



Harbour of the Future Pilot Project Completion Report

December 31, 2018

Introduction

- 1. Who was involved in doing the Pilot Project (GMF 15147), and what are their affiliations? Please include name, title and contact information. Those involved could include municipal staff, engineering and other consultants, a representative from a nongovernmental organization, and others.**

Advisory

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Brock Township

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Beaverton

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Design and Implementation

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Environmental Experts

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Andrea Gyman:	Lake Simcoe Region Conservation Authority (LSRCA)

The Pilot Project

- 2. Please describe the project objectives and the approach used to meet these objectives. Include details on what technology or solution was tested during the Pilot Project. (Indicate relevant sections/pages of the Final Pilot Project Report)**

The Harbour of the Future is an experimental stormwater system that works to infiltrate the stormwater from the typical rain event and spring run-off, while offering people new spaces to enjoy the area. The context in which this project was undertaken focuses on a partnership between people and nature; a relationship in which the needs of both are met simultaneously and in ways that further deepen the bond. This is a critical perspective as the health of Lake Simcoe and its waterways continue to deteriorate and yet environmental messaging is struggling to get beyond 'the converted'. Many shoreline communities are at crossroads right now in terms of action, and the tipping point could go either way.... continued degradation, or a renaissance for people and nature. This project was developed to help tip towards a renaissance. Specific objectives are as follows.

An Integrated Stormwater System

This innovative system is being developed to test new ways municipalities can utilize more natural and far less costly approaches to dealing with the growing impact of climate change in their urbanized areas than the expensive engineering alternatives (Final Report, Executive Summary, pp. 2-3).

Different solutions were chosen to work with the asphalt, slopes, and open fields found in many public spaces. These were positioned to catch the stormwater at different stages of flow as well as work together as backups and catchments for catchments (Final Report, Habitat Permanently Protected, pp. 6-7; Increased Infiltration, p. 20).

Impact on Everyday Moments

Social innovation was the technology used to gather the community perspectives and needs often undetected and unspoken. This was considered critical in order to tap into the hidden potential of both the harbour and the people of Brock Township. One of the needs identified was to create a site plan and design features that could provide for community gatherings and events, as well as for everyday moments.

These designs were created to provide everyday moments for individuals, small groups and families to utilize the spaces for their own enjoyment. This is why the designs incorporated various views, seating and plantings, and were set in certain geometric configurations. Not only would the water benefit, but also people, being inside a differently conceived space. There are significant opportunities in these designs for reflection and contemplation which are key aspects of mental health requirements (Final Report, Impacts on Everyday Moments, p. 16).

Holistic and Dynamic Measurements

The idea that stormwater can be 'managed' is a vanishing concept as storm intensity and frequency is increasing beyond our current understanding and abilities. Instead we try to find ways to optimize stormwater within a community, changing the idea of stormwater from a nuisance to resource. If you can make room for stormwater to flow then it is no longer a competition and both people and water can benefit (Final Report, Stormwater Optimization, pp. 17-19).

'You measure what you care about' and that was overall wellness for people and water. The FLOW Star System of measurement looks at Filtering, Loving/leveraging, and Optimizing water to achieve Wellness.

These new measures all fall under one umbrella measurement: Flow of Change. Flow provides a focus and a holistic form of measurement that incorporates interdisciplinary indicators. It is easily understood by experts and lay people alike, thereby becoming a 'sociable' form of measurement. We have measured Flow of Land, Flow of Water, Flow of People and Flow of Knowledge. Together these measures have given us a comprehensive understanding of the impact of the pilot project.

Measuring Change Readiness

Given this project was as much a human change initiative as an environmental one, it is important to make certain observations as to the readiness of the Township to engage in the types of changes that our communities need to make. The designs were created for this project with the intent of demonstrating fresh thinking and promote the feeling of bright new possibilities. There were benches that were designed to look different from regular benches; trenching was introduced using ancient patterning; the road work had a significant flare to it as did the boardwalk feature of Razzle Dazzle. Bright colour was a major feature of the original design as a form of wake up call. The colours chosen matched those of the playground so that there was a synergy. These were introduced as a strategic means of determining the extent to which the community was ready to handle change in demographics and not just aesthetics.

This is key information in moving forward so that the Township, as well as key community groups can continue to introduce impactful changes into the Township. There were a number of the community members involved

who truly embraced the potential of fundamental change. They were excited by the opportunity to jump into the imagination/creative pool. There were others who were okay putting their toes in, while others were struggling to grasp the relevancy of the creative approach to the Harbour design. Change readiness is a key factor when considering the extent of innovation required in our communities, especially when dealing with climate change. (Final Report, The Diversity of Perspectives Shared and Knowledge Exchanged, pp. 26-27)

3. Did the pilot project include a methodology or approach for verifying or testing the performance of the technology or solution? Please respond Yes or No.

Yes **X**

If you answered yes to Question #3, which methodology did you use in this pilot project for testing the performance of the technology or solution?

- Environmental Technology Verification Program
- Engineering Consultant
- Other (please specify)
 - a) As mentioned earlier we created a FLOW Star system to measure the holistic benefits of the project (Final Report, Flow Star System, pp.17-19).
 - b) We also used hydrological formula (CIA) to find volumes in liters and lab analysis of water samples to find the amount of Total Phosphorous (TP), Sodium (Na) and Total Suspended Solids (TSS) in mg/l (Final Report, Water Quality Improvement, p.21).
 - c) There was also GIS mapping used to get more accurate areas for catchments and GIS analysis to find the runoff coefficients (Final Report, Catchment Areas, p.7; Final Report, Increased Infiltration, p.20).

