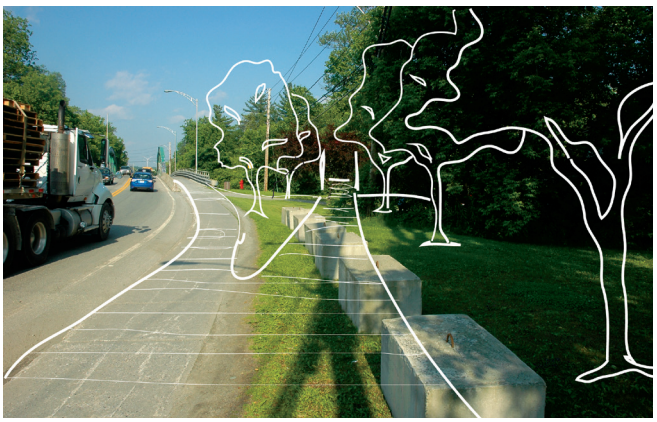
3.5 Other Issues

3.5.1 Route 108 (College Street)

The current approach along Route 108 is relatively dispiriting, capturing little of the landscape beauty that is abundant in the vicinity of Bishop's University.

A concerted planting of high-limbed shade trees could contribute to building a greater sense of arrival at the vehicular and pedestrian entrances onto the main campus.



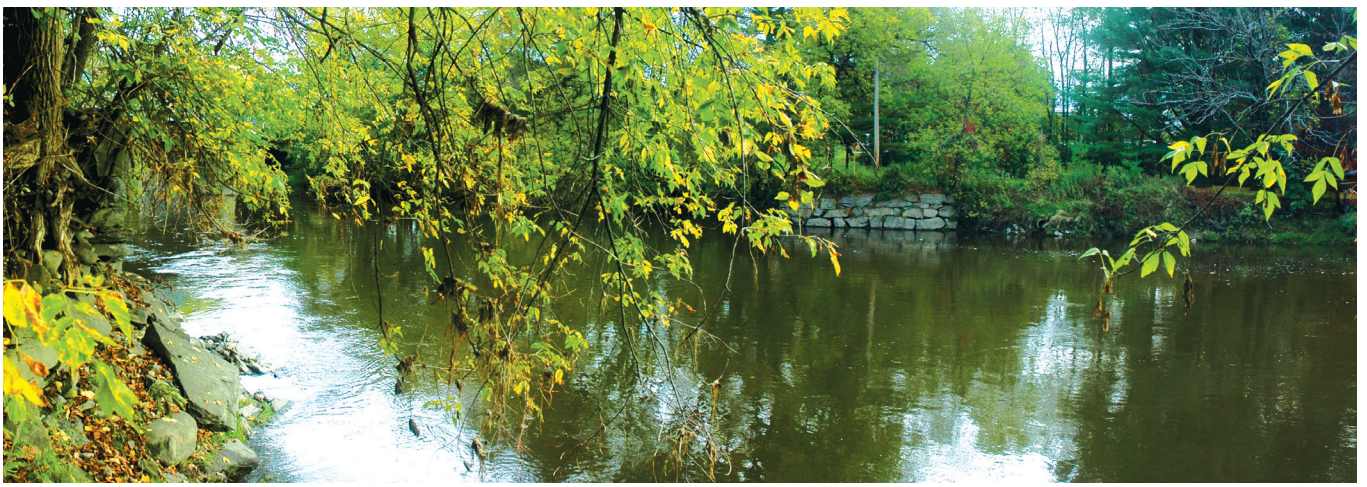
3.5.2 University Forest

Bishop's University is fortunate to have an expansive forest network immediately in the range of the academic and residential areas of the campus.

By making better use of this existing resource through the establishment of trails and clear wayfinding markers, the Bishop's community can better use this landscape for recreation and relaxation.

3.62
Views of College Street, showing sketches of proposed landscaping.

3.63 (Opposite)
A wooded path along the Massawippi River.



3.5.3 Wetlands and Floodplains

The campus' close proximity to the juncture of two rivers, as well as its location at a major bend in the St. Francis River, increases the likelihood of flooding, particularly in low-lying areas at the edges of the campus.

This proximity to riparian ecosystems also increases the need to provide an effective stormwater management plan that slows water during peak storm events, and reduces or eliminates the transfer of surface pollutants from road-

3.64
Plan of the locations of proposed wetlands.

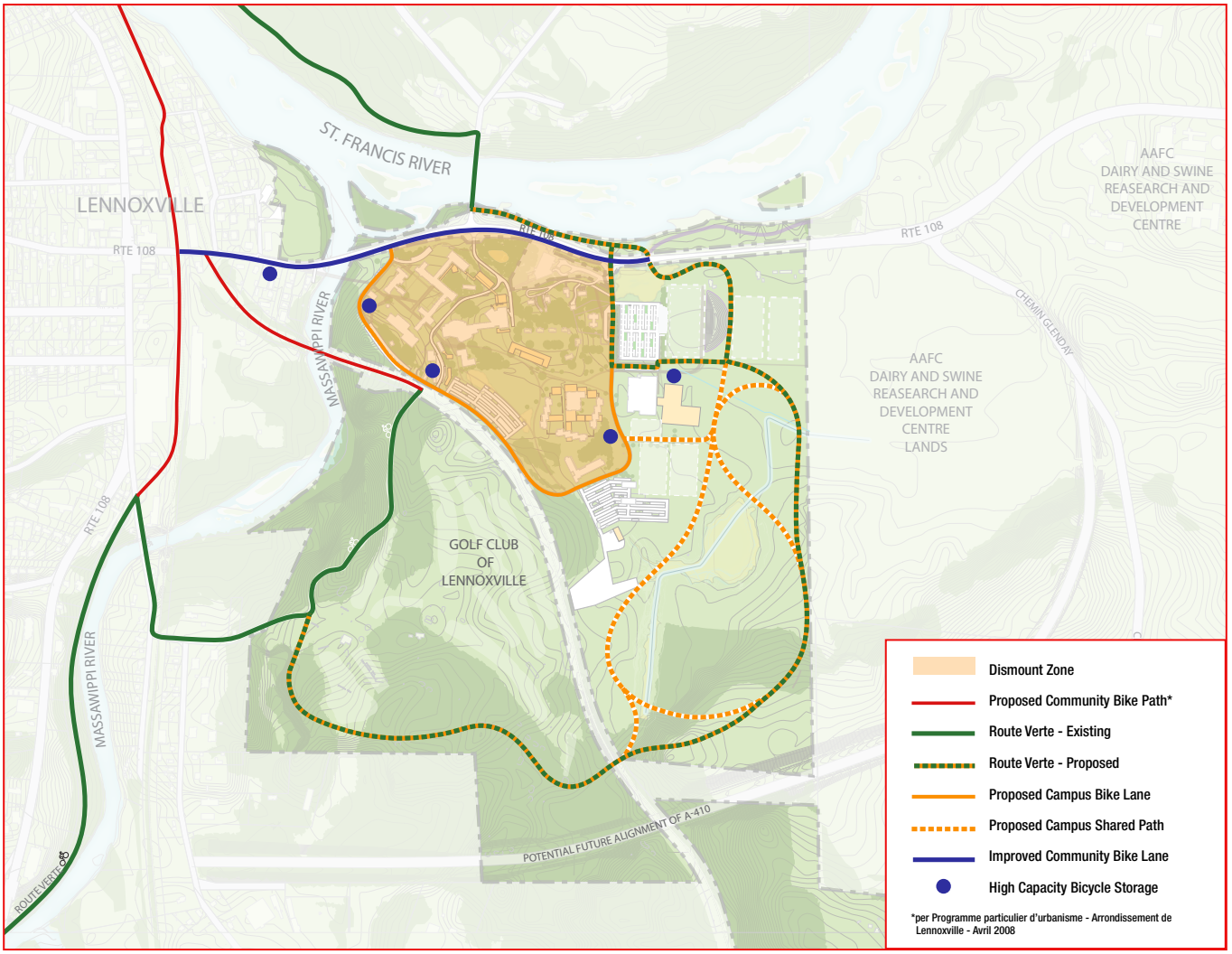
ways into local water systems. The campus location suggests that the University has a role in the stewardship of the natural resources that lend it beauty. In response, multiple wetland areas will be created on the campus to collect runoff from parking areas and also to safeguard against flooding in the main areas of campus. Filtering pollutants through plants and settlement of sediment, the wetlands will be working landscapes that bring additional benefits through increased ecologic diversity and habitat creation.

3.65
Example of wetland landscapes.

3.5.4 Perimeter Bicycle and Pedestrian Paths

A system of trails that reach further into Bishop's University's land holdings would be a relatively low-cost way to expand greatly the experiential range that is available on campus.

Bicyclists, hikers, runners, snowshoers, and cross-country skiers could make use of these trails in multiple seasons of the year.

