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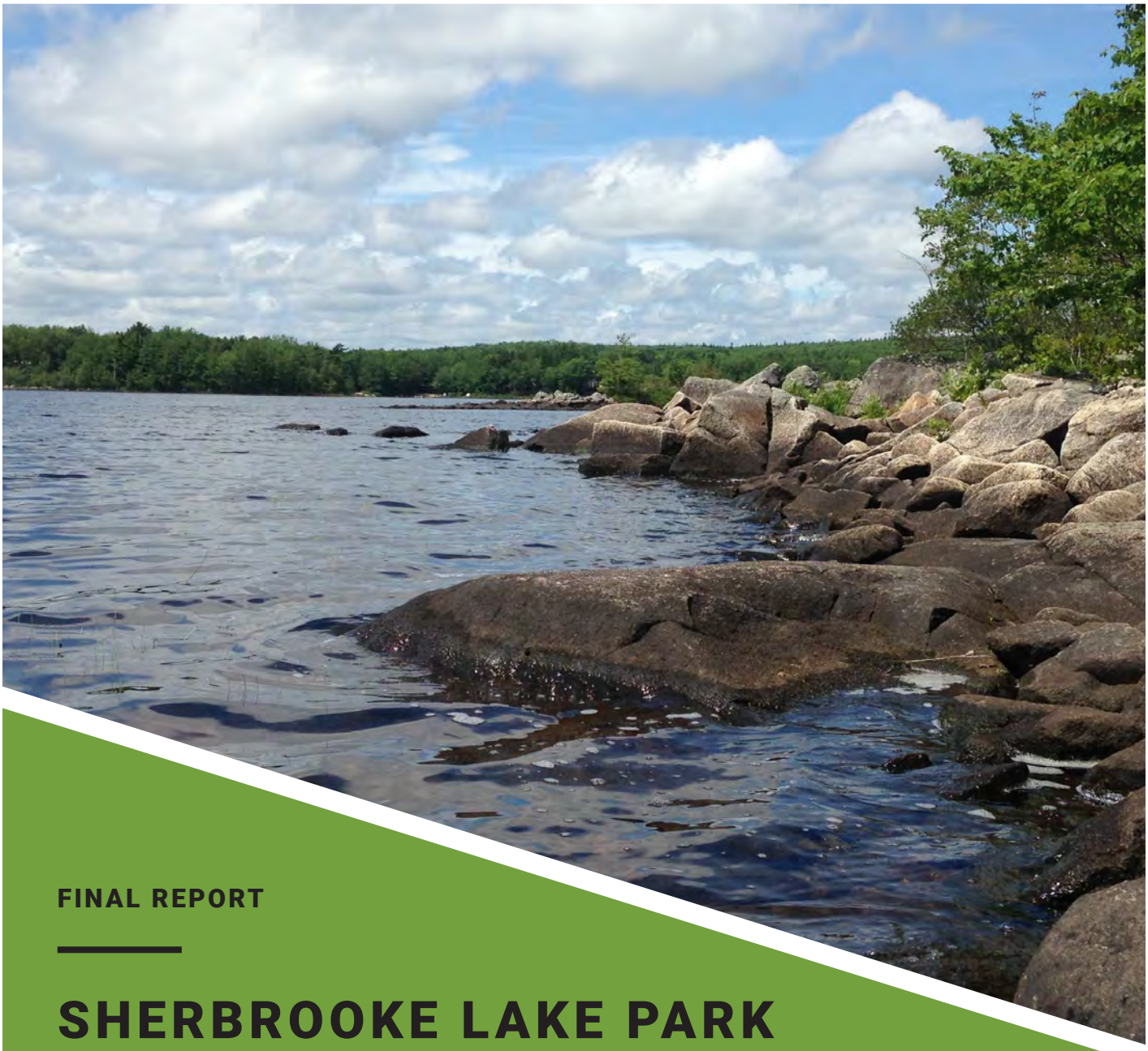

FINAL REPORT

SHERBROOKE LAKE PARK
FINAL PLAN

Prepared by **EDM Planning Services Ltd.**

In Association With
Viridis Design Studio Ltd. and **SNC Lavalin Inc.**

Prepared for **Sherbrooke Lake Park Advisory Committee**

November 2018

SHERBROOKE LAKE PARK PLAN

Final Report

November 7, 2018

Prepared for:
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INTRODUCTION

Sherbrooke Lake or "Nine Mile Lake" is a natural freshwater lake. While the lake has a rich history of use in the area, it has not been accessible to the public for quite some time. The issue of public access to Sherbrooke Lake has been discussed for over thirty years. It is exciting that the Municipality of the District of Lunenburg (MODL) has acquired lands (the site) necessary to make Sherbrooke Lake accessible to the public. While access to the lands is through MODL, the park property is within the Municipality of the District of Chester (MODC). A memorandum of understanding (MOU) between the municipalities has been established and defines the joint interest in the park as well as the key terms, principles and decision making structure to use for design and operation of the park, including the establishment of the Park Advisory Committee (the Committee) and the Sherbrooke Lake Stewardship Committee.

