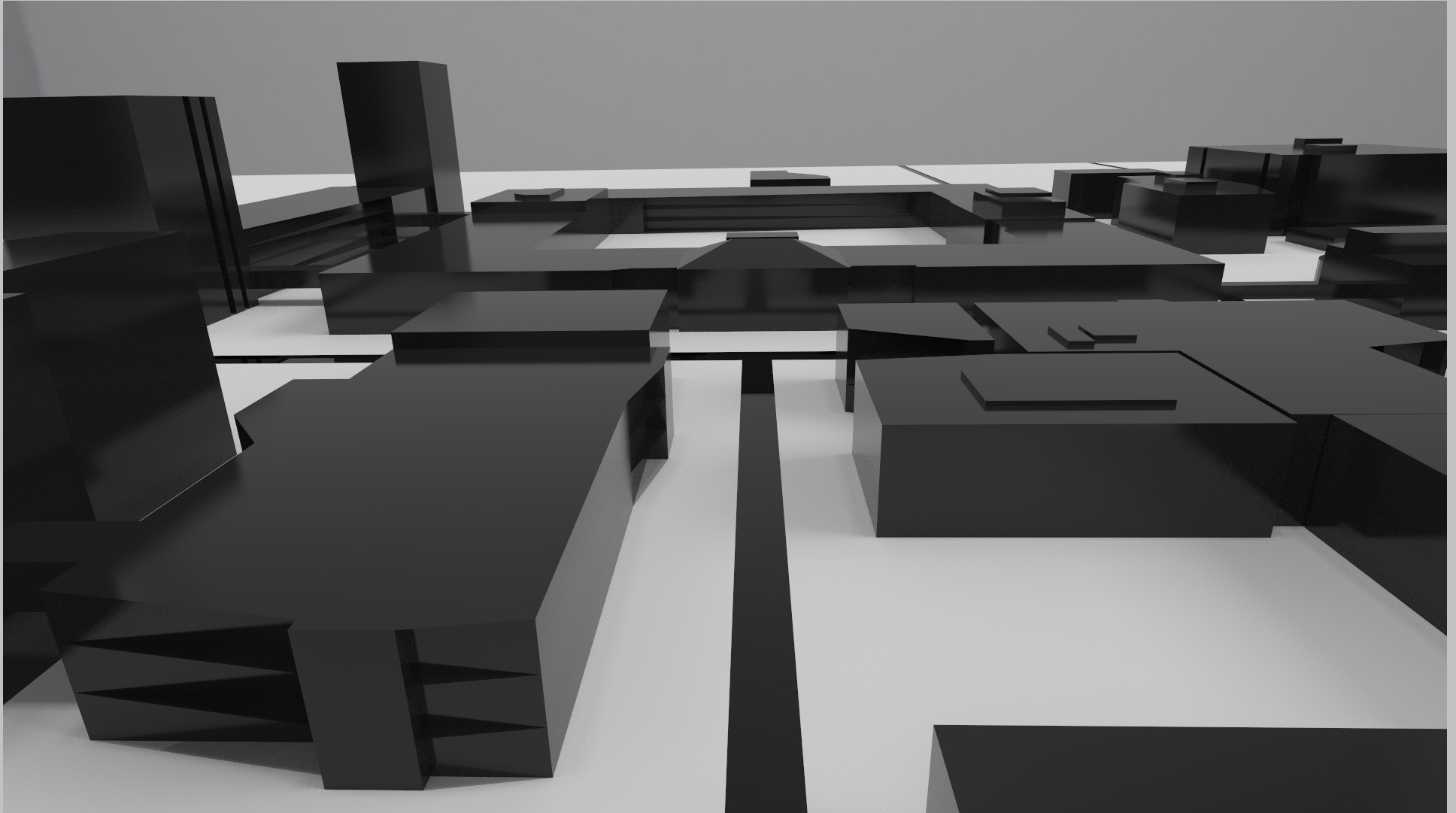
http://www.nj.com/homegarden/garden/index.ssf/2008/11/ornamental_kale_brightens_wint.html