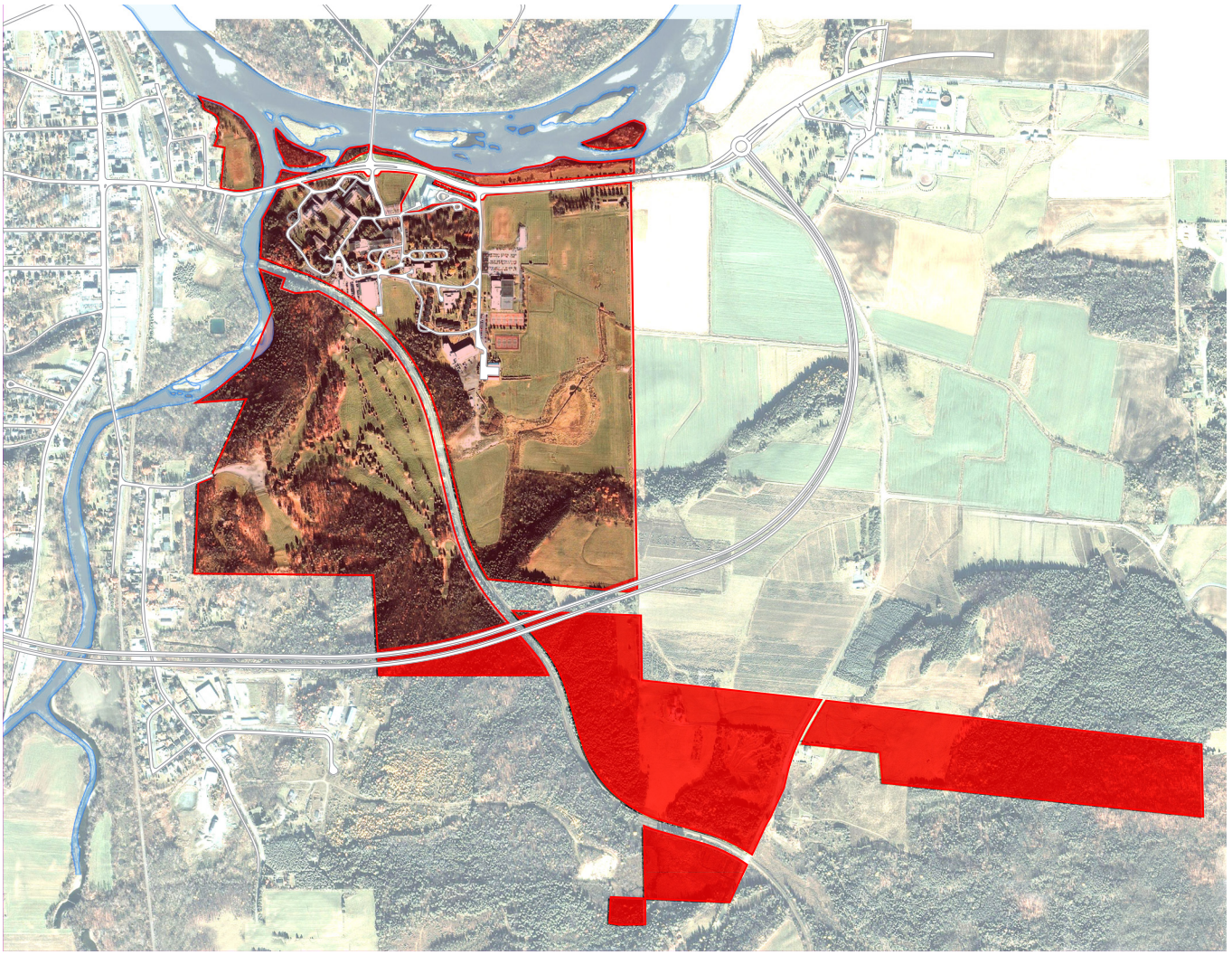


3.66
Regional plan showing proposed perimeter bike paths.

3.67
Three images of the Route Verte, a network of bike paths throughout Quebec.

3.5.5 Highway 410

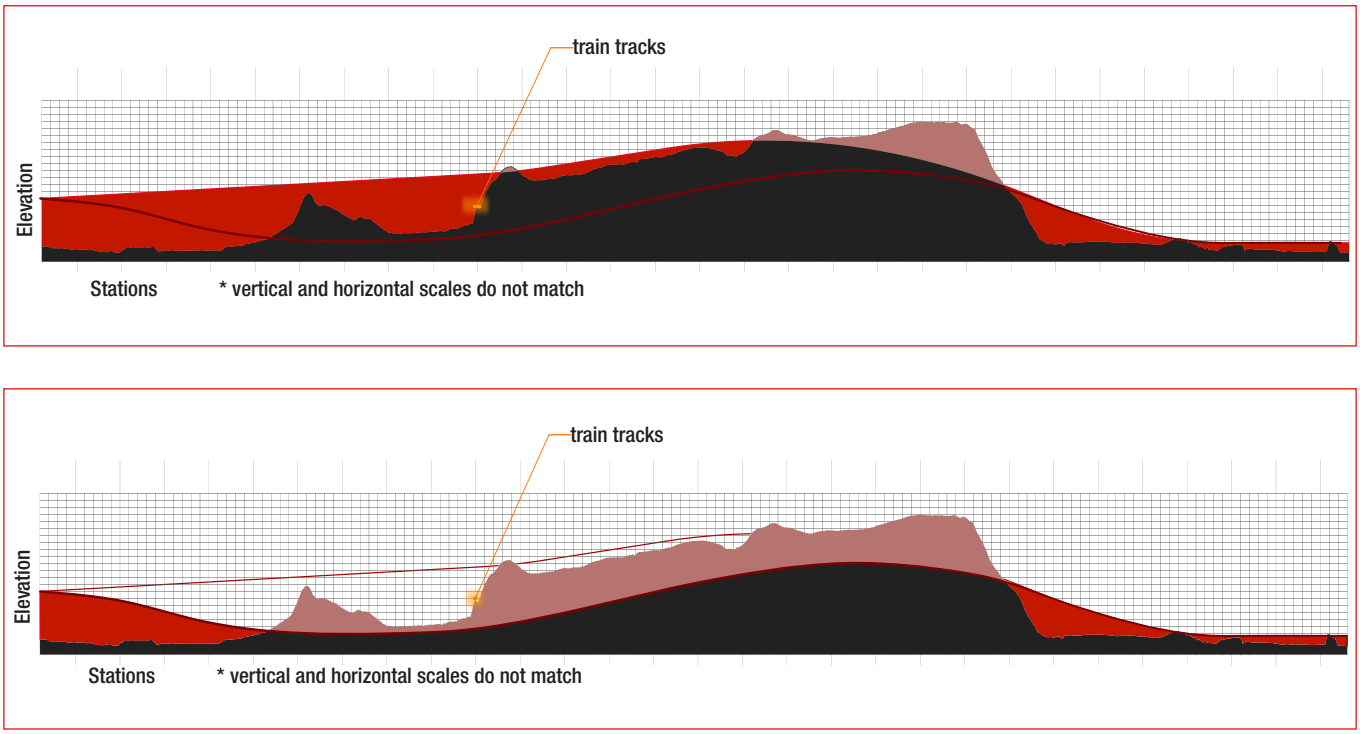
Impacts of the Highway 410 extension as originally proposed by the Ministère des Transports du Québec (MTQ): 142 acres of Bishop's University property, previously contiguous with the central campus, would only be accessible by a single route — a 200 foot long tunnel. The proposed highway would impose a high level of vehicular noise on campus, and its embankment would be visible from nearly every building on campus.



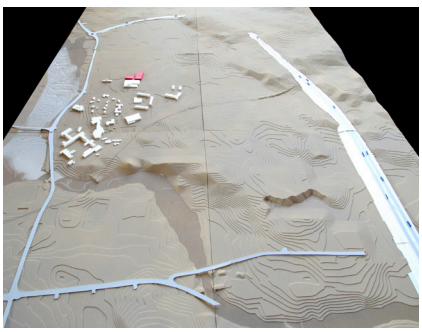
3.68
The construction of the proposed Route 410 will isolate the main campus — 142 acres, or more than 40% of the University's property.

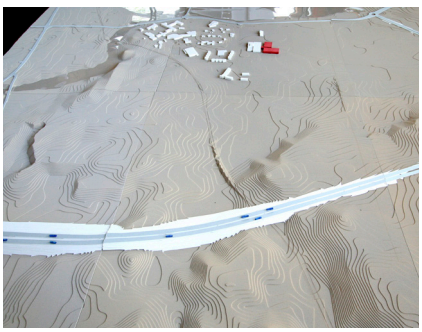
3.69 (Opposite)
Model showing the Ministère des Transports du Québec's proposal for Highway 410.

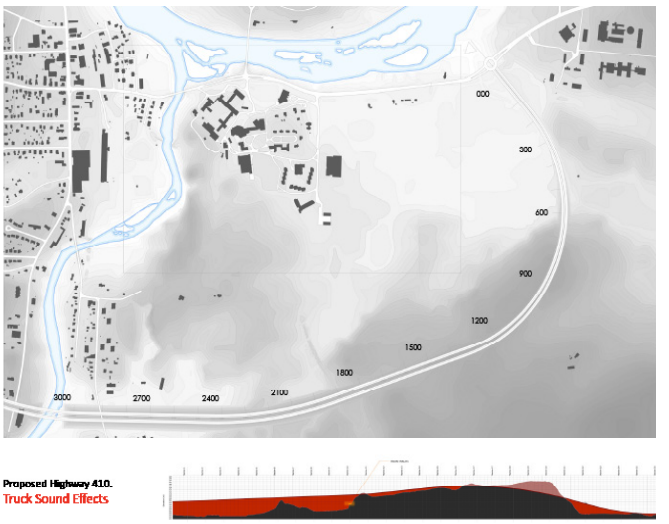
Impact Reduction of an Alternate Proposal of Highway 410: Crossing over the highway on a short bridge instead of a 200 foot tunnel will reconnect the campus with its severed 142 acres. Lowering the Highway by cutting into the hillside will drastically mitigate vehicular noise impacts and reduce the visibility and scale of the highway embankment as seen from campus.

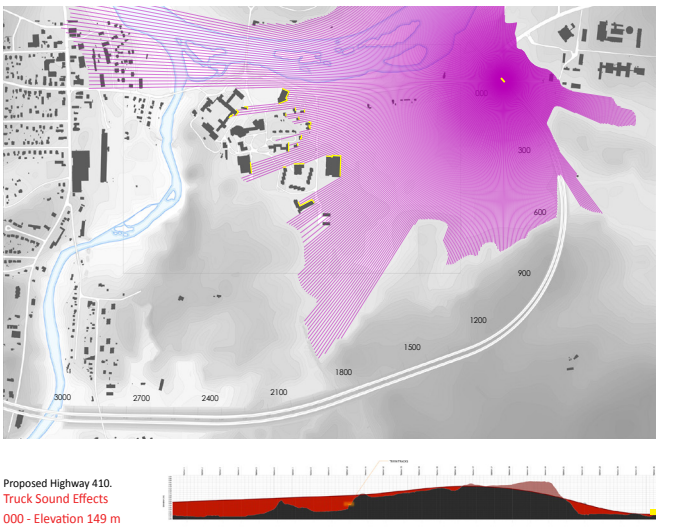


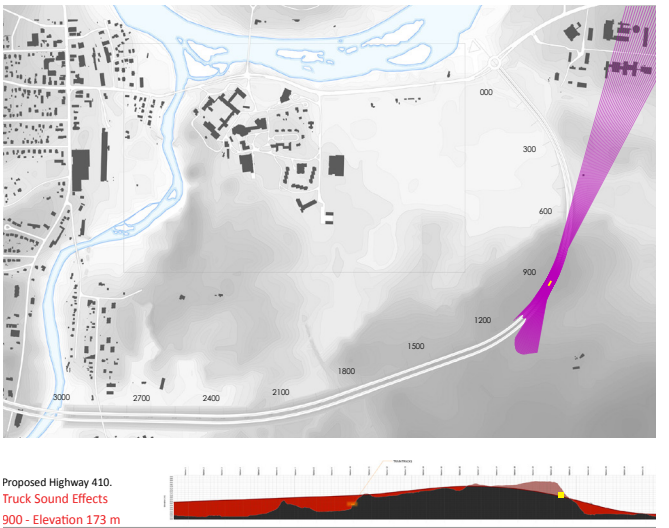
3.70
(Above) Section through MTQ proposal for Highway 410. (Below) Section through alternate proposal.