The MOU establishes the key design principles for the park:

- Public Access should have an environmental focus
- Public Access should be safe, clean and secure
- Public Access should be accessible for the general public.

EDM is pleased to present the Sherbrooke Lake Park design. The vision for Sherbrooke Lake Park comes from the values of the park stakeholders. Many values and desires for the park have been identified and documented in the MOU between MODL and MODC, the Final Report (*Sherbrooke Lake Access Advisory Committee, 2016*) and the Sherbrooke Lake Public Consultation Report (*UPLAND, 2016*). This report includes a description of the methodology, the Park Master Plan, suggested phasing with cost estimates, safety considerations and a description of an adaptive management approach for the development of the park. The report is brief and additional details can be found in the series of appendices.

METHODOLOGY

To gain an understanding of the park property, EDM has produced a series of maps and conducted an in-the-field inventory of the site on land and in Deep Cove. An account of each site visit, import meetings as well as a description of the digital mapping and analysis using Geographic Information Systems (GIS) can all be found in **Appendix A**.

MAPS

The results of the site visits and GIS analyses are a series of maps. These maps can be found in **Appendix B**, and are as follows:

- A watershed map with streams, lakes, roads and property parcels.
- A bathymetry map of Deep Cove identifying deep and shallow zones.
- A detailed topography map generated from the LiDAR data including calculated streams and ephemeral drainage patterns, and catchments generated using ArcHydro.
- A slope map of the site.
- A site map with important features.

SHERBROOKE LAKE PARK DESIGN

The Sherbrooke Lake Park site is nestled within a rustic, rural environment. The Park Plan highlights the natural features of the landscape, such as the well established forest with a high canopy, streams, wetlands and of course, Sherbrooke Lake. The design has a low impact on the surrounding environment, especially the water quality of the lake, is aesthetically pleasing, and offers a safe user experience. It is a family-friendly place where community members and visitors of all ages and abilities can come and swim, relax and develop relationships with each other and the natural environment.

The master plan of the park shows the long term vision of the Park. It presents the layout of the park and the location of park elements (**Appendix C**). A description of each park element and how it fits within the overall plan, information about materials, permitting considerations, and a class D estimate, has been prepared as a project sheet (**Appendix D**) for the following elements:

- Shoreline Swimming;
- Floating Walkway to Shoal Island;
- Floating Swimming Raft;
- Washroom Pavilion;
- Gate(s);
- Boat Launch;
- Picnic area;
- Hiking trails;
- Natural Playground; and,
- Pit Restoration and Wetland Creation.

Road upgrades, parking areas and garbage/recycling bins do not have project sheets. They are addressed in later sections of the report, followed by additional details regarding the implementation of the swimming elements, washroom pavilion, and boat launch.

WOODSTOCK ROAD

Sherbrooke Lake Park is accessed via a 2 km section of the Woodstock Road. The Woodstock Road is a non-maintained, 66 ft public highway owned by Nova Scotia Transportation and Infrastructure Renewal (TIR) and was recently surveyed at the request of the MODL (*Berrigan Surveys, 2018*). The existing condition of the road and the intended vehicle use of park users warrants upgrades to the road. The current travel surface is approximately 3 m wide and many of the existing culverts require repair or replacement. There is no intent of winter use of the park and as such, winter maintenance for the road is not required to accommodate park users.

The concept design for the Woodstock Road (**Appendix E**) enables traffic and vehicles with trailers transporting boats up to 14 ft. The concept design retains the country character of the road by maintaining its current travel width. The balance here is between needing to accommodate emergency vehicles and the importance of keeping driving speeds low. Residents in the area have expressed concerns about driving speeds and illegal dumping. Keeping driving speeds low through the design of the road will dissuade illegal dumping, as will the daily presence of MODL staff and park users. In the design, the road surface is upgraded and pull-off areas, sized appropriately and located to provide sufficient seeing distance to safely pull over (approximately every 200 m), are located within the highway right of way. The Walden Fire Chief stressed the importance of keeping brush trimmed along the road. The pull-offs have been sized to

accommodate a 40 ft vehicle. The design makes use of existing pull-off areas where possible and indicates which side of the road pull-offs are to be placed to minimize impact on existing drainage. Mitchell Fancey has built the existing pull-offs along this section of the Woodstock Road. In places, these pull-offs extend beyond the right-of-way onto his property. Mr. Fancey uses the pull-offs for storage of logs and machinery as part of his forestry operation. He does not anticipate there being conflict with park users pulling off and storage of his gear in the deeper parts of the pull-offs.