Image Source: Melnyk, Robert. (2007). *Ornamental Kale (Cabbage)*. Retrieved November 18, 2011 from

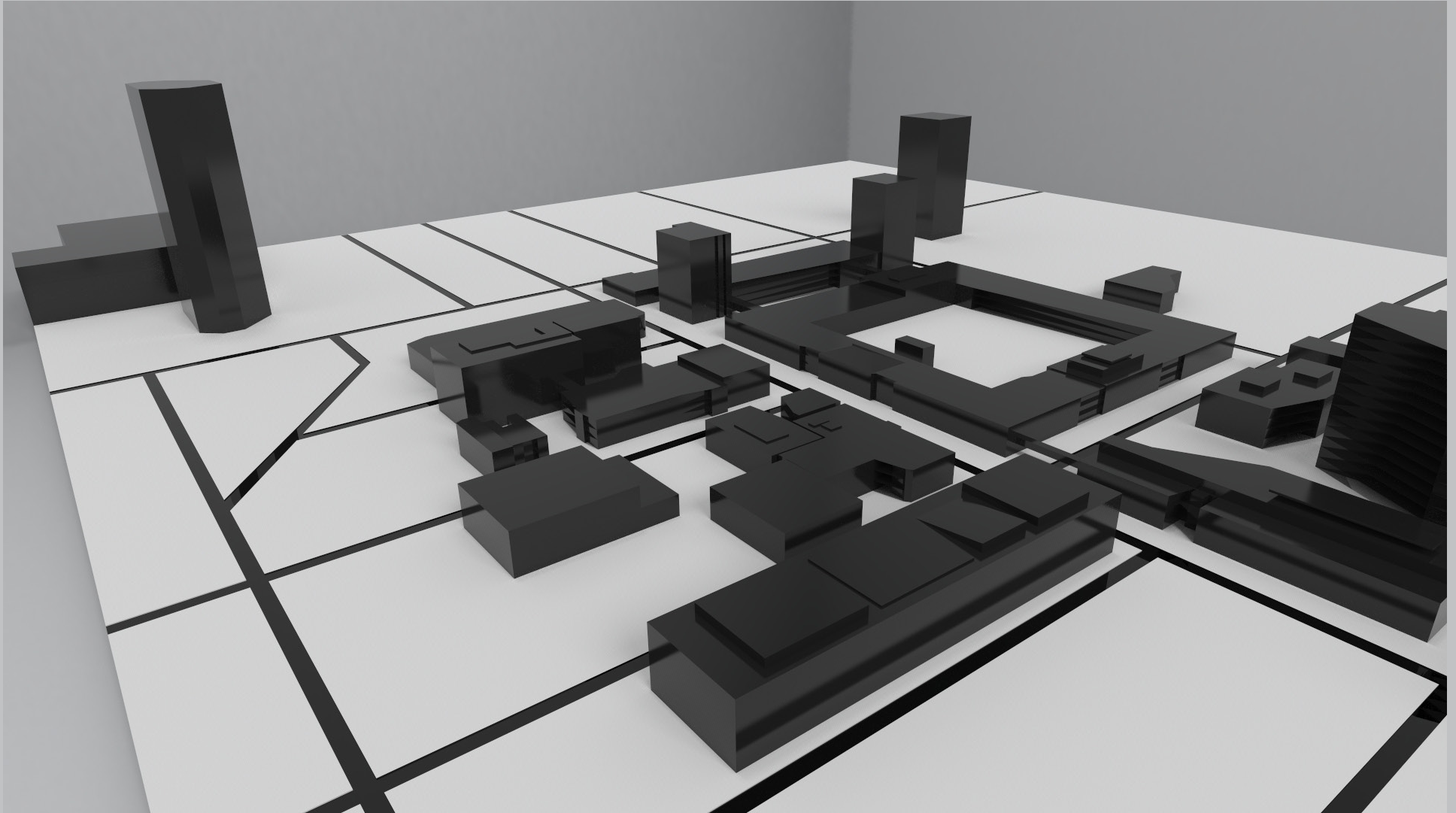
<http://www.myfourthirds.com/document.php?id=31711>