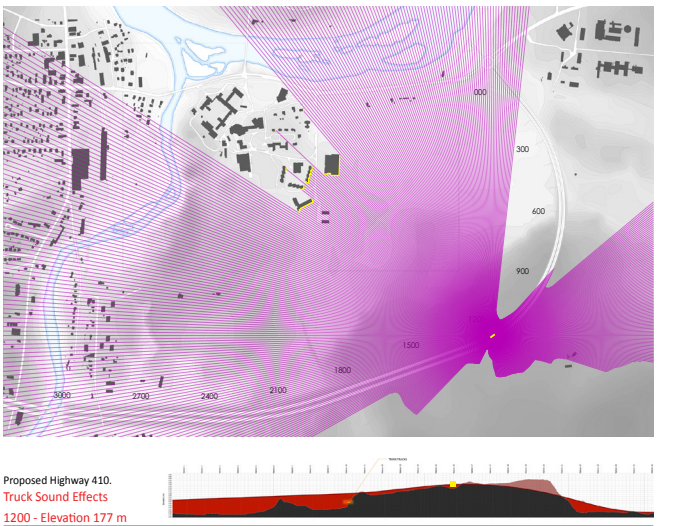


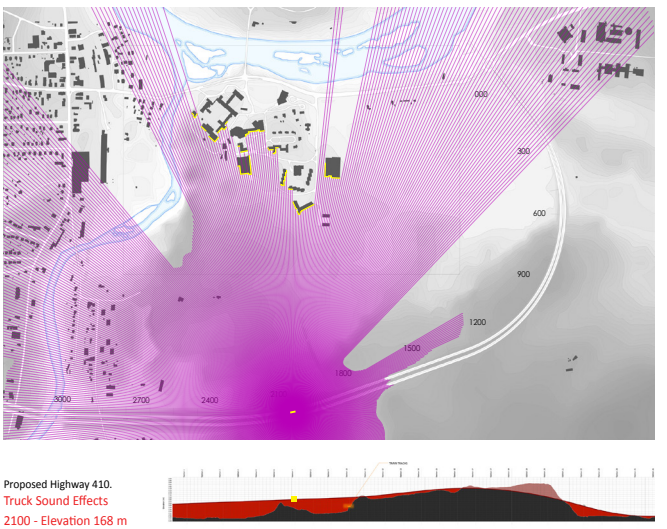


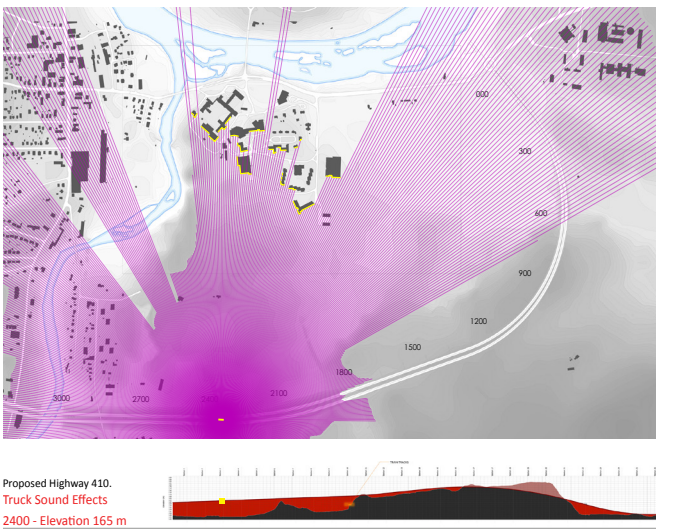






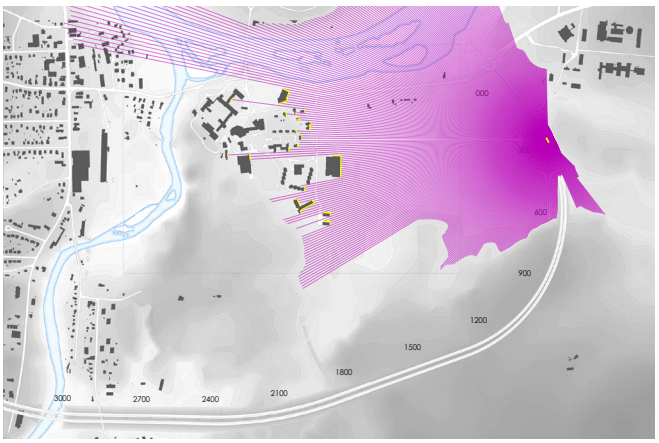




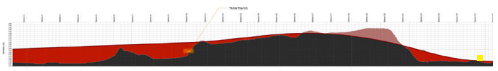


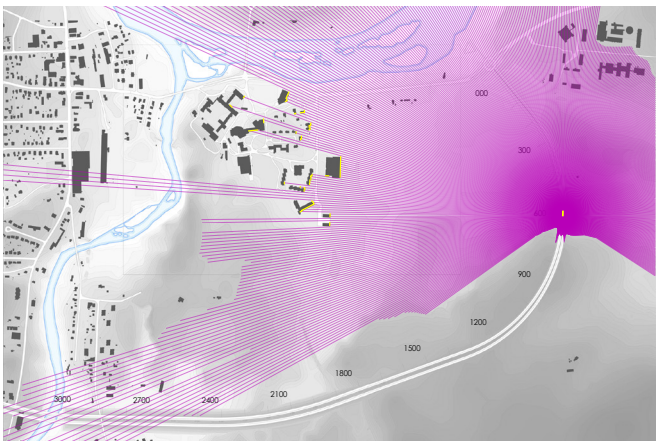
3.71 - 3.82

The diagrams above represent the sound impact (represented in purple) of a single truck moving along proposed Highway 410. The diagrams illustrate that a significant level of highway sound would strike every building on the Bishop's campus.

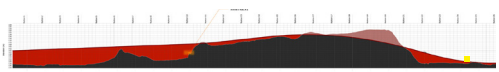


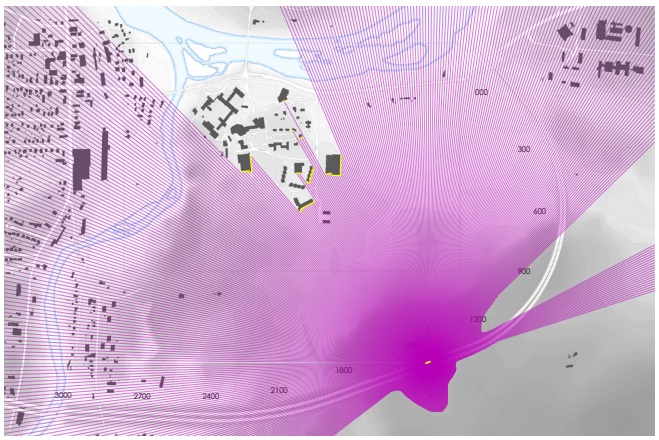
Proposed Highway 410.
Truck Sound Effects
300 - Elevation 149 m



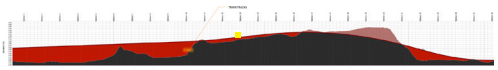


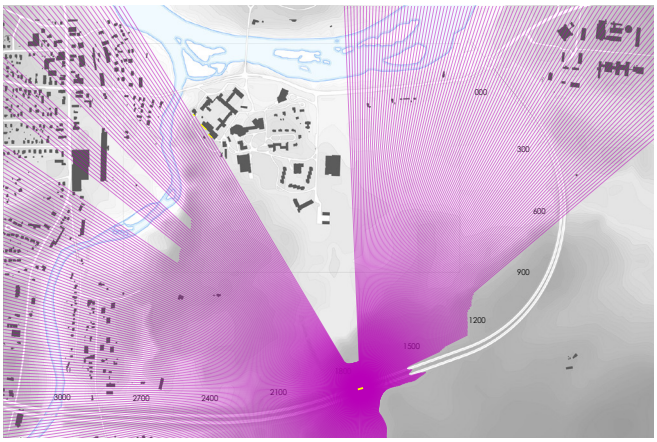
Proposed Highway 410.
Truck Sound Effects
600 - Elevation 160 m



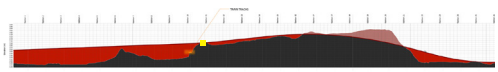


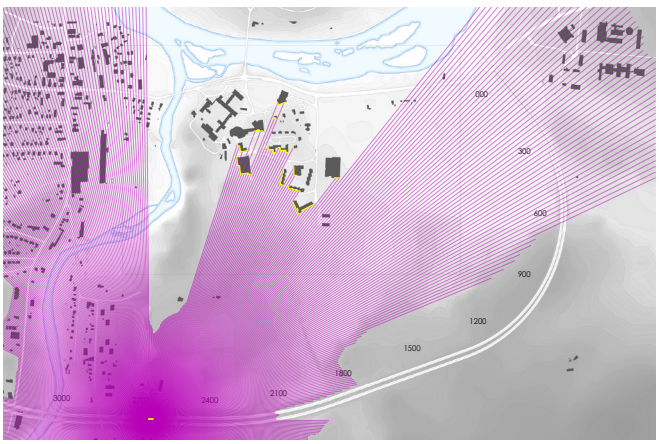
Proposed Highway 410.
Truck Sound Effects
1500 - Elevation 175 m