Woodstock Road. rural character. (Source: EDM)

Woodstock Road existing pull off area. (Source: EDM)

Woodstock Road exposed culvert. (Source: EDM)

Prior to construction, an engineering design is required, as well as a "Work Within Highway Right-of-Way" Permit from TIR. Several culverts in the existing road need to be repaired or replaced and will require watercourse notification or approval with Nova Scotia Environment. The scope of and party responsible for road maintenance, including vegetation trimming and maintenance of the road surface, should be identified.

PRIVATE PARK ROADS

Roads within the park are considered private and are wholly located in MODC. The two private properties to the north of the park site have a deeded right of way to use the upper portion of the park driveway to access their properties. Where possible, the existing road/driveway network has been used in the concept design. MODC does not have a standard road specifications for the general basic zone in which the park site lies. However, MODC (*H. Archibald, personal communication*) have indicated they are concerned with slope and access for emergency vehicles. These considerations have been taken into consideration in the final concept design of the roads.

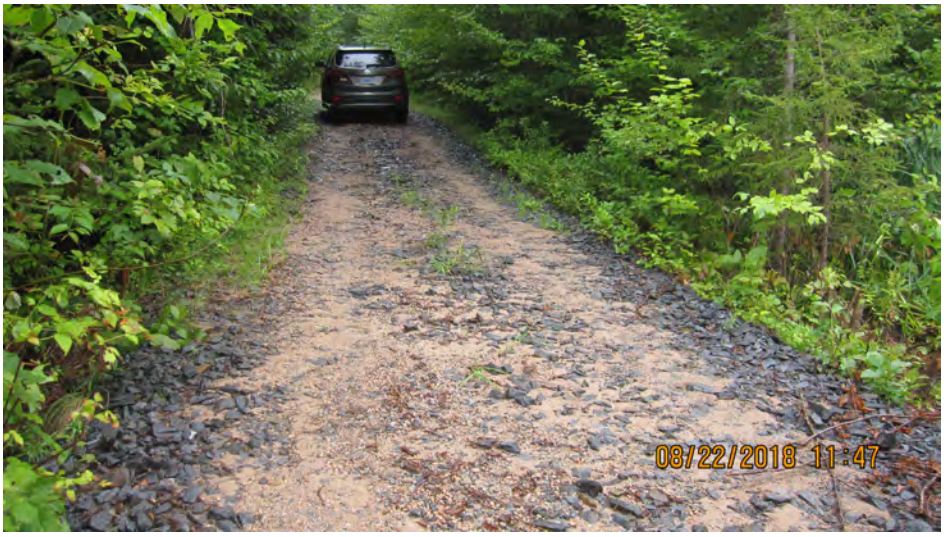
Private roads have been designed to have a maximum slope of 12%. For one-way and two-way roads, a travel width of 3.7 m and 7.3 m have been specified, respectively (**Appendix E**). Sufficient turning area(s) have been included for emergency vehicles. AutoTURN, vehicle sweep path analysis software, was used to test various vehicles' ability to navigate the site. The largest anticipated vehicles, a school bus and a motor-home with boat trailer, were used to size turning areas (**Appendix E**).

Upper Shared Driveway

The upper portion of the driveway is widened along the west side to work with the existing drainage. One provincially mapped watercourse crosses the upper driveway. Where the watercourse crosses the driveway,

there is wetland on the up-stream side and a pond on the downstream side. During consultation, it was mentioned that this pond was dug out as a "fire pond." There is obvious beaver activity in and around the pond. During site visits, EDM was unable to locate a culvert through the driveway, however Mr. Fancey confirmed there is one in the road that was installed 35 to 40 years ago. Replacing this culvert will likely require a permit from NSE (Watercourse Application or Notification). The entrance two-way road veers from the existing driveway alignment near the intersection with the other driveways. This intersection has been redesigned to direct park users to the park and away from the private properties to the north. To the south, access has been blocked to Mr. Fancey's lands with boulders. He has no interest in this connection in the future. A turning circle and parking area are located in this area before the gated entrance to the lower shoreline park. The location of the gate was selected in order to maintain the deeded easement and not gate

Private park road - lower driveway in need of widening. Large trees to be kept. (Source: EDM).