Appendix Item 4:

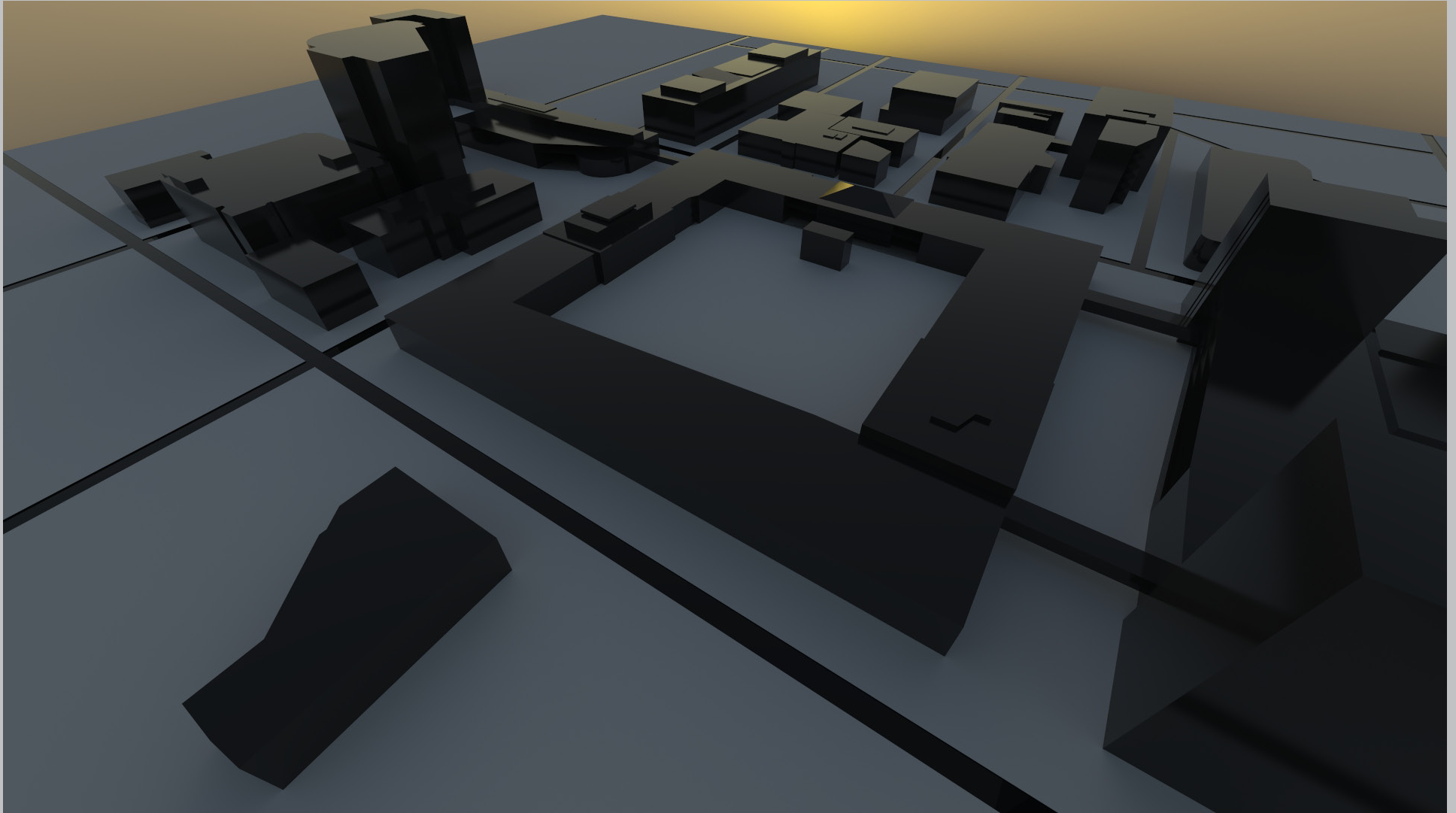
Additional Renderings



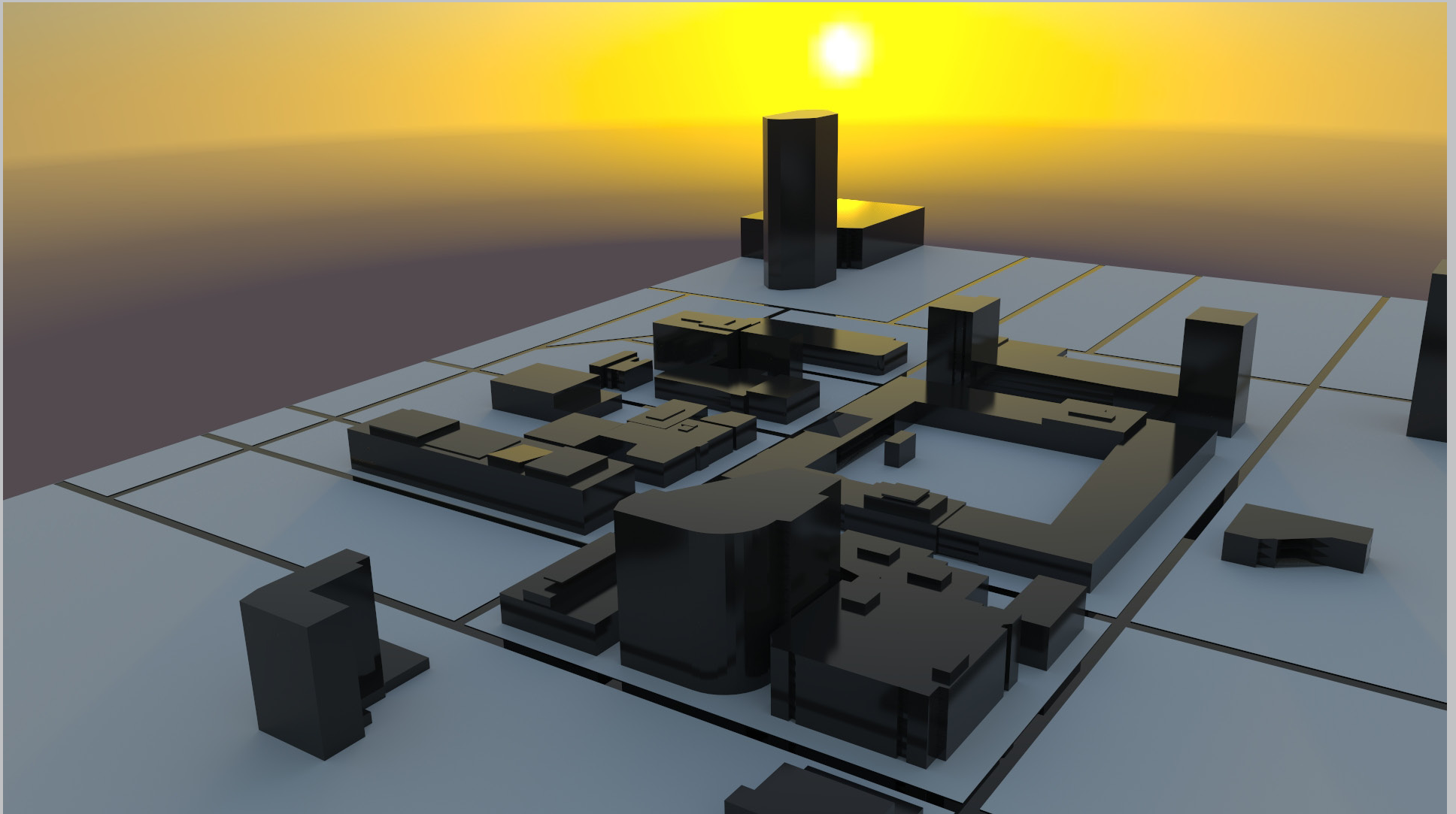
Winterscape Renderings - Lighting Model
(Data provided by Ryerson Campus Planning and Facilities)



Winterscape Renderings - Lighting Model
(Data provided by Ryerson Campus Planning and Facilities)



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