Pilot Project Results:

4. What are the Pilot Project's recommendations? (You may point to the relevant sections/pages of the Final Pilot Project Report if relevant.)

A series of recommendations have emerged from the assessment undertaken by applying the comprehensive measurement protocol. These range from 'quick wins' for improvements (More plants, regular cleaning of the eco-priora for continued functioning, more use of sound in the Children's Garden such as musical instruments, and creation of a community group that would care for and program the space building ownership (pp. 30-31) to the larger scale recommendations about how the Township can become more prepared for the rapidly changing economic, social, cultural and environmental landscapes. Below are highlights of the recommendations.

1. The integrated stormwater system that also provides spaces for people is a viable infrastructure to implement anywhere in the Township. It demonstrates how hills, roads and pathways can become key players in infiltrating and diverting stormwater while also providing a more modern and progressive aesthetic of an area, in a highly cost efficient way.
2. There is a need to focus on the actual readiness of the Township to deal with a different future that is on its way with change demographics and an economy in flux, just to name a few. We have learned that environmental stress is often an indicator of human stress and visa versa. While this was a project to test a new way of dealing with increasing stormwater and climate change, it also was a vehicle of testing the preparedness of the residents of the Township for a different future. What emerged was a clear opportunity for the Township to utilize the insights around resistance to change as key information as to the need to go back to the original goals of the project which was to showcase bold new possibilities for the future.

- There is a need to utilize the physical infrastructure that has been created to showcase new economic, social and cultural possibilities as per below:

Harbour of the Future: New branding and image for the harbour, creation of a welcoming place that promotes a walkable community, new business opportunities and 21st century citizen science using augmented reality, crowdsourcing and sensors to measure in a different way (p.31).

Communications: Positioning of the project to weave an interdependent system where people and water move and rest together, Publicise the project as a new way for stormwater management that includes people (p.32).

Future Implementation: Publish the Harbour of the Future design book so it can be duplicated on public and private properties; redesign benches to act as stormwater units that will act as berms and erosion control like the original design accomplished; enhance the roadway elements with paint and use the lessons learned to help them function better; Utilize the CB Shield that was missing from this project to catch the sediment that enters the stormwater system; support social infrastructure (pp. 32-33).

5. Is the Pilot Project *technically feasible* for full-scale implementation? Please comment on why or why not.

The project is technically feasible for full-scale implementation since each element has shown to work and was designed to be scaled up or down. The caution is in community involvement in the aesthetics and to ensure the elements work with the landscape. Each element was designed to work with a specific issue (i.e. steep hill, asphalt roadway etc.) so the element needs to suit this, using two or more elements together if possible to create a system.

6. What were the financial results of the Pilot Project and is the Pilot Project financially feasible for full-scale implementation? Please comment on why or why not

The project showed how a large scale stormwater system does not need to be expensive as long as it is not over-engineered and works with the landscape. The expense increases when you try to fit a square peg in a round hole with excessive excavation and landscaping. You do not need to tear up an entire roadway if the elements are placed in a strategic and systemic fashion.

7. Please complete the following table that was part of your pilot project application with the actual results from your pilot project. Please also provide the page numbers where the environmental results of the pilot project can be found in the final report.

Project parameter (energy, water, waste, other)		Units	Baseline performance before project	Anticipated performance after project completion
Primary	Add Primary Indicator			
	Stormwater Runoff Eliminated from 24-hour Rainfall Events (% by vol) ▾	%	65	90
Remove	Total Suspended Solids Eliminated from Stormwater Runoff (% by wt) ▾	%	10	65
Other	Add Other Indicator			
Remove	Reduction in road salt entering Lake Simcoe (kg/year)	%	10	65
Remove	Reduction in phosphorous entering Lake Simcoe (5 by weight)	%	10	65
Remove	Decrease in beach closures (% of closures)	%	43	20
Remove	Increased vegetative cover (# of plants)	#	0	1,500

Page # in the final report	Project parameter	Units	Baseline performance before project	Anticipated performance after project completion	Actual Results
Primary					
p. 20	Stormwater Runoff Eliminated from 24-hour Rainfall Events	% by volume	65	90	90
p. 21	Total Suspended Solids Eliminated from Stormwater Runoff	% by weight	10	65	95
Other					
p. 21	Reduction in road salt entering Lake Simcoe	% by weight	10	65	95
p. 21	Reduction in phosphorous entering Lake Simcoe	% by weight	10	65	95
p. 22	Decrease in Beach Closures	% of closures	43	20	n/a
p. 6	Increased Vegetative Cover	# of plants	0	1,500	773

8. Please describe all of the environmental results including any potential negative results or trade-offs that need to be considered.

Stormwater Runoff Eliminated from 24-hour Rainfall Events

A model of the land use patterns in the harbour within the project areas showed a decrease in the runoff coefficient from 0.45 to 0.1. That is, the baseline before the project was 55 percent infiltration, rather than 65, and the performance after the finished project was 90 percent infiltration as was expected due to the success in strategically placing infiltration elements to create a system.

Total Suspended Solids, Road Salt and Phosphorous Eliminated from Stormwater Runoff

Previously there was little stopping the pollutants from entering the harbour waters. A 95th percentile rain event can produce a combined 6 million liters of stormwater runoff annually, carrying 28 hundred kgs of total suspended solids, 68 kgs of road salt and 7 kgs of total phosphorous to the lake. The baseline of 10% suggests that the grasses and trees trap some of the pollutants yet most entered the lake unimpeded. After the projects were completed 95% of annual rain events are captured along with the above kgs of pollutants, which represent 95% of the weight annually. The difficulty with such a large amount of captured sediment is the maintenance of cleaning out the accumulation in the units. If this is not done regularly the units will cease to work and become impermeable, allowing the sediment to enter the Lake.

