

Upper Poole Creek Restoration Plan



DRAFT-December 2019

Based on Objectives of the Upper Poole Creek Subwatershed Study

TABLE OF CONTENTS

1.0 Background of Upper Poole Creek2
2.0 Review of Upper Poole Creek Subwatershed Study Objectives
3.0 Upper Poole Creek Restoration Plan
3.1 Restoration Recommendations
4.0 Monitoring
4.1 City Stream Watch9
4.2 Invasive Species10
5.0 Stormwater Management Strategy
5.1 Outreach and Education
5.2 SWM Options for Arena Parking Lot
5.4 Summary14
6.0 Summary of Costs
7.0 Benefits of Stream Restoration on Upper Poole Creek
7.1 Riparian Zone Planting14
7.2 Erosion14
7.3 Removal of Blockages15
7.4 Instream Structures15
7.5 Stormwater Management Strategies15
7.6 Promote Public Awareness and Stewardship15
8.0 Summary
Appendix A - Site Descriptions
Appendix B- Storm Water Management Site at Johnny Leroux Arena Parking Lot

1.0 Background of Upper Poole Creek

Upper Poole Creek (UPC) is one of few cold or cool water streams in the City of Ottawa. Its headwaters originate in the Upper Poole Creek Wetland Complex, a Provincially Significant Wetland (PSW). The Upper Poole Creek flows north-east through the Village of Stittsville and drains into the Carp River.

The temperature of the Upper Poole Creek fluctuates along its length changing from a warm water system at its uppermost section into a cold-cool water system as it flows through the Jonathan Pack Street area, remaining cool from Main Street to the Amberwood Golf and Country Club; then finishing as cool-warm water habitat downstream of Hazeldean Road until its confluence at the Carp River.

The Upper Poole Creek Subwatershed Study (UPCSWS) was completed in May 2000 to identify potential impacts of development pressure on the subwatershed.

The purpose of this report will be to review the original objectives of the UPCSWS and update on the work plan prepared to meet the restoration objectives set forth in the UPCSWS. This restoration plan deals specifically with the area between West Ridge Drive and the second pedestrian bridge located downstream of Main Street in Stittsville.

2.0 Review of Upper Poole Creek Subwatershed Study Objectives

The purpose of the UPCSWS was to acquire an understanding of the subwatershed in its entirety, and to prepare a plan that would maintain and enhance a healthy ecosystem while development proceeds. Two overarching goals were identified:

Goal 1: "The subwatershed plan is to seek to maintain a cold to cool water aquatic habitat. Continued presence of the Mottled Sculpin shall be regarded as an indicator of this goal. The Brown Trout program will be continued for its historic and symbolic value."

Goal 2: "The subwatershed plan is to seek to extend the existing pathways to make a pedestrian connection between Poole Creek and the upstream provincially significant wetlands. Opportunities to produce an interpretive and educational experience should be investigated, while observing the constraints necessary to protect important habitat and significant species."

All of the objectives initiated by the Upper Poole Creek Subwatershed Study have been partially to fully completed to date, although the majority require ongoing action. Table 1 summarizes the completed and outstanding work.

Table 1. Progress of the objectives created in the Upper Poole Creek Subwatershed Plan (2000) and outstanding work

Subwatershed Plan Objective	Agency Involvement	Progress of Objective	Work Outstanding
Aquatic Strategy			
Buffer and Riparian Plantings- In an open field area located immediately downstream of Jonathan Pack Road, representing the area with the least overhead canopy cover Buffer and Riparian Plantings-		Completed- The City and MVCA completed riparian plantings here. Completed	
In the buffer, which is being dedicated as part of the West Ridge Development			
Buffer and Riparian Plantings- Along the trail		Completed- Two sites were planted in 2019 between Johnathan Pack and Hesse Crescent (approx. 65 trees/shrubs) 2014: 4 sites planted, 210 shrubs	Ongoing- Needs more work, need to address erosion where trail is close to creek
Buffer and Riparian Plantings- On the east side of the creek (if permission is received from adjacent landowners)	MVCA, City, Private	Completed- Three landowners participated in shoreline planting in 2019 (approx. 25 trees/shrubs)	Ongoing- Two sites identified were not completed, landowners were approached. Potential for more planting sites and awareness of best practices (i.e. not mowing lawns to the water's edge). Additional plants were distributed to 21 participating property owners along Poole Creek in spring 2020 as part of the stormwater outreach component. This outreach to approx. 95 residents included information about importance of riparian buffers and not mowing lawn to the water's edge.
Buffer and Riparian Plantings- Along the banks for 5-10 m upstream and downstream of existing lunker		Completed	
Buffer and Riparian Plantings- Grass cutting should not extend right up to the watercourse, but should stop a minimum of 1 m away from top of bank		Completed- Outreach to landowners, messaging was included in Brochure delivered to 95 homes along creek in fall 2019	Ongoing- Further outreach to landowners to encourage shoreline naturalization