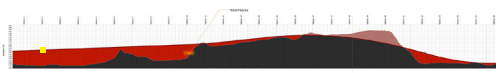


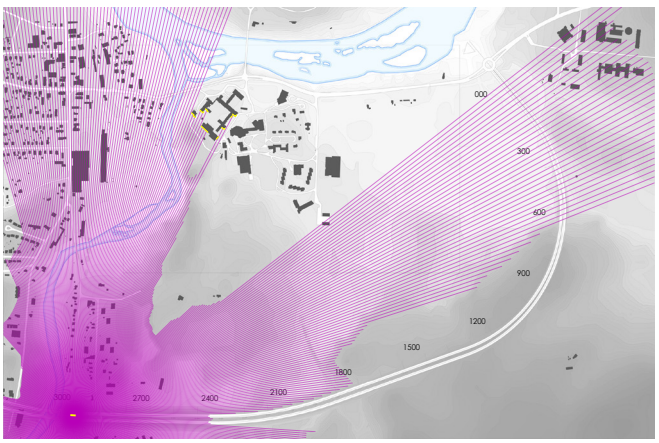
Proposed Highway 410.
Truck Sound Effects
1800 - Elevation 170 m



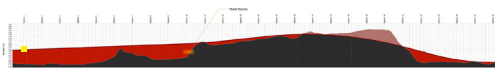


Proposed Highway 410.
Truck Sound Effects
2700 - Elevation 163 m





Proposed Highway 410.
Truck Sound Effects
3000 - Elevation 161 m



3.5.6 Campus Sustainability

Goals

- Discourage sprawl in order to minimize the loss of open space, and the amount of fuel wasted in moving people and goods.
- Improve the energy efficiency of existing and future buildings - in the building envelope, the operational systems, the monitoring, and control.
- Advocate that construction maximizes the use of **locally produced materials**.
- Consider **campus and building utilities** in terms of their impacts on conservation, energy efficiency, and global warming.
- Changes to the campus **landscape design** should enhance plant and animal habitat, emphasize local species, minimize the amount of fuel used in maintenance, reduce the use of fertilizer and pesticides, and address water quality and runoff issues.
- **Minimize driving** through the use of parking management, incentives, rideshare programs, improved bicycle facilities, and by increasing the College's provision of affordable faculty and staff housing close to campus.
- Improve the **pedestrian experience** by strengthening the spatial cohesion of the campus, the path system, and the vehicular street system.

3.83 View of the fields and forests at Bishop's University.

Recommendations

General

1. Establish a process by which decisions affecting the sustainability of the campus are made, and to resolve conflicts involving sustainability.
2. Consider the impact of decisions about facilities and operations on Carbon Neutrality and other aspects of sustainability, and assess costs and benefits over the long term.

Buildings

1. Adopt the LEED MC-Plus guidelines system for all renovation and new construction projects.
2. Design new buildings to be as energy efficient as possible.
3. Improve the energy performance of existing campus buildings through improvements to their envelopes and building systems.
4. Assign priorities for improvements based on the energy audit of buildings on campus and on academic program and availability.
5. Encourage behavioral changes for students, faculty, and staff, including adjustments to indoor temperatures and use of air-conditioning.
6. Meter all buildings for water, power, and steam.
7. Minimize the use and need of air-conditioning in campus buildings by using shading, natural ventilation, and mechanically assisted ventilation.
8. Strategically plant deciduous shade trees on the south side of buildings to help reduce daytime solar heat gain during summer months.
9. Where appropriate, utilize energy-efficient means of cooling, such as geothermal, shading, natural and mechanical ventilation, etc.
10. Utilize refrigeration gases in air-conditioning and refrigeration systems that are as benign as possible, both in terms of their global warming potential and their ozone depletion potential.
11. Consider energy efficient alternative systems for specialized functions in individual buildings, such as:
    - A purified water system for the new ice sheet, which will reduce the energy required to create the ice.
    - Heat exchangers for the recapture of waste heat (e.g., between the ice refrigeration system and swimming pool heating).
    - Heat exchangers for the recapture of waste heat in food service areas.
12. Investigate the feasibility of solar heating for domestic hot water.
13. Develop a life-cycle assessment for construction materials, considering cost, longevity, environmental damage caused by production, embodied energy, potential for recycling, disposal, hazards, etc.
14. Adaptive reuse of buildings should be considered before removal.
15. Building deconstruction should:
    - Minimize the quantity of materials entering the waste stream by employing deconstruction rather than demolition.
    - Materials salvaged from deconstruction should be considered for future use in anticipated building projects.
    - New construction projects should incorporate salvaged or recycled material where possible.

Utilities

1. Improve the efficiency of utility systems by upgrading steam and natural gas distribution as necessary.
2. Introduce monitoring and metering devices so that leaks and losses can be readily identified and excessive usage can be curtailed.
3. Develop a reporting log for comparing end-use measurements over time and verifying that the systems are performing as designed.

Energy Sources

1. Conduct an alternative energy assessment of the campus to understand better what forms of alternate energy are feasible and how best to employ them. Of particular interest is exploring the feasibility of utilizing river water for thermal exchange.
2. Reforest a portion of Bishop's agricultural land to sequester carbon.
3. Increase Bishop's on-campus generation of electricity from alternative renewable sources: wind power, photovoltaic panels, exercise machines.

Vehicular Travel and Commuting

1. Institute Transportation Demand Management (TDM) strategies to reduce private vehicular use by faculty, staff, and students.
    - Establish a target for a reduced level of carbon emissions due to regular commuting.
    - Provide incentives for faculty and staff who would typically commute to campus via private car to utilize instead public transportation, walk, or bike.
    - Provide incentives for using shuttle services such as passes or financial compensation.
    - Provide financial incentives for car pooling.
    - Provide vehicles for emergency use by faculty and staff who use public transit or car pooling for their daily commutes.
    - Provide the majority of parking spaces in peripheral campus lots to reduce car use during the day.
    - Eliminate parking in the Central Campus (with the exception of accessibility / barrier-free requirements).
    - Relocate all student parking to the Paterson lot to discourage students from using their cars for short trips during the school year.
2. Prioritize local meetings and conferences or utilize teleconferences to minimize air travel.
3. Begin shifting campus fleet vehicles where appropriate from gasoline or diesel fuels to electric power or hybrid fuel.
4. Encourage outside vendors to use alternative fuel or hybrid vehicles, for instance private busing companies.
5. Develop a non-idling policy for campus deliveries, outside vendors, athletics buses, etc.
6. Initiate an hourly/daily car rental program available to students, faculty, and staff.
7. Encourage faculty and staff to live close to campus by developing Bishop's University property in Lennoxville to house faculty and staff within walking distance
8. Increase on-campus housing capacity and alternatives.
9. Consider banning first and possibly second year student cars from campus.

Bicycle Transportation

1. Develop a comprehensive bicycle program for both the regular academic year and the summer that includes access, maintenance, information, and safety.
2. Make the campus more bicycle friendly by:

- Providing sufficient parking for bicycles, with attention to number, location, and type of bike racks

- Widening pathways to accommodate bicycle use along major corridors
- Constructing curb cuts at all locations where pathways intersect roads
- Replacing all storm sewer drain covers that are not bicycle friendly
- Providing showers in more locations for bicycle commuters
- Providing secure covered storage locations for bicycle commuters

3. Develop an incentive program to promote bicycle commuting by employees
4. Integrate the University's bicycle transportation initiatives with efforts by the Borough of Lennoxville and City of Sherbrooke to promote bicycle transportation.
5. Expand the bicycle loan program.

Landscape and Open Space

1. All new construction at Bishop's should be planned within the existing developed area of the campus.
2. New buildings and hardscape should not be built in green areas remote from the core campus.
3. Plant materials should be local species, if possible.
4. Reduce the amount of lawn by converting it to greensward, meadow, trees with groundcover, and forest as appropriate in different areas of campus.
5. Increase the amount of habitat suitable for indigenous plants and animals.
6. Increase the inter-connectedness of plant and animal habitat by linking currently isolated areas.
7. Continue to reduce the amount of herbicides and pesticides used.
8. Improve soils and drainage, particularly in heavily used areas of campus.
9. Protect sensitive or critical areas by establishing a Green Reserve.
10. Provide summer shade for building facades with trees and shrubs.
11. Design the campus landscape to encourage social interactions and a variety of uses:
    - Orient plazas and terraces outside of academic and residential buildings to maximize daylight and solar heat gain.
    - Provide seating in protected areas and in locations best suited to capture the views of near and distant landscape types.

Supply Chain Management

1. Initiate a purchasing plan that prioritizes sustainable materials and supplies, and prioritizes purchases from companies invested in maintaining their own sustainability standards.
2. Strive to use suppliers located within 500 kilometers of the campus.
3. Encourage suppliers to use recyclable and returnable packaging as shipping materials.
4. Ensure that Bishop's does not engage in unfair trade or limit growth opportunities in the region.
5. Support and serve as a catalyst for sustainable Quebec businesses.

University Finances

1. Make every effort to invest in environmentally friendly, socially responsible areas.

Reporting, Record-Keeping, and Guidelines

1. Institute a formalized record-keeping and reporting system for issues of sustainability, such as that developed by the Global Reporting Initiative.
2. Develop formal guidelines, including performance benchmarks, for capital projects, maintenance, de-

construction, and operational activities.

3. Utilize the reporting and record-keeping system to monitor successes, areas for improvement, costs and benefits, and to more accurately attribute costs and benefits to actions taken.
4. Report performance against guidelines and principles through an annual report.
5. Develop maintenance guidelines and schedules to meet the recommendations for improving energy efficiency and thermal comfort by upgrading the envelopes of existing buildings.
6. Revise the energy accounting system to allocate equitably the greenhouse gasses associated with the production of steam and co-generated electricity.
7. Work with suppliers and encourage them to conduct their own greenhouse gas inventory and life cycle assessments. Estimate the full greenhouse gas emissions associated with materials and energy purchased and produced, including the embodied energy of supplies and construction materials, and the energy consumed in the production, refinement, processing, shipping, and combustion of energy sources

Water Management

1. Implement a rainwater collection system for water from the athletic buildings, and use it to supply water for irrigation of fields where needed
2. Create bioswales, appropriately located, to reduce stormwater runoff and to improve water quality.

Off-Campus Operations

1. Chart travel emissions for off-campus activities and include them in carbon reports.
2. Strive to reduce carbon emissions due to travel.