Decrease in Beach Closures

After examination of the issues at the beachfront it was discovered that two major issues exist that are outside the reach of this project. Though we believe that by decreasing the amount of stormwater runoff at the beach area will decrease the closures, there are too many confounding factors to use this as a reliable indicator.

Increased Vegetative Cover

We found in this project that putting in plantings is more than a matter of buying plants. There are a great many maintenance issues and cultural stigmas that accompany planting gardens. By the end of Phase 1 the

community did not recognize many of the plants so considered them weeds. There was also the issue of maintaining the gardens and whether that was a task for municipal staff or community groups. The result was far less garden boxes in the West People garden and no plantings in the Kid’s Garden creating a deficit of over 500 plants from our original goal.

- Based on the experience gained in the pilot, please update the anticipated social and economic outcomes (community benefits) of full scale implementation of the pilot project. Column B of the following tables shows the anticipated economic and social benefits you noted in your application.

Figure 1 – Economic benefits

A	B	C
<p>Economic benefit</p>	<p>As described in your GMF application</p>	<p>Anticipated economic benefits of the pilot project at full scale based on pilot experience. If the result is different than what was expected in the application form, please indicate why</p>
<p>Increased return on investment</p>	<p>This pilot will prototype new approaches that can be used as a demonstration site to draw others who wish to replicate these innovations. Allowing for additional seating near the water and an accessible connection to the waterfront will increase the number of visitors to the beach and waterfront as well as to the local businesses</p>	<p>The Harbour area is currently used by boaters, ice fishermen, people using the Lions playground and splash pad as well as visitors to the restaurant Barneys that is open until 3pm only. The playground and splash pad have certainly increased the attraction to the area, but the beach they are beside is often closed. The Harbour itself is dominated by a large parking lot, and before this initiative the entire hill was rarely used.</p> <p><i>The Harbour of the Future</i> project was initiated to inspire people to return to these properties, not out of a sense of obligation, but because they truly value and love these spaces. These spaces were designed to help people get into flow, or “in the zone” which is a core element of happiness. Changes in the relationship to the property was intended to increase the flow of people and the flow in people and hopes to be reflected in how the people connect to it, use it, and take responsibility for it, which speaks to the overall and holistic health.</p> <p>The waterfront is a key asset for the Township, and therefore these changes will provide additional infrastructure to the area to provide comfort and seating to enjoy the harbour.</p> <p>The four project designs: people gardens, razzle dazzle boardwalk feature, road and pathway innovations can be replicated anywhere in the Township where</p>

		improvements are needed to simultaneously provide infrastructure for both people enhancements and stormwater.
Deferred or avoided capital expenditures	Mitigating future impacts and degradation to the land and water which means repair/maintenance costs can be avoided is a goal.	The design has reduced risk of property damage and this reduces the need for repair/maintenance that could be capital in nature.
Decrease in facility operating or maintenance costs	Harbourfront operational costs will pay off more as the waterfront becomes more popular for visitors and business and maintenance costs related to shoreline erosion, flooding and water cleanup will be reduced with the implementation of the Stormwater enhancements.	<p>The cutting of grass has been reduced due to the design features yet there is now weeding of the gardens. Even though this is not a decrease in maintenance requirements, poorly functioning lawns have now been replaced with increased biodiversity, colour and water filtration given by plants.</p> <p>There is a need to vacuum out the joints of the roadwork to maintain their function, which wasn't there before. Yet this cost is far lower than dredging the harbour. The real decrease in costs lies in the decreasing of large amounts of sediment that previously washed into the harbour along with the road salt and phosphorous.</p>
Extended lifespan for facility	The introduction of the pilot will help increase the flow of land, people and water at the Harbour and in ways that encourage repurposing of the site rather than occasional and superficial use.	<p>The infrastructure created through the pilot provides the foundation for a wide range of new activities and experiences on land that was otherwise 'idling'. The challenge will be enticing community groups to create events to fully utilize the space. At the same time, these changes were made to invite community members to use these areas for everyday moments. Creating new memories in these spaces either through events or individual use extends the lifespan of the Harbourfront.</p> <p>It will be important to monitor the actual use over the periods of April to October 2019 to get a true sense of both active and passive use.</p>
Increased municipal revenue streams (e.g. property tax, user fees, etc.)	Recreation event fees, rental fees for 'pop up' businesses, demand and use of the space, and job creation such as Red Cross and design courses at the waterfront, etc. can help generate municipal revenue.	<p>The new infrastructure is such that it can be used for a range of activities, which could increase municipal revenue streams.</p> <p>What is critical about these activities is that they help to unfreeze tired and old perspectives and initiate a new way of thinking and new possibilities. New types of activities were tested at a community event in June of 2017 as an assessment of Phase 1 and</p>