Private park upper driveway in need of widening. (Source: EDM)

in the 2 properties north of the park site. This was the desire of the adjacent property owner. A concern was raised by residents of the neighbouring Deep Cove development that a gate was not placed so that it would prevent access to Hemlock Drive from the turning circle intersection in the park. The difficulty with this additional gate is that the immediate property owner does not want to be gated in. This route was established long ago for logging (*Mr. Fancey, personal communication*) and is not a legal right of way, however, there is an easement for telecommunications lines. An increase in the usage of this illegal access could warrant a gate. The property owner of PID 60647021 (Rowan Rafuse-Kell) is most affected and has expressed concerns of people gaining access to Deep Cove via the Woodstock Road and parking on their land without permission. Deep Cove residents have concerns of being broken into from this route but also wanting to use this illegal route for emergency egress. Rowan Rafuse-Kell should be contacted related to this matter as it is her land.

Example Parking Lot (Source: https://www.tripadvisor.com/LocationPhotoDirectLink-g35223-d560997-i97325360-Cloudland_Canyon_State_Park-Rising_Fawn_Georgia.html)

Lower Driveway to Shoreline Park

Past the gate, the two-way road continues down slope to the shoreline park. The existing driveway in this area reaches a 19% slope. The slope of this road was reduced to 12% by realigning the upper portion and grading the lower sections of the driveway. Regular drainage off-takes should be included in the detailed engineering design of this portion of the road to ensure runoff is regularly dispersed into vegetated areas to prevent direct runoff from the road surface running into the lake.

Implementation Considerations

Where existing roads will no longer be used, they should be restored. This involves blocking entrances with boulders and transplanting vegetation to these areas from places that require clearing. The intent is to fill in the gaps and for users to not be drawn along historical routes. Where new roads are required, geotechnical investigations will be needed as part of the detailed engineering design. Both neighbouring properties will need to have continued access during construction and should be notified in advance of planned construction.

PARKING

The master plan includes 4 kinds of parking areas which are developed in phases in conjunction with road work. All parking areas are to have a gravel finish to match the roads. During review of the draft plan, a concern was raised by Municipal Councillors regarding the number of parking spots. The Final Report (*Sherbrooke Lake Access Advisory Committee, 2016*) served as the basis for the number of parking spots. While not officially included in the Master Plan, future additional parking has been considered. The need and impacts of additional parking could be addressed and decided using the Adaptive Management Plan laid out at the end of this report. Should they be approved, additional stalls can be added to the north of the 6 car parking stalls on the one-way loop and along the outside of the east edge of the turning circle at the park entrance gate.

Parking Type	Details
School Bus	• Located with the Pit restoration project and constructed during private road widening. • Sized to accommodate a 40 ft school bus. • 1 stall.
Car	• Located at the entrance intersection, 6 stalls • Shoreline park, 6 stalls • 3 m by 6 m
Accessible	• Located in front of the Washroom Pavilion • 2 stalls
Boat Trailers	• Located on the one-way loop • 5 stalls • 3.25 m by 12 m

GARBAGE/RECYCLING BINS

Waste disposal bins should be located so that they are of most use, namely associated with the washroom pavilion, picnic area, boat launch, and along the paved section of the trail in the shoreline park. Bins are to be serviced by MODL staff. The paved trail could be used so that bins can be accessed by vehicle.

SWIMMING

Swimming was identified as the number one desired activity to be included in the park. Locating the designated swimming area was perhaps the most challenging and important aspect of the park design. The following constraints were identified:

- The proximity of the existing beach area at the most northern edge of the shoreline, to the neighbouring property;
- The need for swimming areas and the boat launch to be separate;
- The presence of boulders in the shallow water along the shoreline; and
- The location of the boat launch.

Taking all of these factors into consideration, multiple options for swimming to accommodate different abilities are included in the design. The first is the floating walkway to the shoal island (**Appendix F**). This walkway, made up of sections on posts and floating sections, creates access to the water for swimming, and places for people to lay on a towel and watch the water. People can swim off the side of the walkway or explore out to the shoal island and swim in the deeper waters and over to the swimming raft. Buoys can be used to clearly mark areas for swimming and the route for boaters. The floating walkway would be removed in October when the Park closes for the season. EDM consulted with Eagle Beach Contractors and EZ Docks regarding conceptual design and cost estimate of this feature.

For those wanting to wade in shallow waters, typically families with small children, the design includes shoreline swim areas. To make these areas, boulders along the shoreline and in the shallow waters need to be moved. This will require an excavator. Boulders are moved to make an obvious pathway to the shoreline and cleared areas are filled with sand from the site (pit area). Boulders will also need to be moved within the water in order to clear hazards from the swimming area.