Instream Structures-		Completed- Third lunker installed		
Implementation of 3 lunkers		in fall 2019		
Instream Structures-		Completed- External company		
Implementation of 6 point bars		implemented two point bars		
		downstream of Main St.		
Instream Structures-		Completed- Weirs and riffles were		
Modify or eliminate the riffles		modified/eliminated. Two rock		
(wooden weirs should be		vortex weirs and one wooden		
removed)		weir were installed by an external		
		company.		
Fish Community-		Completed	Ongoing- MNRF typically stock	
Brown Trout (MNRF) stocking	MNRF		approx. 500 Brown Trout into Poole	
program			Creek every year	
Terrestrial Strategy				
Invasive Species Pilot Project-		Completed- Invasive species	Ongoing- Sites should be revisited	
Monitor the effectiveness of		removal in 2019- multiflora rose,	annually to assess invasive species	
different measures	City, MVCA	garlic mustard, purple loosestrife.	occurrence and further removal;	
			primarily multiflora rose.	
Wildlife Management-		YES- The City has acted to control	NO- In fall 2019, beaver dam	
Implementation of programs		beaver activity along Poole Creek	between Main Street and Johnathan	
aimed at controlling beaver		between Main St. and Jonathan	Pack Street was removed by MVCA.	
activity in the reaches below the	City, MNRF	Pack St. (March 2005). MVCA		
Upper Poole Creek wetland		hired external company to		
		remove beaver and dam a few		
		years ago.		
Monitoring Strategy				
Indicator Species-		Completed- A monitoring project	Ongoing- Needs improvements, only	
Monitoring program to assess the		was developed for fish, benthic	the species types and abundances	
abundance or location of the		invertebrates, water quality and	are monitored at three sites.	
Mottled Sculpin	MVCA,	water temperature parameters		
	MNRF	monitored after habitat		
		improvement project was		
		implemented to assess benefits		
		(2005).		
Fish Community-		Completed- The Water	Ongoing- Need more sites with	
Monitoring to determine if there		Environment Protection Program	regular monitoring, updated	
have been any changes in terms of		(WEPP) prepared a monitoring	through 2018 City Stream Watch.	
composition, numbers and habitat		strategy to assess the	Two sites were sampled in 2018. No	
utilization		effectiveness of the aquatic	assessment of whether fish	
	MVCA, City	habitat improvements	communities have changed over	
		downstream of Main St. Fish	time (important to know for	
		community is monitored at one	restoration), fish community should	
		site (Main St.) every year. In 2006	be monitored at several locations.	
		and 2007, the lunker structures		
		were checked to assess utilization.		