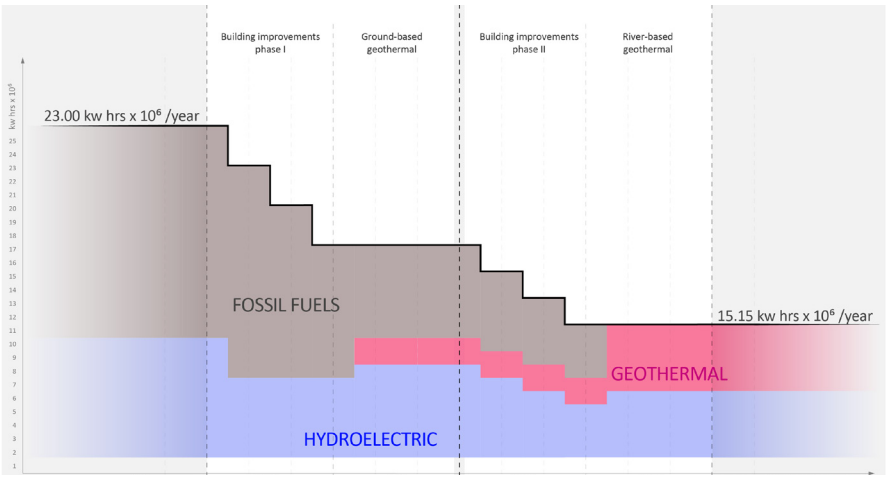
On-Campus Operations Guidelines

1. Establish maintenance and operations schedules for campus grounds and buildings, including building envelope upgrades.
2. Install dining services storage capacities relative to the locations of dining operations and delivery schedules.
3. Reduce energy use by building equipment on-site.
4. Develop parking policies and processes for transportation management.

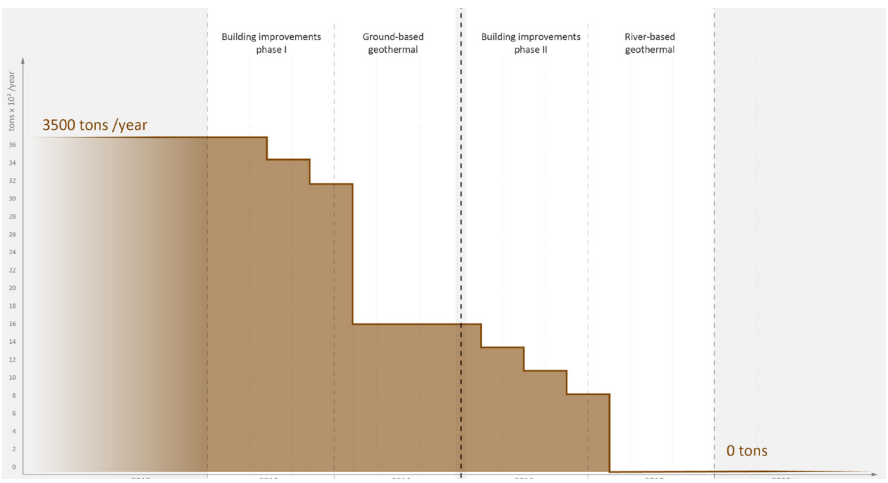
Carbon Neutrality

1. Develop a Carbon Offset purchase and management program to compensate for irreducible greenhouse gas emissions.
2. Purchase Carbon Offsets as a last resort to compen-

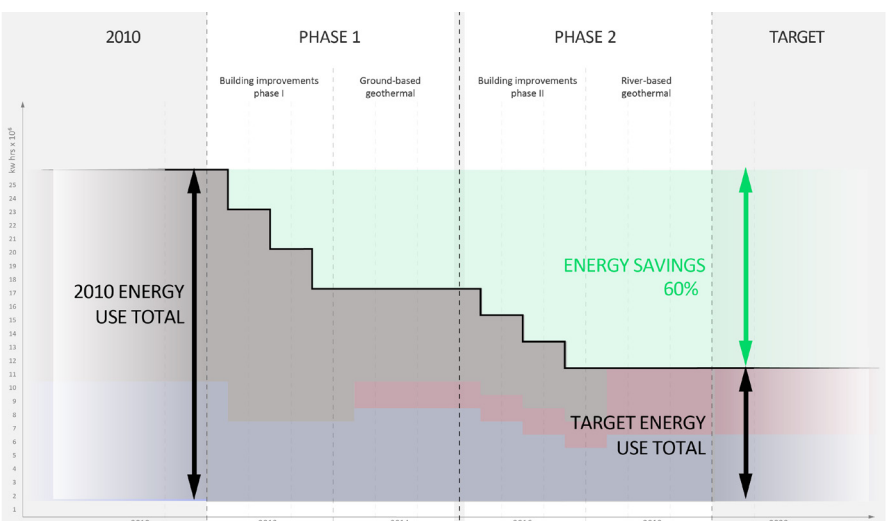
3.84
Bishop's has access to a massive source of geothermal energy in the rivers.



3.85
Reliance on fossil fuels is replaced by hydroelectric and geothermal energy.



3.86
Carbon emissions are reduced to zero.



3.87
Total energy use is reduced.

3.6 Accessibility

3.6.1 Introduction

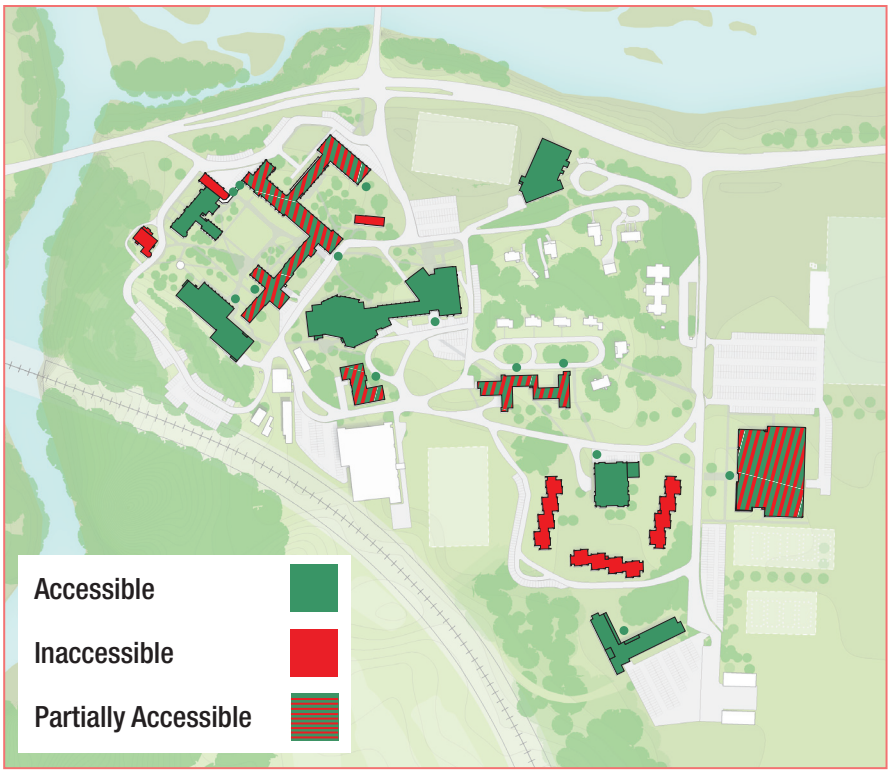
Since the mid-1970s, the Quebec government has taken measures to promote inclusive education, work and social environments. These measures have included the enactment, in 1976, of the first building code to set standards for accessibility for wheelchair users, and the adoption in 1978 of the Act to Secure the Rights of the Disabled. This Act provided for regulations to be brought forth which pertained to buildings constructed prior to 1976, so as to promote accessibility for people with disabilities.

Currently in Quebec, no regulation specifically targets existing buildings built before 1976, unless they are subject to alterations. However, amendments to the Act, introduced in 2004, include a specific obligation for government departments and agencies as well as municipalities to produce an "action plan" for accessibility, including accessibility to public buildings. Bishop's University, as a public higher education institution, and increasingly a community resource, should move towards the development of its own "action plan" and begin a formal process of identifying and removing barriers that are considered "readily-achievable."

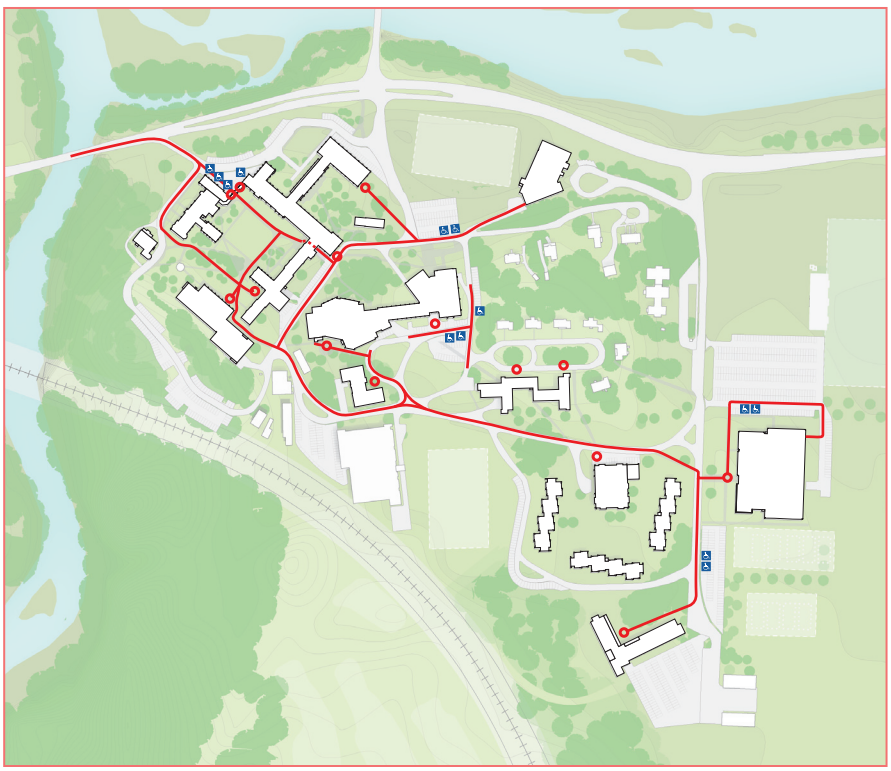
Although this process is not mandated by the current Quebec legislation, it is recommended that the University initiate a comprehensive accessibility audit in anticipation of shifts in the Quebec law. Varied and sporadic barrier removals have taken place on campus, mostly as a reactive response to a problem, rather than as part of a systematic, Campus-wide plan to increase accessibility. While the one-on-one response to a student's request is well-intentioned, and is in fact consistent with Quebec legislation, a person with a disability should not have to request that structural modifications be made to common areas of the campus. Such requests constitute a burden that affects students with disabilities alone, and is therefore inconsistent with the premise of equal accessibility. While a few upgrades have been achieved, a number of campus buildings remain inaccessible (see figure 3.88). Student housing stock has some accessible rooms, but additional fully accessible rooms are needed. Legal settlements with academic institutions in the United States typically stipulated that a minimum of 3% of available beds be made accessible. Further, residence hall study lounges are not accessible, preventing students with physical disabilities from full participation in student and campus life, as well as inclusion in "Learning Communities."