		<p>demonstrated there is significant potential to explore for new community experiences in this beautiful location. The activities undertaken at this event generated some great experiences and ideas that have been documented; the key action here however is the formation of a community group that could not only take on the programming but also maintenance such as weeding of the flower beds. The Township should invest in facilitating the formation of this group and could support a proposal to funding bodies such as TD Friends of the Environment Fund.</p>
<p>Lower taxes</p>	<p>If municipal staff are able to focus their efforts less on the maintenance and repair of the Harbour and more on other areas in need perhaps citizens will be more satisfied with what their taxes are put toward.</p>	<p>There continues to be a heavy reliance on the municipal government to provide maintenance and programming for municipal sites. Not only is this not feasible in the longer term due to increasing financial and resource constraints, but there is a psychology to spaces that has to be taken into consideration. This involves community members feeling a strong sense of commitment to their Town and wanting to showcase it through these new spaces. Without this shift in ownership, these spaces will not meet their potential in terms of the original goals – to demonstrate fresh thinking and new possibilities – a significant and pressing needs for Towns such as those in the Township of Brock</p>
<p>Stimulus for local economy (use of local business, capacity for local business development)</p>	<p>This benefit is likely one of the most impactful yet will likely show up in increased capacity and untapped potential- often difficult to measure at this stage. Potential quantitative gains could include: local businesses will be used more and the capacity for local business development will increase. For example, there are already a number of festivals that occur at the waterfront and this project would increase the attendance and scope of these events. Additionally, hiring local contractors to implement these projects elsewhere in the Township not only helps local business succeed but opens the doors for them to network and collaborate. These projects</p>	<p>For the <i>Harbour of the Future</i> to live up to its full potential, it cannot be 'business as usual'. This was to be an experiential and experimental initiative to try new approaches. Water is experiencing the benefits of having new integrated system for naturalized cleansing and infiltration. It will be critical that the people side be allowed to flourish with experiences that one would never expect at a Harbourfront, in addition to the current events.</p> <p>It should also be noted that a local contractor was hired to install the pilot designs and has developed a significant expertise in implementing these innovative designs that could be easily replicated elsewhere.</p> <p>One of the possibilities identified at the Future Forum was a waterfront Farmers Market. This could be a highly lucrative and innovative initiative if introduced with a provocative flare, and showcase Cannington (artistry),</p>

	<p>could also stimulate job creation and diversification (i.e. recreation and culture coordinators, independent instructors for such things as yoga or tai chi, rental/instruction for land and water activities, tourism, food and beverage sales, educational programming/demonstration centre workshops and tours, etc.). The shared economy is also one which would be explored through different uses of the harbour.</p>	<p>Cannington (local food) and Beaverton (harbour). This would also be an excellent way of demonstrating new ways of utilizing one of the most beautiful waterfront areas that is currently a parking lot. The addition of the people gardens and Razzle Dazzle at the waterfront provides infrastructure that supports this concept.</p> <p>There is a key factor for the stimulus of the local economy today and that is to be open to new forms of business, including new types of enterprises that are emerging through social entrepreneurs and the shared economy. In order to embrace these new forms of business, there needs to be a readiness for change. The Final Report provides an outline of 4 criteria used to measure readiness for change (Pages 26-27) with the key factor being the understanding of the actual case for change. It is not clear if those who didn't participate in the initial engagement to develop this project really comprehend how many forces are at play changing our everyday lives. This is a critical component to get across, and the role this pilot project was intended to play in getting the community prepared for these changes.</p>
<p>Increased employment options or job retention</p>	<p>In addition to opportunities outlines above, employment as we know it is vastly changing and these pilot projects and the improvements to the Harbour could stimulate new forms of work, rather than merely looking at traditional employment and business development as the only option.</p> <p>Tourism is a great economic driver in Brock and tourism from the water would be an important part of the tourist economy. There could also be increased opportunities for youth entrepreneurialism; stewards of seeding a new enterprises.</p>	<p>The idea of harbour revitalization was to increase the health of the harbour environmentally, economically and socially. This is a 'jewel' in the crown of the Township of Brock and holds significant responsibility and potential for the wellbeing of the entire community. The Harbour needs to attract a spectrum of visitors, beyond its current population in order to have longer term survival. Tourism is one of the key economic drivers for the Township and it would be highly beneficial to look to the future trending, in addition to the past successes. Here are key considerations for tourism in 2018:</p> <ul style="list-style-type: none"> • Experiences is at the heart of all tourism: People are still searching for experiences that are unique and authentic. They want their investment of time and money to provide memories that stand out, and moments of awesome that are surprising. • Generational differences are blurring: Like in many industries, there is a shift in what generations are looking for. The 30s -