	1		
Benthic Community- Implementation of a benthic monitoring program (OSAP or Biomap) to effectively monitor water quality	MVCA, City	Completed- WEPP undertook benthic monitoring as part of fisheries/water quality program in 2001. Monitored the benthic community at Main Street every	Ongoing- One site was sampled in 2018. Additional sites should be considered as resources allow.
Water Quality and Stream Temperature- Implementation of water quality and stream temperature monitoring program	MVCA, City	Completed- Monitoring downstream from the stormwater management pond outlet is required by developers as conditions of approval.	Ongoing- There is one site in UPC monitored monthly for water quality and daily temperature by the City (Stittsville Main Street). MVCA maintains a monthly water quality monitoring site at Jonathan Pack, and deployed two temperature loggers in 2018 (at Stittsville Main St, and Westridge Drive). Additional sites should be considered as resources allow.
Water Quality and Stream Temperature- Reporting on trends and observations on an annual basis, or at minimum the data should be assessed at 5 year intervals	MVCA, City	Completed- WEPP monitored one baseline site (Main St.) on a monthly basis until 2016.	Ongoing- Need more monitoring at multiple locations, and need assessment of changes over time.
City Stream Watch (CSW)- Stream condition monitoring protocol	MVCA	Completed- CSW has been completed on Poole Creek to varying degrees three times (2009, 2013, and the most extensive 2018).	Ongoing- CSW will continue to visit Poole Creek on a 5-year rotation.
Administrative			
Volunteer Works	MVCA	Completed- Volunteers have helped monitor (City Stream Watch), plant shorelines, remove garbage and invasive species.	Ongoing- Two volunteer events in Summer 2019 with 13 volunteers participating in garbage clean up and invasive species removal. Potential for more volunteer events pending resources.
Public Education	City, MVCA	Completed- Interpretative signage has been put into place to promote creek protection. Vandalized sign was replaced in fall 2019. Outreach to landowners with EnviroCentre in fall 2019. Presentations have been given to local community groups.	Ongoing- Potential for more education initiatives pending resources.

3.0 Upper Poole Creek Restoration Plan

Previous work by Mississippi Valley Conservation Authority (MVCA) on UPC started in 2013 with the Upper Poole Creek Restoration Plan performed for the stretch of UPC from West Ridge Drive to Stittsville Main Street based on the objectives of the UPCSWS. This included mapping blockages, areas of erosion, areas needing riparian plantings, and mapping other areas of concern along the creek. There was approximately \$15,000 targeted for planting and instream enhancements in 2013.

This report is an update of the Restoration Plan performed in 2013 based on the recommendations for how additional funding could be spent for the restoration and rehabilitation of the creek. These recommendations were implemented in 2019 with funding available.

3.1 Restoration Recommendations

A full list of recommendations to enhance UPC is outlined in Table 2. This table was created based on an assessment of work completed since the original UPCSWS (November 2013) and the UPC Restoration Plan (December 2013). All of the sites were verified in field and assessed based on their contributions to Goal 1 of the UPCSWS; maintaining a cold to cool water aquatic habitat. The location of each of these sites can be found in Figure 1. A photo and a detailed description of each of the proposed sites can be found in Appendix A.

Work was completed in the majority of the sites in 2019. All sites should be assessed in spring 2020 for the current state; further blockages, plant survival and potential for further plantings/stabilization. Work was not completed for sites 4 and 10, although initial contact was made with landowners. Contact should be initialized again in spring 2020 for potential shoreline work, pending available funding. Site 4 would require more extensive work to remove the failing fence and restore the shoreline. There is potential for rip rap erosion protection along sections of the pathway, particularly at Site 5. Along this section of the pathway rip rap could address an eroded bank and culvert by the ball diamond, sites photos are identified in Appendix A.

Proposed Site	Main Concern	Work Necessary	Land Ownership	Work Outstanding
Site 1	Small blockage (slowing flow)	Area needs maintenance to improve flow and reduce blockages	Public	N/A- Site visit indicated that blockage was no longer present.
Site 2	Shoreline erosion, trail too close to the creek	Stabilize banks with rock or bioengineering	Public	Partial- Native shrubs were planted to stabilize banks. Potential for sections to benefit from rip rap erosion control/stabilization.
Site 3	Small blockage (slowing flow)	Area needs maintenance to improve flow and reduce blockages	Public	Blockage removed.
Site 3a	Blockage	Area needs maintenance to improve flow and reduce blockages	Public	Blockage removed.
Site 4	Erosion, landowner's fence falling into creek	Stabilize banks with rock or bioengineering	Private	Initial contact made with landowner, property was for sale at that time- no work completed.