An accessible campus is one that accommodates the widest range of potential users, including people with mobility, visual or auditory impairments or other special needs. It includes not only accessible buildings but also accessible landscapes, transit, communication and information systems.

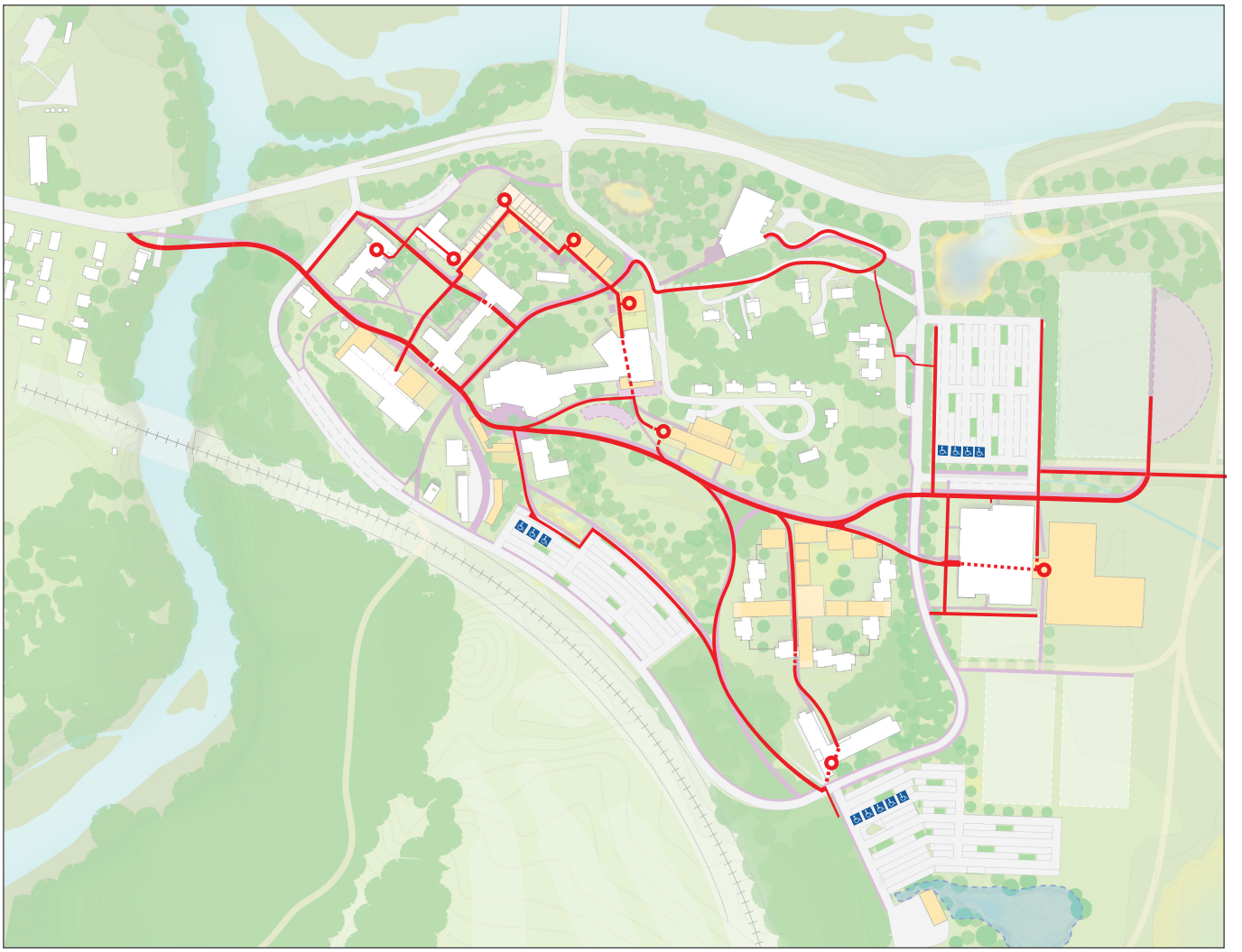
The current Code de construction du Québec (CCQ) as administered by the Régie du bâtiment du Québec (RBQ) establishes a baseline set of building standards targetting barrier free access for individuals with disabilities. The current edition of this code is anticipated to be ammended in 2013. While accesibility compliance is required for all new construction, it is recommended that Bishop's set forth a plan for readily achievable barrier removal within the existing facilities and throughout the campus landscape.



3.88
Existing building accessibility



3.89
Existing acccessible routes. and entrances.



3.90
Plan of Bishop's University's campus, showing proposed accessible routes and entrances.

3.6.2 The Exterior Environment

Improvements to the exterior campus environment shown in the Master Plan will be transformational, both aesthetically and in terms of accessibility. Throughout the Master Plan, landscaping projects address major accessibility concerns on the campus through the planning of accessible routes. As existing buildings are renovated or new facilities are built, not only the building but also the immediate site must be made as barrier-free as possible in accordance with Quebec guidelines. In order to make a more accessible and inviting campus, the entire campus should also be brought into a state of compliance where feasible. An overall goal is to create a network of accessible routes so that every building that is at least partially accessible is connected to all other at least partially accessible facilities along an accessible route. The following exterior improvements are examples of readily achievable barrier removal:

- Installing compliant ramps
- Making curb cuts in sidewalks and entrances
- Widening doors
- Installing offset hinges to widen doorways
- Installing accessible door hardware
- Creating designated accessible parking spaces

3.6.3 The Interior Environment

Setting Priorities

Some buildings whose accessibility is of high priority to the University are already on their way to being fully accessible. Other buildings are lacking in many of the major criteria that make a building not only welcoming and equitable for a person with a disability, but that also reflect favorably upon the University. Each facility's use, location, and prominence in campus life should factor into the equation when prioritizing accessibility improvements. Priority should be placed on buildings with the highest use by students, faculty, staff, and visitors. Of these, the highest priority buildings for achieving barrier removal are those with highly public functions, particularly those one-of-a-kind structures which serve functions that cannot readily be moved to another venue. Examples include the Theatre, Sports Centre, Stadium, Library, and Student Centre. Highly used academic buildings including Johnson, Hamilton and Nicolls should also be a top priority. Next priority should be given to student life issues, such as resident life and access to campus life (i.e. eating and drinking establishments, sport and fitness facilities). Select residential halls should be made barrier-free so that individuals with disabilities are able to live in a variety environments over their years at the University. When substantial barrier removal will not be conducted on a particular facility, the reasons for the University's decision should be clearly documented. For example, if the program in that facility will be moved to another location, or if that building will be replaced within several years according to the Master Plan, it may be reasonable for the University to postpone substantial barrier removal until the renovation. Documentation of the University's decisions should be placed in the University's accessibility compliance files.

Readily Achievable Barrier Removal

A "readily achievable" barrier removal refers to one that is easily accomplishable and able to be carried out without much difficulty or expense. Issues which may affect whether or not barrier removal is readily achievable include the cost of the action in relation to the institution's financial resources, its number of employees, and the number and type of the institution's other facilities. Since the University's resources are not limitless, priorities must also be assessed in terms of which barriers are eliminated first. The top priority is getting all individuals through the door, uti-

lizing physical means that are efficient and that respect the dignity of individuals with disabilities. The next priority is providing access to public goods and services, and providing access to rest-rooms and other public facilities.

First Priority:

- Installing ramps
- Widening doors
- Installing offset hinges to widen doorways
- Eliminating a turnstile or providing an alternative accessible path
- Installing accessible door hardware
- Installing flashing alarm lights

Second Priority:

- Removing high-pile, low-density carpeting
- Rearranging tables, chairs, vending machines, display racks, and other furniture

Third Priority:

- Installing grab bars in toilet stalls
- Rearranging toilet partitions to increase maneuvering space
- Insulating lavatory pipes under sinks to prevent burns
- Installing a raised toilet seat
- Installing a full-length bathroom mirror

Fourth Priority:

- Repositioning shelves
- Repositioning telephones
- Adding raised markings on elevator controls.
- Installing an accessible paper cup dispenser at existing inaccessible water fountains.

The University should take steps not only to create accessibility for individuals with mobility issues that require the use of a wheelchair, but also to eliminate barriers to individuals with other disabilities. For example, door and faucet hardware should be corrected, as to benefit those individuals with limited hand dexterity; Braille and raised character signage should be installed for those who have vision loss; and visual strobe alarms should be installed for hearing impaired or deaf individuals.

Alternatives to Barrier Removal

When the University cannot provide physical access to certain spaces, it should train employees and institute methods for making its services accessible. Alternative methods to providing individuals with disabilities access to public goods, services, and accommodations at Bishop's must be instituted if doing so is readily achievable. For example, the University is responsible for providing accessible courses and examinations, but not all classroom and examination facilities must be accessible. Alternatives must be provided that make the experience equal and comparable to the experience provided to others, and the individual should not be required to bear the cost of any modifications or auxiliary aids.

3.91 (Opposite)
View of a staircase in winter.

3.92
View of staircase in front of the Student Centre.

3.6.4 System-wide Improvements

For new construction and major renovation projects, it is recommended that the University:

- Conduct accessibility design reviews of all architectural design documents for new construction/renovation projects so that errors can be identified and corrected on paper in advance of construction.
- Establish an annual budget for readily-achievable barrier removal throughout the campus. The budget should be sufficient to accomplish readily-achievable accessibility within five years.
- Establish normally scheduled routines for the Buildings & Grounds Department to ensure that accessible features are operational and usable. Though mechanical failures of elevators and automatic doors will occur occasionally, persistent failures, inadequate maintenance, or derelict equipment is unsatisfactory towards meeting the requirement for providing access to a public accommodation.
- Create and post evacuation route maps for all buildings illustrating the fastest route out of buildings -- for persons with mobility as well as persons with disabilities. In lieu of accessible routes, the locations of Areas of Rescue Assistance for persons with disabilities should be posted.
- Implement effective communication systems, such as accessibility website design, public and emergency telephones that provide TDD/TTY (telecommunication device for the deaf/text-telephone device, respectively) service, and assisted listening devices that are available for use when needed. Key to this is the availability of such devices, and finally ensure that strobe alarms exist in all common public areas.