The installation of the walkway to the shoal island and shoreline swim areas will require a watercourse permit from Nova Scotia Environment. It would also be prudent to further explore if the *Navigable Protection Act* (NPA) applies to the Floating Walkway. Sherbrooke Lake is not a scheduled water body and the project likely falls under the description of minor work. Projects on non-listed waterways can make the choice to opt-in to the NPA for assessment and review. The advantage to proceeding this way is that projects can proceed with the added assurance that the project is sanctioned under the NPA. Whether or not the project can opt in depends on whether navigability is affected. The fact that the passageway between the shore and shoal island is shallow and that there is another nearby way to gain access to either side of the project, suggests that the project would be sanctioned by NPA. The first step would be to contact Transport Canada and determine if the application is required.

WASHROOM PAVILION

The washroom is a key element of the park and is important to keeping nutrients out of Sherbrooke Lake. In order to elevate the look and feel of the park, a contemporary pavilion has been designed (**Appendix F**) and includes 3 toilet stalls with sinks serviced with non-potable water from the existing dug well. Without adequate facilities, park users will find a way to relieve themselves, be it on land or in the lake. Composting toilets are vented to the air but are otherwise a closed system. Human wastes are treated by the composting system which is located in the basement. The height of the basement, 1.9 m or 76 inches, has been sized to accommodate the composting units as outlined in the Clivus Multrum Planning Manual (http://www.clivusmultrum.com/). This manual and representatives from Clivus Multrum should be contacted during detailed design. The composting units require periodic maintenance to ensure they are efficiently treating wastes through the addition of bulking material and physical mixing/raking. This will be a bit of a learning experience for park maintenance crews and the level of maintenance is correlated with usage. Hand washing sinks and an outdoor shower are drained to a grey water treatment system that is built using recycled materials from the existing septic system. Opposite of the shower, there is an outdoor faucet where a hose could be attached.

The pavilion includes a communications board and has interpretative panels and signage which outlines the park facilities and expectations of users. A storage building is opposite the washroom and is designed to store wharf and other materials/infrastructure for short term and during the winter.

PIT RESTORATION/WETLAND ENHANCEMENT

The first element encountered in the park is school bus parking at the gravel pit restoration/wetland creation area. Interpretative panels offer a description of the Sherbrooke Lake Watershed, including soils and bedrocks, trees and birds that could be seen throughout the park, as well as a brief description of the restoration/wetland creation project. The establishment of moss and other wetland plants and the presence of wet areas shows that drainage through the pit is currently forming a wetland. The wetland creation plan includes enhancement by transplanting vegetation during construction of other park elements.

BOAT LAUNCH

The boat launch has been sited in the best place to get from the shore to deep water. Buoys should be used to mark this route and clearly mark the areas for boats and that for swimming. Transport Canada has a buoy convention that could be followed. The boat launch has been designed to limit the size of boats to 14 feet through means similar to the Church Lake launch. A moveable winch is used to lower the boat down a rail line to the lake. The rail line is installed along a ramp excavated into the foreshore, creating a calm, sheltered area in which to safely launch a smaller vessel. The ramp bottom is natural loose gravel and a parallel gangway provides access to the floating wharf for boaters to dock and load/unload supplies. An accessible kayak launch could be included at the end of the wharf to help those in need easily into and out of the their boats (Appendix F). Construction of the boat launch will require an excavator to move boulders beneath the ordinary high water mark. It will also require a watercourse application with NSE. The northern edge of the park runs along the boat launch. In order to provide a clear marking of this property line, rocks and boulders should be placed along this edge as they are encountered during construction along this property edge.

PHASING

The Park Advisory Committee has identified that a phased approach to building the park is desired. The intent is to ease the development of the park to ensure minimal impact to the surrounding environment. The sequence of phasing offers opportunities for the park to be used prior to its entire completion. It seeks to break up the road work and stage it with development of recreational activities. This is anticipated to slowly and steadily increase park usage. An illustrated version of the park phasing plan has been prepared (**Appendix C**) and a summary table of the phases, including a cost estimate per item subtotalled per phase is presented in the table on the following page. For each element, materials, construction costs, and any cost for permitting have been considered and are presented as a lump sum.

Phase 0 takes place prior to formal park development and includes activities to be implemented in response to the reported increase in traffic to the park site. While in the field, EDM witnessed area residents drive up to the site and use the north driveway to gain access to the lake. It has also been reported that people are launching canoes and kayaks from the existing northern beach. Park visitation is encouraging for the project, however there are some risks in visiting the property before the park has been developed. These could include:

- Increased traffic on the Woodstock and private thin, and in some areas steep, roads;
- Navigation of Deep Cove and Sherbrooke Lake without guidance can be dangerous; and,
- Nuisance to neighbouring properties.