Table 2. Recommendations to Restore Upper Poole Creek and Meet Subwatershed Study Goals

Site 5	Shoreline erosion, trail too close to the creek	Stabilize banks with rocks or bioengineering	Public	Partial- This site was enhanced with native shrubs; a portion of the shoreline was stabilized with rip rap. Potential for other sections to benefit from rip rap erosion control/stabilization.
Site 5a	Blockage	Area needs maintenance to improve flow and reduce blockages	Public	Blockage removed.
Site 6	Blockage	Area needs maintenance to improve flow and reduce blockages	Public	Blockage removed.
Site 7	Blockage (severely impeding flow) Beaver Dam	Area needs maintenance to improve flow and reduce blockages, impeding fish passage	Public	Blockage removed.
Site 8	Lack of shoreline vegetation	Needs planting Private Planting planting Private Planting		Native shrubs and trees were planted.
Site 9	Blockage	Area needs maintenance to improve flow and reduce blockages	Public	Blockage was removed.
Site 10	Lack of shoreline vegetation	Needs planting enhancements Private		Initial contact made with landowner, no plantings completed.
Site 11	Lack of shoreline vegetation	Needs planting enhancements	Private	Partial- Native shrubs were planted. Encroachment onto the creek causing potential for erosion discussed with landowner but not addressed at this time.
Site 11a	Lack of shoreline vegetation	Needs planting enhancements	Private	Native trees were planted. Potential for further planting if there is interest from landowner.
Site 12	Blockage	Large downed tree needs to have sections blocking flow removed	Public	Blockage removed.



This map is produced in part with data provided by the Ontario Geographic Data Exchange under Licence with the Ontario Ministry of Natural Resources and Forestry and the Queen's Printer for Ontario, 2018

Figure 1: Map of sites recommended for restoration as described in Table 2.

Along UPC, there is a section upstream of the pedestrian bridge at Stitt Street Park that has been diverted from the existing channel into a manmade channel. It was observed that water was pooling over the banks. Sites 10 and 11 are along this section of the creek and have been identified for potential rehabilitation due to erosion. The Restoration Plan from 2013 recommended channel realignment to bring the creek back to its original state; however, this would be an expensive process. Instead, the current recommendation is to stabilize the shorelines along the manmade channel to minimize erosion, specifically at Sites 10 and 11. Initial contact was made with landowners at Sites 10 and 11, planting enhancements were completed at Site 11. Encroachment was discussed further and remains an issue. At Site 10, benefits of shoreline planting and stabilization were discussed with landowner but no further interest from landowner to date. Due to current use of the backyards adjacent to the creek, it may be difficult to address these sites.

4.0 Monitoring

4.1 City Stream Watch

City Stream Watch is an ongoing monitoring program that is performed approximately every five years based on availability of funding. City Stream Watch is currently funded through grants and funding from the MVCA Foundation. City Stream Watch has been performed on UPC in 2009, 2013 and 2018. The benefits include better understanding of the aquatic and terrestrial environment, community involvement in stewardship and restoration, and cost effective acquisition of data through the mobilization of community volunteers. The cost of the enhanced City Stream Watch program undertaken on Poole Creek in 2018 was approximately \$15,000. City Stream Watch assessed water temperatures, shoreline conditions, fish community, and identified shoreline areas in need of restoration and rehabilitation.

Before 2018, the City of Ottawa and MVCA completed separate water chemistry monitoring programs within Poole Creek, for a total of four sites being monitored. Water chemistry has been monitored monthly during the ice-free season by MVCA at Jonathan Pack Street, while the City staff monitored water quality at Maple Grove Road, Stittsville Main Street, and West Ridge Drive. Additional monitoring for water temperature and biological communities composition have occurred on a multi-year rotational basis by both the City and MVCA. Figure 2 shows the locations of the active monitoring sites in the UPC and Table 3 describes what is monitored at each site. To date there has been little analysis of this data, which is important for monitoring the overall health of the creek.

In 2017, while MVCA continued monitoring at Jonathan Pack Street on a monthly basis, the City changed the mandate of their water quality monitoring crew and all biological sampling on Poole Creek had stopped. In 2018 MVCA adopted the City's water chemistry sampling site at Maple Grove, and is maintaining the site at Jonathan Pack Street. The two other City water chemistry sites (Stittsville Main Street and West Ridge Drive) have been discontinued to reduce monitoring costs.