		<p>50s crowd is more interested in a relaxing getaway while the 65+ are interested in adventure and opportunities to socialise.</p> <ul style="list-style-type: none"> • There are overlooked markets that are growing rapidly under the radar: Solo female travellers and the LGBTQ community are growing segments and their biggest concern when travelling is safety. From a disapproving look to getting robbed to assault, these travellers are highly cautious when picking a travel destination and need to feel respected. • Sustainable tourism is not only about the environment – it includes wellness – generating future employment for local people as well as making low impact on the environment. <p>When one reflects on the experiences of installing Phase 1 of the <i>Harbour of the Future</i>, it will be essential to create an environment at the Harbour that is welcoming and inviting to people who are different from the current population.</p> <p>The testing of various pop-up experiences would be a good way to start. This can be resourced by various community groups who are given a set of new criteria to guide the development of their experiences. These should be based on the new story emerging for the Harbour</p> <p>In addition, these experiences need to reflect the ‘Best Life’ that was the framework used to develop the <i>Harbour of the Future</i> initiative:</p> <ol style="list-style-type: none"> 1. Curious Economy: ‘<i>Entrepreneurship that grows through all seasons</i>’ 2. Wondrous Play: ‘<i>Developing “Brock Townships Waterfront” through activities such as theatre, sports, outdoor movies, geocaching – all at the Harbourfront.</i>’ 3. Fascinated Learning: ‘<i>Sharing knowledge, exploration, discovery and wonder</i>’ 4. Inspired Health: ‘<i>We all want the same things, but in different ways</i>’ 5. Vibrant Community: ‘<i>Uniting Cannington, Sunderland and Beaverton</i>’ <p>These five objectives could easily be applied to all areas of Brock Township.</p>
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<p>Increased transit ridership</p>	<p>People will migrate back toward the waterfront which will lead to an increase in trail systems use (biking, walking, etc). While parking will be reduced over time, public access to the waterfront is an area to be explored given the new uses.</p>	<p>To revitalize the Harbour with these types of activities, the issue of parking will need to have some creative thinking applied. There was a huge reaction to removing one parking space that wasn't even an official one by the restaurant, and there has been a recent article written about 'the perfect storm' over parking that is coming to the Harbour with increased use and activities. Parking is however available close by, and a community transit service (see Routes Connecting Communities https://www.routesc.org as an example) could provide transit on days when this precious real estate is being used to serve the community in ways that support their wellbeing, not vehicles. The Town of Innisfil is experimenting with community Uber, which is also a potential solution to be explored. Providing residents and visitors with other options will be an important part of any future parking strategy.</p> <p>This is actually a critical activity as the changes to the hill were made, in part, to be able to view not only the Harbour but showcases that could take place on the surface that is now owned by vehicles. This sharing of the space will be an essential signal that things are changing in Brock Township, and that people and nature deserve the space previously dominated by vehicles.</p> <p>The physical linkage to the trail system is also a vital way to get people coming to the Harbourfront without their vehicles.</p>
<p>Attraction of new businesses</p>	<p>Revitalized outdoor spaces that showcase innovation as well as increased community capacity are a strong draw to businesses looking for new locations.</p>	<p>The experience of this project indicates that the Township of Brock has to address the dynamic of readiness to change in order to attract new businesses to this area.</p> <p>The municipality was caught in a significant dilemma when certain individuals made their dislike of certain design elements known, which in many ways silenced those who actually liked the design. Compromises were made, but this scenario sends up a red flag. The colour and design of the benches was merely a red herring. The core issue was resistance to change that is an area that municipalities will need to pay increasing attention to in coming years in order to get out in front of significant economic, social and</p>

		<p>environmental forces. Change readiness is one tool that is highly effective to ascertain the strengths and vulnerabilities of a community in embracing the necessary shifts communities will have to make.</p> <p>This project can contribute towards this goal by demonstrating that the interconnected sites can host new possibilities such as a waterfront Farmers' Market as well as other programming that can demonstrate new uses of these areas as outlined in the Final Report.</p>
Other (please specify)		

10. Please complete the table below by describing in Column C the anticipated social benefits of the pilot project at full scale implementation. Please complete for all that apply in the list below. If there are additional social benefits, please describe these in the last row of the table.

Figure 2- Social benefits

A	B	C
Social benefits	As described in your GMF application	<p>Anticipated social benefits of the pilot project at full scale implementation based on pilot experience</p> <p>If the result is different than what was expected in the application form, please indicate why</p>
Improvements to public health	<p>There is a proven link between time outdoors and improved health and well-being; physically, spiritually and mentally. The innovations of Harbour project create more opportunities for recreational activities which promotes health for all ages. For a municipality to invest in these innovations can be seen as a healthcare investment in preventing illness and promoting health.</p>	<p>The pilot was designed to provide infrastructure for both events and everyday moments for individuals, small groups and families to utilize the spaces for their own enjoyment. This is why the designs incorporated various views, seating and plantings, and were set in certain geometric configurations. Not only would the water benefit, but also people, being inside a differently conceived space.</p> <p>There was an increase in vegetative cover that has been known to improve overall physical and mental health, and increase healing time.</p> <p>Both the new water and brain sciences are showing us that with new lenses, we see how critical it is to provide environments for renewal that are strategic and practical. The new brain sciences are influencing our understanding of human behaviour as never before, from neuropsychiatry and</p>