MODL may consider posting “Use at your own risk” signage and/or informing the public about the park to help direct people visiting the site. Blocking access to the northern driveway would prevent people from

driving the road but it would also block the emergency access for the neighbouring property — this is not desired. Navigation of Deep Cove and Sherbrooke Lake in general can be difficult and the Deep Cove buoys, which are deployed and maintained by Wil-Dor Park, are typically removed from the lake in mid-September. Over the course of the summer of 2018, EDM observed vegetation encroaching on both lower driveways. MODL should consider keeping growth trimmed to maintain general and emergency access to the shoreline portion of the property.

Phase	Elements and Description	Estimate	With Contingency
Phase 0 – Risk Management	"Use at your own risk" signage, Information about the park and contact information, Block access to lower driveways with consideration for neighbouring property		
Phase 1 – Woodstock Road	Upgrades to Woodstock Road	$90,000	
	Subtotal	$90,000	**$103,500**
Phase 2 – Private Park Roads	Upper driveway and entrance intersection including parking,turning circle, and gate	$120,405	
	Bus parking	$2,700	
	Gated lower south drive to prevent usage	$4,000	
	North beach decommission and vegetative buffer planting	$1,000	
	West shoreline improvement start	$2,250	
	Picnic area start	$2,150	
	Floating walkway phase 1	$19,645	
	Subtotal	$152,150	**$175,000**
Phase 3 – Washroom Pavilion	Construction of washroom pavilion	$82,900	
	Composting treatment system	$20,000	
	Septic system removal and grey water system construction	$6,000	
	Storage Shed	$18,000	
	Picnic area completion	$2,150	
	Subtotal	$129,050	**$148,400**
Phase 4 – Lower Road	Lower drive way widened for two-way traffic First lower parking area	$40,000	
	Lower south driveway convert to trail and move gate to bottom	$10,000	
	Floating walkway phase 2	$21,600	
	Shoreline improvements completion	$2,250	
	Natural play area	$40,000	
	Subtotal	$113,850	**$131,000**
Phase 5 – One-way Loop	One-way loop to complete road network	$67,500	
	Shoreline paved trails	$16,000	
	Floating walkway phase 3	$19,645	
	Floating swimming raft	$2,800	
	Subtotal	$105,945	**$121,800**
Phase 6 – Pit Restoration/ Wetland Creation	Pit restoration/wetland creation including trail in pit	$6,400	
	Backwoods trail system	$4,300	
	Subtotal	$10,700	**$12,300**
Phase 7 – Boat Launch	Boat launch	$82,875	
	Boat trailer parking area	$8,500	
	Subtotal	$91,375	**$105,000**
	Total	$693,070	**$800,000**

SAFETY

In order to facilitate the safety of the park, several risks have been identified by various stakeholders and are addressed in the park plan. These include:

- *Park Access* - The park entrance road is gated and will be opened daily at 8am and closed at 9pm by MODL staff. The road access to the park has been designed to accommodate two way traffic by adding pull-offs along the Woodstock Road and widening the roads within the park. Turn around areas have been sized to accommodate emergency access vehicles (40ft). The Walden Fire Department has been identified as the first responder to the site. The Fire Chief, Melanie Langille has requested that bushes/ vegetation along these roads be trimmed back to ensure access. The RCMP and the Walden Fire Department will need keys to park gate(s). The RCMP have requested someone be identified as an emergency contact in the area to open the gate should the need arise. Fire Services (Lyle Russel, New Ross Fire Department) confirmed that the nearest boat to be launched in the event of an emergency is a 16 ft zodiac out of Bridgewater. The boat launch is capable of accommodating this vessel and it should be confirmed during detailed design.
- *Fire* - The park is not designed to accommodate fires. “No Open Fires” signage is recommended to be posted. Fire Services have confirmed that they can be a maximum distance of approximately 30 ft from the lake to draw water. A vehicle can be within this distance to the shoreline via the boat launch or the paved path. MODL could consider installing a dry hydrant along the shoreline to ensure adequate access to water in the event of a fire. The beaver pond along the upper driveway could also serve as a source of water in the event of an emergency.
- *Dogs* - Dogs are permitted in the park but must be on leash. This should be addressed in park signage.
- *Ticks* - Information about ticks should be posted.
- *Park Navigation* - Park maps will help users stay oriented and prevent users from getting lost. The trail system crosses the road network and provides the opportunity to rescue trail users should the need arise.
- *Lake Navigation* - Navigating Deep Cove and Sherbrooke Lake can be difficult. This needs to be addressed in signage in the park and specifically at the boat launch. Buoys should be used to help boaters get from the shore to deeper water and clearly mark areas for swimming. Transport Canada outlines the national convention for the use of buoys.