Site Number	Water Chemistry	Fish Sampling	Benthic Sampling	Temperature
1: Stittsville Main	Historic by the City	2018	2018	2018
2: Beside the Arena		2017		
3: Johnathan Pack St	2005 - Present	2019		
4: Westridge Drive	Historic by the City	2018		2018

Table 3: Description of monitoring activities at each site show in Figure 2 below.



This map is produced in part with data provided by the Ontario Geographic Data Exchange under Licence with the Ontario Ministry of Natural Resources and Forestry and the Queen's Printer for Ontario. 2018

Figure 2: Map of active MCVA monitoring sites in the upper Poole Creek area as of 2018.

4.2 Invasive Species

The presence and extent of invasive species directly adjacent to the creek was assessed as part of 2018 City Stream Watch monitoring efforts. These include garlic mustard, purple loosestrife, buckthorn, and wild parsnip. Most notably an invasive species called the multiflora rose was discovered along the UPC trail near Alexander Grove Park. The multiflora rose is native to Asia and can grow in shade or sun, taking habitat in open areas, forest edges, woodlands, savannahs, and prairies. This perennial, thorny, and scrambling shrub forms dense, impenetrable thickets that limits access and use of recreational land by wildlife and humans. Some of the impacts on the creek if the multiflora rose is not dealt with include; displacing native plants that are essential for the creek, and decreasing biodiversity. In June 2019, three yard waste bags of multiflora rose be cut back until it is ultimately removed from the site. This action will take one day a summer and can be completed by MVCA staff and/or volunteers. It is recommended to return to sites annually to assess invasive species and organize garbage removal with volunteers.



Figure 3: Multiflora rose removal: June 14, 2019.

In July 2019, a volunteer event was organized for invasive species removal. MVCA staff and nine volunteers removed approximately twelve bags of garlic mustard along the creek between Stitt Street and West Ridge Drive. In addition, approximately six bags of garbage along with other miscellaneous items were collected (Figure 4).



Figure 4: Garlic mustard removal: July 25, 2019.

Another volunteer event included garbage clean up between Hesse Crescent and Johnathan Pack Street. MVCA staff and six volunteers removed eight bags of garbage and other miscellaneous items. Including time for both events, approximately 40 volunteer hours were completed by 13 individual volunteers. In addition, approximately 33 hours of MVCA staff time was invested for the two volunteer events (Figure 5).



Figure 5: Garbage clean up: July 20, 2019

There may be opportunities to engage with a group from Holy Spirit Elementary School along the pathway for a garbage removal event. There was substantial garbage located by pathway near school fence that could be removed with student volunteers.

5.0 Stormwater Management Strategy

Stormwater management (SWM) strategies are used to mitigate the impacts of increased runoff and stormwater pollution. The measures considered in this study manage runoff as close as possible to the source, minimizing runoff and distribution with small scale structural practices that mimic natural or pre-development hydrology. This is achieved through the processes of infiltration, evapotranspiration, harvesting, filtration, and detention of stormwater.

5.1 Outreach and Education

At the direction from the City of Ottawa, MVCA partnered with EnviroCentre to complete a stormwater management outreach strategy. The Upper Poole Creek Watershed Community Engagement strategy was prepared by EnviroCentre to help the MVCA educate homeowners in the Stittsville area on stormwater issues and the practical steps they can take to manage rainwater on their property. The strategy utilized resources that are available through the City of Ottawa RAIN program, as well as specific educational materials that are relevant to the Upper Poole Creek watershed. A final report detailing the project undertaken in fall 2019 is available.

As part of the strategy, a four-page educational brochure was developed and delivered to 95 homes with a coupon with the incentive of a free native plant delivery. In order to bring awareness to the benefits of planting native plants and shrubs, the MVCA offered this free native plant to residents with properties on to Upper Poole Creek. The plants offered were Red Osier Dogwood, Ninebark, Nannyberry. The MVCA delivered 75 potted shrubs to participating landowners in the spring of 2020. There were 21 participating properties, with 1-7 plants delivered to each property depending on the interest of the homeowner.