3.6.5 Awareness

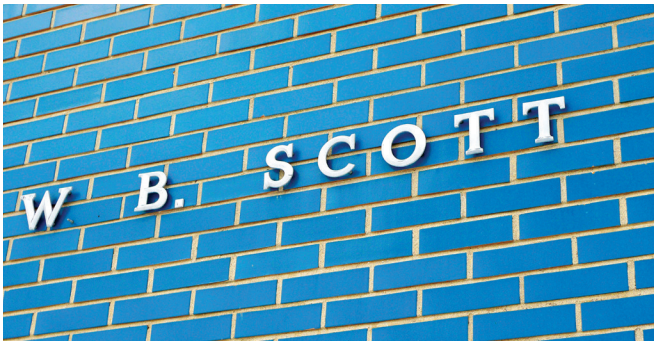
- Establish an awareness campaign geared toward accessibility. This campaign could include initiatives like focus group sessions, the publishing of accessibility policies, the publishing and distribution of accessibility information and a map detailing the location of accessible parking, exterior routes, shuttle stops, entrances, rest rooms, etc.
- Accessibility information should be readily available before individuals arrive on campus. It is strongly recommended that the University restructure and add to the accessibility website.
- The job description for the Disability Student Advisor position should be revised to reflect these initiatives.

A proactive approach to both barrier removal and ensuring that all renovations and new construction fully comply with accessibility requirements is strongly recommended. An accessibility compliance checklist is provided in the

3.7 Campus Wayfinding and Lighting

3.7.1 Wayfinding

Wayfinding systems can be broken down into three basic categories of signs, intended for both exterior and interior contexts: identification, directional / orientation, and regulatory. A comprehensive wayfinding system creates a unified approach to each of these categories, organizing them into a consistent family of symbols, images, and words. In the context of the Master Plan, we have focused on the development of exterior wayfinding.



IDENTIFICATION

- Campus Identification
- Site Entry
- Building Identification
- Entrance Identification
- Parking Area Identification
- Accessible Parking Identification

DIRECTIONAL COMMUNICATION

- Off-Site trail markers
- On-Site Vehicular Directional
- Pedestrian Directional

REGULATORY

- Parking / Traffic Regulations
- Public Transportation Information
- Entry / Egress information

Identification

Campus Identification and Site Entry

A consistent campus identification sign standard (see page 162 for all sign types) should announce the presence of the University at key perimeter locations and entries. Serving to mark thresholds to the campus, these signs (Types A, F, and J) should express the University's personality, character, and perhaps historic context in a way suitable to its landscape, reinforcing a sense of arrival and place within the campus environment.

Building and Entrance Identification

Building identification is currently limited to graphics mounted directly to building facades, usually in typefaces consistent with design of the individual building. It is recommended that this system be carried forward bearing in mind recommended graphic scales and illumination. Also recommended is the addition of free-standing building identification (Type I) signage for significant destinations often accessed by visitors (Sports Centre, Theatre, McGreer, etc.)

Parking Area and Accessible Parking Identification

Maintaining a consistent graphic language as other elements of the sign family, these signs (Types G and H)should identify parking locations and type in an appropriately scaled graphic which is legible while driving. These may also include real-time digital display of current capacity.

3.93 (Opposite)
Building signs around Bishop's campus.

3.94
Free-standing sign indicating entrance to parking lot.

Directional Communication

A hierarchy of sign types is recommended which addresses separate visual communication needs for motorists within a uniform "family" of sign components.

On-Site Vehicular Directional

Directional signs (Types A and B) are the principal guiding tool for vehicular wayfinding, helping users better navigate through campus. This signage group should address parking and service access, campus precincts, and major destination venues only. The ability of the motorist to interpret sign messages while driving is limited to three to four messages. Therefore, it is imperative that the information on these signs be direct, brief and appropriately scaled. Pedestrian wayfinding signs will help guide users to their ultimate destinations.

Pedestrian Wayfinding

A uniform set of signs (Type C) to help pedestrians navigate the precincts of the campus and the network of walkways within will be a critical element of any proposed sign system. These signs guide users to their ultimate destinations. Since pedestrian movement is at a slow pace, more detailed information about specific destinations can be accommodated. However the extent of the detail should be limited so that directional and identification signs do not become cluttered with extraneous information.

Pedestrian Directional Communication

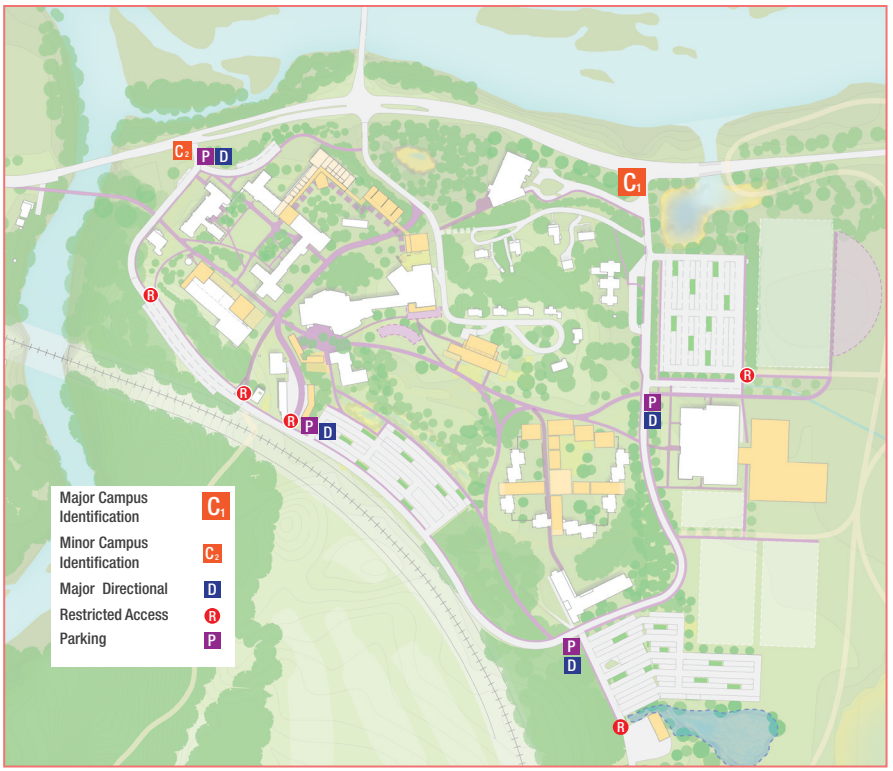
A standard for directing pedestrians to major destinations within the campuses (Types C and E) should be placed at the perimeter of visitor parking areas and at primary walkway intersections. Information should be limited to abbreviated building names (i.e., "Bassett Library," rather than "John Bassett Memorial Library"), except in particular instances where significant visitor traffic is evident (i.e., the Office of Admissions).

Pedestrian Information Centres

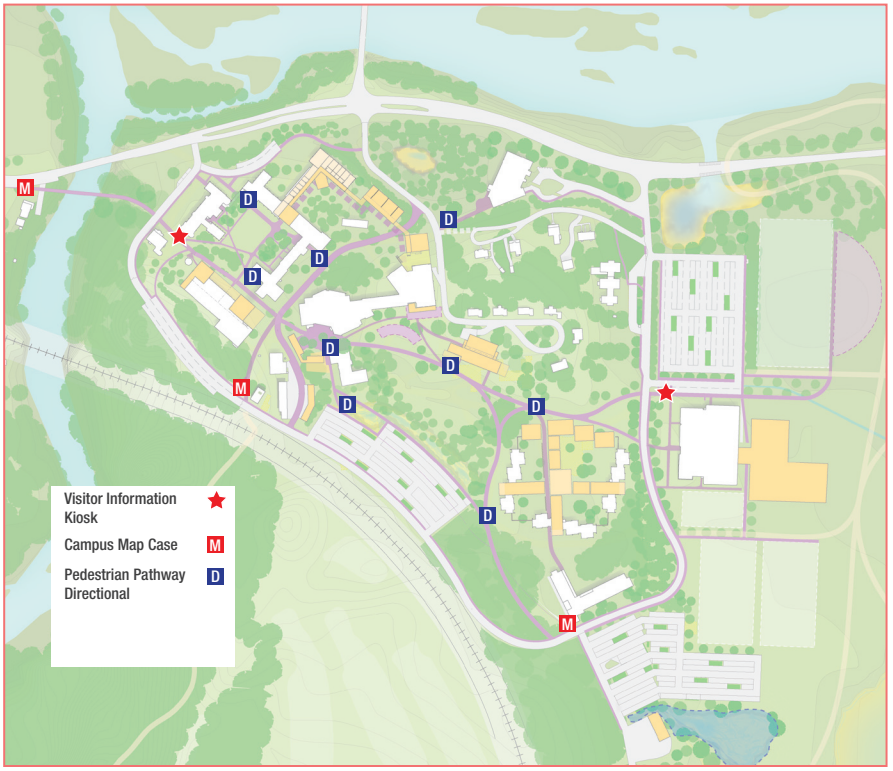
Free-standing directory maps (Type E) oriented to the direction the viewer is facing, with a "you are here" designation, complement the pedestrian directional signs. If the implementation budget allows, maps could be wired with two-way intercoms which would allow for contact with Campus Security or campus tour guides. Separately placed bulletin board kiosks will provide areas for posting of student events and activities and reduce clutter on maps and site furnishings.