In regards to the buoys in Deep Cove, the Wil-Dor Park website warns that there is not a straight forward convention for hazard identification. Some mark object hazards, some outline a hazard area, some indicate a passage between, while others denote a no-go zone. Wil-Dor Park also warns that without some explanation and experience, the buoys could be easily misinterpreted and recommends taking the time to talk with those who know the lake and ideally accompany someone who understands the lake prior to navigating alone. The visibility of hazards changes with lake water levels. Ideally the buoys would remain in the lake when the park is open and it is recommended that the Committee consult with Mike Morrison, president of Wil-Dor Park Association, to figure out how best this could happen and how the park can support Wil-Dor Park in maintaining the buoys. The warning regarding the use of buoys in Deep Cove applies to all buoys in Sherbrooke Lake. There is not a standard convention used across the lake and many hazards are present. MODL should warn boat launch users to make use of buoys at their own risk. This should be plainly posted at the boat launch.

ADAPTIVE MANAGEMENT PLAN

An adaptive management approach, as put forward by the Committee, essentially means starting off slow, monitoring use and evaluating elements to aid in decisions about the park. The intent of the approach, as stated in the MOU, is to ease the development into the surroundings and ensure minimal impact. Adaptive management is an evolving process that includes learning and sets up a framework for evidence-based decision making (*William and Brown, 2014*). It is an iterative process that acknowledges that there is much to learn from observation. The figure below shows the adaptive management process as laid out in the Komoka Provincial Park Management Plan (*2010*). Starting at the top of the circle, a management plan is made and is then implemented. While the management plan is being implemented, monitoring takes place. What exactly is monitored depends on what is being managed and what is known or suspected to affect the resource of interest. Monitoring results are evaluated and are used to adapt management plans.

Adaptive Management Process (Ontario Ministry of Natural Resources, 2010).

The process starts from assumptions and research about how development of the park affects the environment (including human). The monitoring results are used to deepen/broaden/expand the understanding of how the environment functions. This understanding is used to better manage development and on-going use of the park.

When implementing adaptive management, it is important to remember that the environment is a complex system that is constantly and unpredictably changing and there is no such thing as complete information (*Salafsky et al., 2001*). While these statements may feel intimidating, they open our perspective to learning and improving how to manage the world around us. Adaptive management does not work if we think we already know all the answers. It also does not work without a long standing dedicated group committed to the cause. The Park Advisory Committee is currently the obvious body to undertake and house this form of management for the park. It involves identifying what questions or resources are important for that year (or development phase). On an annual basis, planning could take place in the winter, monitoring deployed in

the spring, data/observations compiled and evaluated in the fall and management adaptations and next years plans drafted in the winter. The Sherbrooke Lake Stewardship Committee's inclusion of monitoring sites at the park provides a unique opportunity to include their observations and results into park management decisions.

The table on the following page outlines a preliminary list of environmental factors which could change as a result of park development, and is by no means exhaustive. This list should change and be added to as more is learned about the park environment and Sherbrooke Lake. The table also includes park design considerations, as well as potential monitoring and evaluations tools and other considerations. The Committee should formalize what factors matter for each development phase, prepare a management plan, identify what to monitoring and means for evaluation.

While this is not a complete formula for when to proceed to the next phase, it does outline a framework for learning from each phase. Prior to the development of the next phase, the Committee should identify risks and opportunities to participate in a regenerative process with the environment and measures (based on what was learned from previous phases) to be put in place to limit negative impacts and identify ways to steward and improve the environment. This could take the form of a brief report and serve as a record for what was important at the time. Before any development takes place is the only time to collect baseline information. The longer the record, the better one can establish change. The sooner a detailed plan of action is drafted and implemented the better.