5.2 SWM Options for Arena Parking Lot

There has been discussion initiated with City of Ottawa staff regarding the opportunity for stormwater management practices to be implemented for the Johnny Leroux Arena parking lot. Currently, there is only a grass strip (approximately 130 m) along the parking lot edge which slopes towards UPC. Below are two possible SWM strategies that could be implemented along this stretch of grass. Through an initial evaluation of SWM options, a bioretention facility was proposed as a preferred option. Based on funds available to the project, other options will be evaluated for implementation. Limitations for the proposed plan includes the width of the grass strip at the site (2-3 m). The site was monitored during spring freshet to determine flow distribution of run off and the most effective and feasible option. Benefits will include mitigating the impacts of increased runoff and stormwater pollution, enhancing water quality in the creek.

Options include:

Regrading and Planting

Area will be regraded to develop a depression for the filtration of water by planting enhancements. Regrading would be assessed through monitoring of flow distribution off the parking lot.

Planting Enhancements for Buffer

The grass strip would be replaced with a vegetated buffer along the entire width. This option would not require further monitoring of flow distribution for implementation.

5.4 Summary

The Upper Poole Creek Watershed Community Engagement project provided strategies to educate homeowners in the Stittsville area on stormwater issues. Through outreach efforts, there was communication regarding stormwater management with approximately 100 local residents. Further, door to door delivery of the educational Brochure developed through the project was distributed to approximately 95 residents in the target area.

SWM options will be explored in the grassed strip adjacent to the parking lot based on further assessment of flow distribution to ensure effectiveness. Photos of the existing condition of the location of the proposed SWM options can also be found in Appendix B.

6.0 Summary

The table below is a summary of the recommended actions completed for UPC discussed in the previous sections.

Table 4: Summary

Action
Shoreline Restoration
Monitoring
Invasive Species Removal
Blockage Removal
Upper Poole Creek Community Engagement
LID (postponed)
Fish Habitat Enhancement

Some actions should be assessed as ongoing such as shoreline restoration recommendations, invasive species removal and blockage removal. This ongoing work may depend on funding available. The LID-Bioretention component was postponed due to monitoring and planning efforts and due to COVID-19.

7.0 Benefits of Stream Restoration on Upper Poole Creek

7.1 Riparian Zone Planting

The vegetative communities that make up the riparian zone directly influence the aquatic habitat and water quality of the stream. Riparian zones filter sediments and nutrients, stabilize stream banks, slow runoff and provide wildlife habitat. The areas targeted for restoration lack vegetated riparian zones, leaving the creek unprotected and vulnerable to degradation. The planting of mixed, diverse native species along the shorelines of these targeted areas will positively impact the creek.

7.2 Erosion

Stream bank erosion causes an increase in sedimentation, which can negatively impact the aquatic habitat. Areas that need extensive work to prevent further bank erosion have been identified. The targeted areas are along the trail's path and in landowner's backyards. The majority of these sites have been addressed with planting enhancements. Outstanding sites may require rip rap erosion protection to address the erosion. Landowner education will help minimize erosion and limit further damage to properties.

7.3 Removal of Blockages

The removal of beaver dams, fallen trees, large woody debris, garbage, and man-made obstructions (such as unofficial bridges) will help improve the flow of the water in the creek. Obstructions limit baseflow in the creek allowing water to pool and remain stagnant. Areas with these blockages and little overhead cover cause the water to warm which could result in excessive algal growth. Large blockages identified through assessments have been removed. Potential for future blockages should continue to be assessed seasonally.

7.4 Instream Structures

Two lunker structures (cedar boxes placed underwater to enhance habitat for fish) currently exist in Upper Poole Creek and provide a shaded refuge for fish. Leaving a downed tree root wad and strategically placing woody debris to provide more cover and habitat is an additional recommendation for UPC. A third lunker box was installed in the area beside the arena in 2019. The damaged interpretative sign along the pathway with information on in-stream enhancements was replaced.

7.5 Stormwater Management Strategies

The implementation of additional stormwater management practices will decrease runoff and stormwater pollution into UPC. The practices considered in this study will not have a significant impact on the current development along the creek. Minimizing runoff will reduce the volume and intensity of the stormwater flows to help the creek maintain its cold to cool water temperature. Additionally, infiltration will remove the nutrients, pathogens, and metals from runoff before it enters into the creek.