		<p>neuroeconomics to neurotheology and neuroaesthetics. Water sciences speak to the knowledge water holds and how it needs to lose its memory of being polluted in order to reconstruct itself to its highest molecular structure that is life restoring.</p> <p>Brains and water need the same things – movement, colour and sound. These are vital ingredients for mental health, and for water quality. This was the thinking behind the original designs, which is why they looked at felt so different.</p> <p>Going forward, the Township has an opportunity to consider how it addresses these needs. Given the growing issues of intergenerational loneliness, there needs to be safe places for individuals to come and shift their minds and brainwaves in strategically created spaces. The idea of interactive water and sand in the Kids Garden isn't just for the kids – it is also for adults to have a multisensory experience. The numbers of planters that were recommended were there for the colour, and the musical instruments for sound. These are key for healthy minds.</p> <p>There is growing research and science that demonstrates how vital these multisensory activities are for both people and nature, to reconnect people to themselves and to nature in ways that are loving and safe. Various interactive art pieces could be developed by the community that play with water and sound. New décor that shows up to stage one of the people gardens in ways that give it a whole new look and environment for a week, is another way this could be done (think staging the areas with a yoga theme one week, cocktail party the next, adventure hunt the next etc). These are also entrepreneurial and social enterprise opportunities for the community members, especially the youth. Funding would certainly be available for seed money.</p>
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<p>Improvements to public safety</p>	<p>Creating welcoming, family friendly public spaces like the Harbour project aims to fosters a standard of social conduct that is helpful and respectful. The Accessible Pathways design improves safety for people with mobility issues Increased use of a public space can lead to increased surveillance. The infiltration components of the design will improve water quality of the swimming a rea which will improve swimming safety</p>	<p>The People Gardens were designed to invite friendly encounters and the Accessible Pathways offer considerable improvement to the safety of all ages and abilities to visit the Harbourfront.</p> <p>Introducing changes rattled a number of community members who didn't want any change at all, and chose to demonstrate this in abusive ways. The public safety in the introduction of new concepts is something municipalities will need to consider in the future.</p> <p>Indirectly we help the health of the beach area by reducing the stormwater runoff from the many hills. This is specifically associated with the Kid's Garden area.</p>
<p>Improvements to community quality of life</p>	<p>The redesign of public spaces through the pilot concepts results in them becoming central community hubs for gatherings, recreational activities on land and water and for serenity and refuge from the busyness of everyday life.</p>	<p>The physical infrastructure is in place to support improvements to community quality of life. The challenge is the cultural dynamics that may hinder the community. The opportunity is to provide programming that provides unique experiences that create new memories.</p>
<p>Increased opportunities for community engagement</p>	<p>The pilot project aims to create spaces that are inviting and stimulating areas to host community events, festivals, workshops, meetings, gatherings. These spaces can evolve to become a set of thriving and evolving systems that work with and for people. For example, increasing access and use of trail systems means increasing community linkages. With this knowledge, the public will be more inclined to keep these systems healthy.</p>	<p>There were 4 distinct areas created for specifically for community engagement: Upper East and Lower West People Gardens, the Kids Garden and Razzle Dazzle. As stated in other sections the use of these spaces will be dependent on the programming that can help people connect to these new spaces and identify a value they can play in their lives.</p> <p>It is important to note that there is a science to public engagement. We have confirmed through the new brain sciences that human change isn't as simple as giving people compelling facts and a 'to do' list. The human behaviours that are at the root of the issues are informed by well engraved belief systems. Expert knowledge in the sciences of human change is required to develop the type of engagement required to mobilize a growing initiative that could become a key focus of the <i>Harbour of the Future</i>, and something that the Township of Brock could become well known for.</p>

<p>Increased public education or awareness</p>	<p>The Harbour can become a place where people come to learn and explore new realities for themselves and water, and to understand the strong interconnectivity that exists between themselves and water. The Harbour will offer opportunities to discover new knowledge of personal and community based strengths characteristic of this new, emerging economy that is redefining currency, measurement and personal value. The Harbour can become a touchstone for surrounding communities to redesign their public spaces.</p>	<p>Going forward, there is a need to bring people down to the Harbour to themselves create new knowledge. One of the most fascinating and engaging ways to attract people of all ages and cultures down to the Harbour is through a revitalized form of citizen science. Web 2.0 has freed science in all its forms and disciplines that was once institutionalized and is opening the doors for people of all sorts to pursue science as never before. Citizen scientists have evolved from those enthusiasts logging newts in muddy notebooks to savvy and passionate adventurers of data and advocates of new approaches to research.</p> <p>People are also able to contribute to causes they are most passionate about, while providing desperately needed multidisciplinary perspectives. This kind of public involvement underlines how much science can benefit from recognizing the value of inventive and interested enthusiasts. These are people doing science for themselves and on their own terms – in a local community lab, garage, or in their own backyard. Below is an outline as to how a new form of public engagement through 21st century citizen science could be introduced at the Harbour.</p> <p>Possible Goals of a Harbour Citizen Science Initiative</p> <ul style="list-style-type: none"> ● Increase awareness and knowledge about the issues facing Lake Simcoe and its waterways and the roles small towns can have to directly impact their health ● Utilize the unique relationship between culture and science as a way to mobilize multigenerational citizens beyond ‘the usual suspects’ to demonstrate not only how to deal with the issues facing Lake Simcoe, but also the root causes, many of which are lifestyle related. ● Create a pilot program that utilize the infrastructure of the Harbour of the Future projects, as the vehicle of piloting citizen science programs. ● Test ways of integrating cutting edge tools, such as augmented reality, new technology, sensors, crowd sourcing, alternative learning strategies, social
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Community revitalization	<p>These spaces situated in waterfront communities encourage a migration away from the city space and toward the waterfront. The points below describe how this can be achieved.</p> <p>Non-motorized modes of transportation are accessible and encouraged, reducing CO2 emissions and increasing physical activity</p> <p>An array of recreational activities and spaces for connection and rejuvenation are offered which will create new cross-Township patterns and traditions</p> <p>These spaces are inviting to youth and also revitalize the culture and heritage that provides opportunities for ageing populations to share knowledge and experiences</p>	<p>The pilot project offers the infrastructure for this form of community revitalization. The motor vehicle still dominates however and as suggested above, other forms of transit need to be overtly encouraged by the municipality. This could include community transit such as Routes, or as the case of Innisfil, a community form of Uber.</p> <p>The Harbour offers a unique environment for community events. For future implementation in other locations, the infrastructure would benefit from bold colour and a return to the original design, with modifications to the bench design to enhance their shape.</p>
New housing and infrastructure		
New or enhanced public space or public facilities	<p>We're aimed at designing public spaces that inspire new purposes and uses that bring people back to nature, back to the waterways and back to a sense of community.</p>	<p>The infrastructure encourages new uses of the public spaces that were underutilized. Recommendations have been made on Page 31 of the Final Report.</p>
Improved access to recreation and physical activities	<p>The Township currently promotes recreation programs within the community including the use of indoor and outdoor facilities throughout Brock. The Harbour of the Future Project will only add to this strength and inspire that surrounding areas follow.</p>	<p>The infrastructure can be used for a range of outdoor activities. A stage, which also infiltrates stormwater, was introduced into the Lower (West) People Garden that can be used for music, intimate performances, and outdoor yoga.</p> <p>The infrastructure that links the playground and splashpad with the People Gardens and Harbourfront as well as the trail system, offers an interconnected system of places for new community experiences that entices people outdoors.</p>