What could change?	How its been considered in the design	Monitoring and evaluation tools	Other considerations
Lake Water Quality Bacteria (E.coli) Nutrients (Phosphorus and Nitrogen)	Composting toilet; Limited shoreline vegetation clearing; Road runoff off takes; Boat size limited by launch design.	Stewardship Committee water and sediment monitoring results. Guidelines for Canadian Recreational Water Quality outline acceptable E. coli concentrations for recreational water quality. Nutrient guidelines are presented as ranges associated with lake trophic status. An increase in nutrient load can be linked to algal blooms. The Stewardship Committee should be consulted on an annual basis to assess changes to nutrient concentrations and whether changes can be linked to park land uses.	Baseline data is very important in assessing change. Anecdotal observations can also be useful. These could include observations of algal masses within the lake and growing on rocks. Clarke (*2015*) outlines how to make the most of recording a suspected algae bloom.
Fish	Use of floating docks to limit lake bottom disturbance.	Consider participating in/funding fauna inventory of Sherbrooke Lake.	Small-mouthed bass and chain pickerel are already in the lake (*Clarke, 2013*).
Ducks	No grass at the shoreline. Signage to include no feeding animals.	Visual inspection by park maintenance.	Duck were observed by EDM in Deep Cove, but not at the Park Shoreline.
Loons	Developing the walkway over three phases.	Survey of the shoal island for nests or other signs of usage. Asking Lake residents about their loon observations.	If identified as important loon habitat, completing the 3rd phase of the floating walkway may be redesigned to reduce impact.
Invasive Species Aquatic	Boat size limited by launch design.	Annual aquatic vegetation survey along the shoreline.	Photos are useful taken around the same time every year from the same location.
Invasive Species Terrestrial	Plan to make use of materials already on the site. No open fires, limits risk of important species to the park via fire wood.	Annual land vegetation survey on the property. Enforcement of no open fires.	Japanese Knotweed was not observed on the property in 2018. Any earth moving machines should be clean before coming to the site. Any remnants of Knotweed can cause spread.
Fire	"No Open Fires", no fire pits and no overnight camping. Improved access to the site for emergency services and access to the water for fire suppression.	Record of incidences from the Walden Fire Department/RCMP. Visual inspection from MODL staff.	The pond along the upper drive could also serve as a source of water in the event of a fire. The Fire Department requires keys for any gates.
Visual Nuisance	Limited shoreline clearing. Vegetated buffer.	Before/during after photos of the shoreline for the purpose of assessing change.	Photos are useful taken around the same time every year from the same location.
Noise Nuisance	Park gate closed during the evening.	Formalized process for neighbours to provide their observations. Summary report of incidences from RCMP.	Assessment of change likely limited to anecdotal accounts.
Road Traffic	Upgrades to accommodate access.	Traffic counters or motion-activated cameras, before and after development of park phases.	Park usage is linked to the recreational amenities provided. While usage may warrant proceeding to the next park development phase, the phrase "if you build it, they will come" should also be considered.
Boat Traffic	Boat size limited by launch design. Buoys to aid navigation.	Motion activated cameras to track use. Formalized process to comment on launch. Summary report of incidences from RCMP, boater accidents/deaths.	There are many boats on Sherbrooke Lake already and baseline stats on boating accidents would be useful. RCMP have confirmed they maintain a database of reported incidences tied to a civic address or an area such as a lake. They are able to look back in time and provide statistics for past years.

CONCLUSIONS

This report presents the master plan of the Sherbrooke Lake Public Access Park that reflects the recommendations in the Final Report, the MOU, consultations with the Sherbrooke Lake Park Advisory Committee, representatives of Deep Cove residents, neighbouring properties, the Sherbrooke Lake Stewardship Committee, Nova Scotia Environment, Transportation and Infrastructural Renewal, RCMP, Fire Services, MODC and MODL.

The master plan is the long term vision of the park made up of desired elements and how they all fit together. For each element a detailed project sheet is provided. These sheets outline each element and include permitting requirements and estimated cost. The report also includes a concept plan for the roads within the park as well as the Woodstock Road. A phasing plan has been overlaid on the Master Plan. The sequence of phasing offers opportunities for the park to be used prior to its entire completion. It seeks to break up the road work and stage it with the development of recreational activities. It also includes a Phase 0, which takes place prior to formal park development and includes activities to be implemented in response to the reported increase in traffic to the park site. The report includes a section about safety measures to be considered while developing and managing the park.

The approach to the Adaptive Management plan is outlined and includes a description of the methodology and a list of potential resources which could change as a result of park development, as well as examples of monitoring and evaluation tools. The Park Advisory Committee is currently the obvious body to undertake the adaptive management program for the park. It involves identifying what questions or resources are important for that year (or development phase). On an annual basis, planning could take place in the winter, monitoring deployed in the spring, data/observations compiled and evaluated in the fall and management adaptations and next years plans drafted in the winter.

NEXT STEPS

Next steps which MODL could pursue are projects that reduce risk related to future phases and, where possible, engage community groups. MODL might consider having the water in both the drilled and dug wells tested for yield and quality for non-potable use in the Washroom Pavilion. Vegetated buffers can be planted well in advance of their actual phase. This allows them to become established and effective prior to actually needing them and can be done by community groups. Patches of Hemlock seedlings were identified and mapped (**Appendix B**, Site Map of Important features) and transplant well. Phase 0 can start any time and is focused on signage and keeping vegetation along the drive ways trimmed. Signage could be related to the risks navigating the water and to mark private properties. The best route from the boat launch shoreline to deeper water could be mapped and observations of loon use of the shoal island can take place on an on going basis. Photos of the site pre-development will help with various items in the adaptive management plan.

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