7.6 Promote Public Awareness and Stewardship

Upper Poole Creek is a cold to cool water system upstream of Stittsville Main Street. There has been significant investment over the past years to maintain and enhance this reach of the creek. There has been substantial development and intensification within the catchment area of Upper Poole Creek. With the help of EnviroCentre, an outreach and engagement strategy was developed to educate local landowners on stormwater management as well as general stewardship awareness. Involving the public and other agencies will assist in promoting good stewardship practices and maintaining water quality.

8.0 Summary

There is concern that this section of the creek experiences poor water quality and constant changes in habitat availability for fish and other organisms. The monitoring data collected through the 2018 City Stream Watch program was analyzed and a catchment report has been written to assist in addressing these issues.

Seven recommendations were identified to improve water quality and habitat in the UPC:

- Complete several visits with the City Stream Watch program and use results to update targets for enhancement
- Enhancing riparian zones
- Stabilizing shorelines
- Removing blockages
- Implementing strategic erosion control
- Implementing Stormwater Management strategies

The successful ongoing implementation of these actions will help UPC:

- Maintain its cold to cool water temperature
- Support a diverse aquatic habitat
- Provide better flood and erosion control
- Improve fish habitat
- Improve water flow
- Provide effective monitoring, restoration, and rehabilitation of the creek
- Manage runoff into the creek

These combined actions will meet the goals outlined in the UPCSWS.

Appendix A - Site Descriptions

The priority areas were chosen based on initiatives that could be completed immediately to improve water quality and fish habitat and to maintain a cold to cool water creek. All proposed actions attempt to minimize any environmental impacts to the creek and adjacent lands.

Site 1

This site was not identified as having blockages in 2019.

Site 2

This site is City of Ottawa owned. It requires maintenance to stabilize the shorelines and minimize the erosion. Pedestrian trail along the south bank is too close to the water and is eroding the stream banks.



After

In 2019, 35 trees and shrubs were planted along the shoreline of the pedestrian trail between Main Street and Hesse Crescent. The shoreline planting will help to stabilize the shoreline and provide a buffer along the trail. Species planted include; bebb's willow, nannyberry and red osier dogwood.

This site is City of Ottawa owned. Maintenance was required to improve flow and reduce blockages along trail between Main Street and Hesse Crescent. Blockages were removed in September 2019; woody debris placed along the shoreline (to contribute to habitat).





Before

After

Site 3a

This site is City of Ottawa owned, not identified in the list of sites assessed previously. Maintenance was required to improve flow and reduce blockages along trail between Main Street and Johnny Leroux arena. Blockages were removed in September 2019; woody debris placed along the shoreline (to contribute to habitat).



Before



After

This site is a City of Ottawa owned (former Township of Goulbourn) property that is maintained by adjacent private landowners.



Issues: Fence retaining rubble is falling into the creek and there is a lack of shoreline vegetation. **Access:** 14 Beverly Street (or neighbouring house)

Plan: Contact landowner and discuss potential work that could enhance their shoreline. Landowner was contacted in 2019 in regards potential shoreline work. There was a positive response to complete work, although the property was up for sale at that time. It is recommended to return to the property in 2020 to contact new landowners if funding is available for removal of the fence and stabilization of the shoreline. **Action:** There is the opportunity for potential work to be completed for this property's shoreline. The type of work will be dependent upon the response of the landowner and funding. The work may be costly to remove the fence and stabilize shoreline.

Site 5a

This site is City of Ottawa owned. Maintenance was required to improve flow and reduce blockages along trail between Main Street and Johnathan Pack. Blockages were removed in September 2019; woody debris was placed along the shoreline (to contribute to habitat).





Before

After

This site is City of Ottawa owned. It requires maintenance to stabilize the shorelines and minimize the erosion.



Before



After

Issues: Pedestrian Trail is too close to the water, causing erosion.

Access: Trail (stretch from Main Street to Hesse Crescent)

Plan: Stabilize the banks with riprap or a bioengineering solution.