		In the future this infrastructure can be adapted and installed to meet the needs of any community and neighbourhood. This could also be modified for the new housing developments being built to offer new gathering spaces for these new communities, providing new streetscapes as well as creating a new form of community stormwater system.
Reduced urban sprawl		
Increased civic pride, ownership and participation	Honouring and integrating the cultural pride and heritage of a community into the design of a public space can create opportunities for older generations to contribute their knowledge and experiences. The designing of these spaces is heavily informed by citizen and stakeholder feedback on what they want and need from their communities and how they envision a bright future.	This pilot project was based on community input and the need for the Township of Brock to signal a new way of thinking and innovation to allow the Township to 'blow its own horn' by demonstrating new economic and social possibilities for small town Ontario. It will take time for the new infrastructure to be adopted by the community. The creation of a specific <i>Harbour of the Future</i> community group has been recommended to take on a guardianship of the new spaces as well as programming.
Improved quality and efficiency of service provision to residents	We're aiming to create spaces that stimulate improved and interconnected programming that will ensure quality and efficiency of service provision. Water quality and the connection of the ratepayers with nature and the water is the overall service that will be improved in Brock Township with these pilots and further implementation. Since the harbour is owned by the federal government and the beach and park areas are owned by the municipality a great amount of cooperation is required in the management of the harbour.	Recommendations have been made for interconnected programming on (Final Report Page 10 and 31) Improved quality to the harbour comes in the form of reduced sodium, which is a severe problem at the mouth of Beaver River, and the large reduction in sediment from runoff. The sediment in this area carries gas, metals, rubber, phosphorous and other pollutants capable of harming the harbour waters. This is not to mention the build up of sedimentation that causes lowering water levels that can threaten to shut down the harbour. This pilot has proven a success in the reduction of sediment entering the harbour.
Reduced opportunities for crime	Offering individuals, especially youth places that support a sense of belonging and pride of place would move them to take care of their community spaces rather than vandalize them.	As per the growing learning of the psychology of spaces, people need to have new experiences before they feel a sense of belonging and pride. This must be addressed with programming. There is a concern with respect to the youth,

		and the challenge of engaging them in this pilot. We recommend that a follow-up be undertaken to determine the overt and hidden undercurrents that are impacting youth in Brock Township and detracting them from exploring new options and possibilities.
Other (please specify)		

Lead Applicant’s Next Steps

11. What next steps does your municipality plan to take based on the findings and recommendations of the Pilot Project?

The Township is looking for additional ways to make the features installed as part of this pilot project more aesthetically pleasing to residents and visitors while keeping the functionality intact. Some additional work on the parking area features will also be considered to improve effectiveness.

Lessons Learned

In answering the questions in this section, please consider all aspects of the Pilot Project —from the initial planning through each of the essential task until the Final Report of the Pilot Project was prepared.

12. What would you recommend to other municipalities interested in doing a similar Pilot Project? What would you do differently if you were to do this again?

This pilot project has resulted in a strong financial and environmental case to implement this interconnected and integrated stormwater system using hills, pathways and roads. We were able to make adjustments along the way that met the stormwater requirements. It was also important that the contractor had worked on other ReWilding projects so was knowledgeable about our methodology and was able to adjust and modify. We fully recommend that other municipalities look to design and install this type of new system. Our recommendations on what we would do differently focus on the human dynamic rather than the environmental.

The Case for Change

Small towns are facing an uncertain future unless they truly help their citizens and businesses ‘get ready’ for changes that are becoming increasingly visible. There are significant changes underway and these communities need to understand the case for change that is already impacting them, but they have difficulty seeing because of old lenses. Green infrastructure projects need to be approached as key vehicles to help express the case for change and positioned as a solution for how to deal with these changes, not merely from the environmental perspective. This requires an embedded human change strategy be developed as an integrated component of the entire project. The community engagement strategy that generated the *Harbour of the Future Project*, and the Measurement Protocol had key elements of this under the Flow of People indicators, however this wasn’t enough. There is a different type of psychology at play with spaces which suggests that more time and resources need to be allocated for ongoing research and different types of engagement to be conducted throughout the implementation process.

Arts and Culture

There need to be more resources allocated to the cultural and artistic tools to help the community shift their

perspectives. This has been well documented in a recent publication (February 2018) from Artplace America entitled: *Farther, Faster, Together: How Arts and Culture Can Accelerate Environmental Progress*. This is the base document for exciting new work being conducted by the US Water Alliance. Early on in this publication there is a quote by Andrew Hoffman, Director of the Institute for Global Sustainable Enterprise at the University of Michigan that says: *“While technological and economic activity may be the direct cause of our environmental problems, our individual beliefs, culture norms, and societal institutions guide that activity. It follows that we cannot recognize the environmental problems created by our way of life, nor can we develop solutions to address them, without first facing and changing the beliefs and values that have led to them.”*

The document then goes on to demonstrate how arts and culture can accelerate environmental progress by tackling these beliefs and values. *The Harbour of the Future* certainly tried to tackle the beliefs and values from the outset, but more resources need to be allocated to this important component – for example for ongoing graphic design work, as well as pop up cultural events during the construction that help people unfreeze their current belief systems and perspectives and begin to feel the possibilities of the changes these designs represent.