Wayfinding for Events

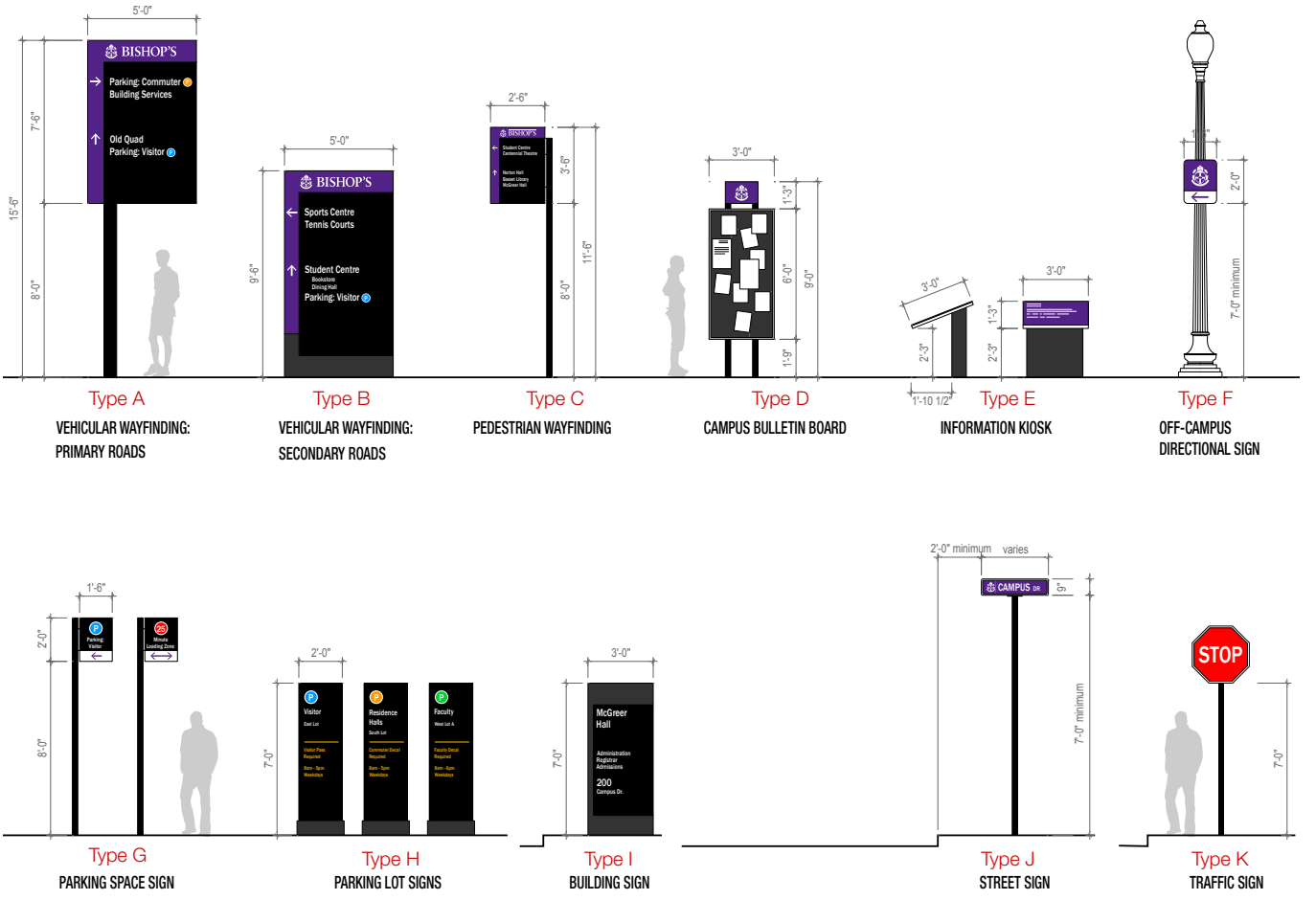
Event signs (Type D) should provide a uniform presentation of temporary information to the general public. Places of recurring events could utilize removable sign boards printed on standard sized panels by University facilities, which would be located at key decision points. A graphic template should be designed and enforced to ensure consistency of visual communication.



3.95
Proposed Vehicular Wayfinding.
This diagram illustrates an overall strategy for the placement of vehicular-oriented campus identity and directional signs. Intersections of streets and campus entries are marked as decision points where directional information should be presented. Orientation for the first time visitor is emphasized, especially in regard to Visitor Parking. University gateway signs are recommended to be placed at the east and west ends of Route 108, which are primary campus thresholds.



3.96
Proposed Pedestrian Wayfinding.
The location plan illustrates an overall accounting of the location and quantity of street signs and freestanding building signs. For specific installations, it is recommended that all building identification locations be field-verified with mock-ups to determine optimum orientation.



3.97 (above)
Line-up of all sign types. A consistent palette of materials, forms, and graphics creates a unified family of environmental graphics that respond to a variety of user information needs.

3.98
Diagram showing the relative scales of text for signs.


UNIVERSITÉ
BISHOP'S
UNIVERSITY
Théâtres / Galerie d'art
Theatres / Art Gallery
Molson Fine Arts
Student Centre / Bookstore
Conférences
Mackinnon Hall
Livraison / Deliveries
Résidences
(Abbott / Munster / Kuehner)
Securité / Security
Dewhurst Hall
The Marketplace
Adams Dining Room
Centre Sportif / Sports Centre


ARRÊT
STOP

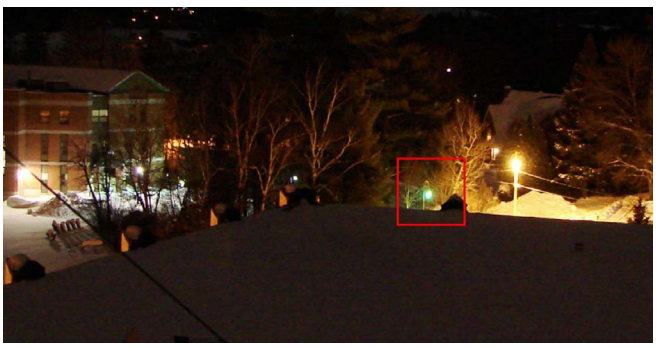

Mackinnon Drive

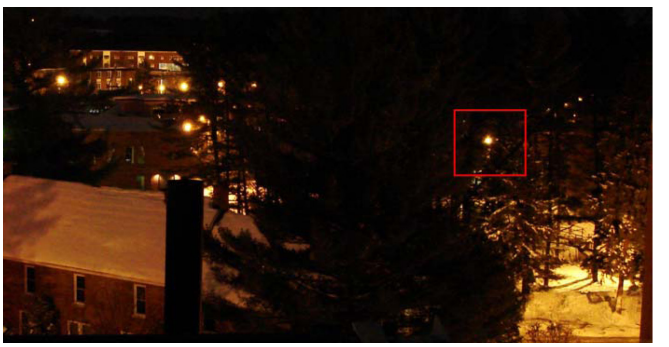
3.7.2 Lighting

Exterior Campus Lighting

Exterior lighting can strengthen and unify campus architecture, landscape, circulation and use. The University should work towards unifying lamp types used on campus, so as to create a clear, campus-wide family of fixtures and fittings, and unify night "colour" areas. The objective is to provide uniform light colour across similar use areas, identify major corridors, and provide appropriate warm or cool colours through fixtures which enhance sense of place.

Further, campus lighting solutions should seek to reduce light pollution and energy consumption while minimizing the problems created by improperly designed and installed fixtures. Excessive glare can be troublesome and may cause safety problems. Light trespass reduces privacy, and higher energy use results in increased costs besides impacting the environment directly and indirectly. A comprehensive Campus Lighting Plan would advance the safety and welfare of the Bishop's community, and contribute to the identity of the campus as a whole.





Principles of Campus Lighting

1. Minimize Light Trespass and Glare.

Special care should be taken to prevent light pollution and direct glare. Extra light bouncing into the atmosphere interferes with the work of astronomers and can disrupt neighbouring buildings. Ground-based flood lighting of building facades should be phased out and wherever possible replaced with wall-mounted, dark-sky friendly (full cutoff or fully shielded) fixtures.

2. Avoid Overly Bright Lighting.

The intent of lighting building entries and circulation areas is to enhance the best qualities of the environment, not to become a "beacon" on campus. The brightest is not necessarily the best. Maintain a maximum average illuminance level of 0.5 to 2 footcandles on horizontal surfaces.

3. Design With Lamp Colour In Mind.

Specify lamps with a high colour rendering index (CRI) and a uniform colour temperature. Bishop's should target a standard correlated colour temperature (CCT) of 4000K. A colour rendering index (CRI) value of 70 or greater is the minimum recommendation for light sources on campus. Any LED products used in exteriors should adhere to these standards – refer to appendices regarding LED fixtures and standards.

4. Use "White" Light Sources - Avoid "Yellow" Light Sources.

As white light has all colours present in the spectrum, it is more effective in defining peripheral and night vision. The most commonly available sources are metal halide and fluorescent. LED lighting is swiftly growing as a viable technology, though care should be given to specifying minimum performance and warranty criteria. High Pressure Sodium (HPS) has often been selected because of its high efficiency and longevity; however, HPS lamps produce an orange-coloured light and the colour rendering index (CRI) does not provide a lighting quality which is appropriate for the campus. The use of Low Pressure Sodium (LPS) or Mercury Vapor (MV) light sources should be avoided due to the poor colour rendering values and visibility issues, as well as poor energy efficiency (in case of MV).

5. Design With Maintenance In Mind.

Mount light fixtures in accessible locations so that the lighting can be maintained regularly. Specify fixtures that have simple mechanisms for lamp changing and captive hardware, where parts will not fall out of the fixture during re-lamping. Use long-life lamps wherever possible and avoid the use of incandescent light sources. Specify tamper-resistant and captive screws in any area that may be accessible to the public.

6. Connect Lighting To A Control System.

Due to the difference between summer and winter daylight hours, lighting should be connected to a photocell to turn fixtures on and a time clock to turn them off. The use of a dimming system or building automation system is not required, but encouraged where appropriate.

7. Design With Efficiency In Mind.

Use the smallest wattage lamp source available in any given application to meet the desired light levels specified to minimize energy consumption. Do not, however, compromise desired light levels as outlined to achieve higher efficiency.

8. Design With Safety In Mind.

It is important to understand the role of lighting in safety and security in an exterior environment. A well-designed and -commissioned lighting system will help with detection and assessment of any threat by recognizing facial expression and body language of oncoming people, and could facilitate a timely defensive or evasive action. Those who would perpetrate a misdeed are hampered by the concerns of being seen, intentions recognized and actions observed and reported. Beyond this, however, safety and security depend on the actual infrastructure on campus to deal with crime. At locations with CCTV cameras, special attention must be paid to the illumination levels, distribution, and specific optical characteristics, because a camera perceives its surrounding very differently from the human visual system. The CCTV manufacture and security consultant must be consulted for vertical and horizontal illuminance requirements, as well as uniformity requirements for the system.