Action: There is approximately 10 m of eroding shoreline upstream of Main Street that needs to be stabilized with riprap by an external company. Part of site along this stretch of trail was planted with 31 trees and shrubs in 2019. Rip rap proposed in specific areas along pathway.

Site 5b

This site is City of Ottawa owned. It required maintenance to stabilize the shorelines caused by erosion in the spring of 2019. Received an emergency repair with rip rap erosion protection.



Before

After

Site 5c

These sites are City of Ottawa owned. Rip rap erosion protection may be an option to stabilize these areas.



Culvert outlet by the ball diamond.

Eroded area, path is close to the creek.

This site is City of Ottawa owned. Maintenance was required to improve flow and reduce blockages along the trail between Main Street and Johnathan Pack. Blockages were removed in September 2019; woody debris was placed along the shoreline (to contribute to habitat).



Before

After

This site is City of Ottawa owned. Maintenance was required to improve flow and remove beaver dam blockage between Main Street and Johnathan Pack. Blockages were removed in September 2019; woody debris was placed along the shoreline (to contribute to habitat).



Before

After

This site was specifically outlined in the UPCSWS. This site is a City of Ottawa owned property that is maintained by adjacent private landowners.





MVCA staff discussed shoreline planting with the landowner in 2019 and 13 trees and shrubs were planted at the site. At this time, the property was also impacted by the beaver dam in close proximity downstream. Species planted include nannyberry, ninebark and red maple. There were existing plants on the property providing a minimal buffer, including established trees providing overhead cover. The new plants should help to fill in the gaps of the buffer area and mowing activities to stop further away from the shoreline.

This site is City of Ottawa owned. Maintenance was required to improve flow and remove blockages by the pedestrian bridge a Stitt Street Park. Blockages were removed in September 2019; woody debris was placed along the shoreline (to contribute to habitat).







After

This site is City of Ottawa owned. This is where the creek has been diverted to create a man-made channel.



Issues: Lawn is mowed to the edge and the shoreline is eroding.

Access: 21 Stitt Street

Plan: Contact landowner and discuss potential work that could enhance their shoreline.

Action: There is the opportunity for potential work to be done for this property's shoreline. The type of work will be dependent upon the response of the landowner.

The landowner was contacted in 2019 through a letter delivered with information about Upper Poole Creek and shoreline planting opportunities. Further, during a volunteer event near Stitt Street, this landowner communicated with MVCA staff regarding shoreline planting and erosion control including the permit process. However, the landowner did not follow up further with MVCA in 2019. Initial communication with the landowner was positive, and there may be opportunity to return to the site.

This site is a City of Ottawa owned property that is maintained by private landowners.



After

MVCA staff discussed shoreline planting and erosion due to encroaching on the shoreline with the landowner in 2019. There was a positive response from the landowner, with an understanding of stabilizing the bank. Due to the proximity of the landowner's garden to the creek, there is limited area to make improvements along the bank. On the opposite shore 10 trees and shrubs were planted. Species planted include red osier dogwood, ninebark and red maple. There may be potential for further work on the residential side of the creek with a change in landowner or change in use of the property.

Site 11a

This site is a City of Ottawa owned property that is maintained by private landowners. It was not specifically identified in the UPC Restoration Plan, but outreach to landowner was established during visit to neighbouring property.



After

MVCA staff discussed shoreline planting and erosion due to encroaching on the shoreline with the landowner in 2019. The landowner was open to planting since trees that previously existing were damaged and had to come down. It was agreed to plant two red maples. There may be opportunity for further planting if there is interest from the landowner, they have MVCA's contact information and native shoreline species information.

This site is City of Ottawa owned. Maintenance was required to improve flow and remove blockages along the stretch between Stitt Street and West Ridge Drive. Blockages were removed in September 2019; woody debris was placed along the shoreline (to contribute to habitat).



Before

After

Appendix B- Storm Water Management Site at Johnny Leroux Arena Parking Lot

The images below show the possible location of the storm water management options.



View along north of roadway looking west.



View along north of roadway looking west (with the possible location of the SWM facility near the pathway)



View along north of roadway looking east.