Ownership of the Spaces

Another key factor is the ownership of the spaces. Our Final Report references the need for a community group to be established who will become the ‘Guardians’ of the Harbourfront to nurture and cultivate the new spaces to bring them to life. This is critical in order to bring together representatives from the various players at the Harbour such as the Lions and Beaverton’s Special Events in a collaborative way, as well as add some other perspectives. The success of this pilot will ultimately come down to the use of these spaces. As mentioned throughout this report, this requires fresh approaches to programming as well as promotion. Municipalities have a great deal on their plates, and therefore these community groups have become key players in making things happen in our communities. This project benefitted from very dedicated volunteers, without whom this project would not have been possible, but given the importance of the Harbourfront in the life of the Township, this group needs to be formalized. This is one action that likely should have been taken two years ago, so that this community group would have formalized and matured over the course of the pilot.

Environmental

Maintenance is critical so operations need to be in the discussions early. Understand that to capture great amounts of sediment in roadway units means there is a need to keep the joints vacuumed out so performance is not hindered. As well, plantings need to be planted at least 10 per square meter to help them outcompete the weeds, which also includes regular mulch and weeding for the first three years.

Going forward, there also needs to be more options available for physical materials that have an aesthetic sense to them, while also carrying out an environmental function, at an affordable price. Colour is missing in many of the products, and texture is also an important component of the physicality of the materials. In a word, there needs to be more innovation and more choice when it comes to affordable materials. The project experimented with Core Glow, which was well received as it added a nighttime feature, but there needs to be much more of these types of fun and enticing options. Municipalities are key clients of these suppliers and should be encouraged to put pressure on these companies to move the bar when it comes to the provision of new materials for an exciting new way to design outdoor spaces.

13. What barriers/challenges (if any) did you encounter in doing this Pilot Project? How did you overcome them?

Resistance to Change

All change initiatives have resistance; it is actually a very natural part of the change process. In this case, it is a

dynamic in which a few people can derail an entire project. Even though extensive consultation was conducted at the outset of the project, and updates were provided as to the overall site plan and design features, certain individuals chose to be obstructive. It didn't matter how many conversations were conducted, any change to the Harbourfront was going to be resisted.

In the end, modifications were made to the designs of the People Gardens in which bright paint was replaced with brown, regular benches were used in 2 of the 3 Gardens, and the prime real estate beside the Harbour has remained as a parking lot. At the same time, more pathways were added and infiltration was increased at the waterfront.

This type of scenario is certainly not uncommon in our cities and towns. The challenge is how to deal with this resistance in a way that doesn't impact the integrity of the project. The stormwater components of the project were certainly successful, and achieved what was expected. We feel that this is only half of the pilot, and hope that these spaces do in fact offer people new places to enjoy the Harbourfront and over time open their minds to new economic and cultural possibilities for the Township.

Generating Momentum

One of the constant challenges of phased projects is keeping up the momentum. It was critical to have an initial Phase to test certain design features, as this resulted in modifications being made in Phase 2. A community event was held in June of 2017 to showcase Phase 1. The timing however resulted in Phase 2 not being fully implemented until this spring/summer, therefore having a gap of almost a year between Phase 1 and 2 being completed. This makes it very difficult to generate a lot of excitement about this pilot. It will be important to have some kind of celebration to acknowledge the completion of the pilot, with an opportunity to share the outcomes of the assessment and the benefits this pilot offers now and into the future.

Engagement of Youth

One of the more troubling challenges we faced was in respect to the engagement of youth. Three different programs were designed and promoted in partnership with the local high school and Brock Youth Centre, and each one had to be cancelled due to lack of participation. We undertook research with the youth to identify what they wanted to change in their lives and geared the design to address these specific needs.

Various presentations were made in the high school, input was received from youth members to help in the design and promotion. We created a physical workshop, as well as an on-line version; and yet while various young people indicated they were interested, they cancelled, often at the last minute. While we understand that may have pressures of work and school, we understood great efforts to accommodate these. This tells us there is a deeper issue here that needs to be addressed. It also speaks to the readiness for change identified in our Final Report Pages 26-27.

Changing Role of Municipalities But Without Resources

This pilot project touched on the work to be done by small towns to prepare their communities for change, be it climate/environmental, economic, cultural, or social. Our municipalities are not only responsible for the physical infrastructure but also the social infrastructure. The latter is highly complex, and requires certain types of expertise and definitely resources.

The paradox is that our small towns are actually fertile fields with many talents, experiences, and expertise sitting in many cases untapped. This pilot project identified this wealth of resources at the outset through the 'Show Your Wow' Campaign, and the boldness of the original design was inspired by this energy. When it came to implementation however, a shift happened, which again isn't uncommon, but the Township needed more resources to help 'cross the chasm' from the concept to the implementation phase to deal with human dynamics.

One of the key skills that communities need today is how to respond to the rapidly evolving environments and issues that reflect where change is required. This often requires the exploration of a different context, a requirement of coming up with new possibilities that haven't been tried before. Inherent in this is the comfort of taking risks. The good news is that there is a myriad of change mechanisms available today. Changing the contextual focus, exploring the triggers that begin the process of locating and unfreezing beliefs that have outlived their purpose, and then opening the door to new ones that help generate fresh models are a start. Municipalities need to be resourced to help support this shift, as well as community groups who can work as their partners.

Knowledge Sharing

14. Is there a website where more information about the Pilot Project can be found? If so, please provide the url.

This can be found on the Township of Brock's website under Harbour of the future
<https://townshipofbrock.ca/tourism/waterfront/harbour-of-the-future>.

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