



# **Port Lands Flood Protection Program Watershed Planning Business Case Report**

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**Toronto Region Conservation Authority, Dept.  
Victor Copetti, Anton Scheffer, Camelia Rusmir-Woods, Melanie Mosher  
CODG125, Group C  
5 Shoreham Drive  
Toronto ON M3N 1S4  
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## 1.0 Executive Summary

Waterfront Toronto and The City of Toronto are taking on a massive redevelopment project just east of the downtown core, known as the Port Lands Flood Protection Program. This project will include the creation of new parks, roads and bridges, as well as the naturalization of the mouth of the Don River to allow for additional development in the area. A large portion of this project involves the review of environmental features such as flood plains, waterways, and protected lands, all to ensure that development in the area minimizes its impact on the environment and its water systems. This is known as “Low-Impact Development”.

As a society, we are moving towards valuing the natural features in urban areas for enjoyment, esthetics and well being. Citizens are become more and more engaged and interested in learning about being environmentally friendly. They are interested in participating in decision making for issues that directly impact their lives. Similarly, in this project it is imperative that the public is knowledgeable about the issues, the intentions and decisions regarding the development in their backyards. One of the important step in the local and provincial government processes in implementing legislation is to consult and engage concerned stakeholders and the public. In this project, the GIS mapping application will cover most of the requirements to support a sound process of low impact development by increasing awareness, informing the public and asking for input in the process.

### **Goals:**

1. Support the development 80 acres of land in the form of parks, roads and bridges, while protecting the natural features in the Port Lands.
2. Support the development of 760 acres with buildings and urban structures by the private sector.

## 2.0 Mission Statement

Toronto and Region Conservation Authority, Waterfront Toronto and The City of Toronto will work together to develop and implement The Port Lands Flood Protection Program East of the downtown core in order to protect existing natural features and encourage the redevelopment of former industrial lands with a focus on low-impact development. The project will also strive to be informative and transparent by communicating environmental impacts and new development to the general public via a GIS mapping application.

The development will be consistent with the Waterfront Toronto’s Sustainability Framework (TWRC 2005c).

## 3.0 Objectives

1. Work in collaboration to Integrate various skills and roles from local governments such as municipality of Toronto and Toronto and Region Conservation Authority

2. Ensure new development is governed by up to date regulations and policies to protect biodiversity and keep development away from flood plain areas. For example the federal government has invested millions of dollars across the country in flood management. In Ontario, there have been significant efforts to update the floodplain maps and inundation maps by conservation authorities. Along with these efforts, provincial policies included in the Planning Act need to be applied to ensure development is kept away or at a minimum in flood plains to avoid infrastructure and structural damages in these areas.
3. Develop a GIS mapping application:
  - a. Increase awareness and educate the public on the importance of low impact development.
  - b. Bring efficiency to the project by making sure that local citizens are consulted and have the ability to provide input into decision making using an interactive GIS map
  - c. Avoid political issues and complaints by local citizens due to a lack of consultation
  - d. Review, query and analyze environmental features and natural heritage features for protection and conservation
  - e. Provide various development options and scenarios for the public to vote on

## 4.0 Performance Measures

Tracking performance throughout the development of the application is necessary to directly outline the objectives and meet them. **Chart 1** outlines the objectives, measures and evaluator responsible for the performance oversight to maintain set standards during development.

Objective	Performance Measure	Comment	Evaluated by
Work in collaboration to Integrate various skills and roles from local governments such as municipality of Toronto and Toronto and Region Conservation Authority	Highly efficient teamwork will deliver the objectives on time  Multiple roles are assigned in this project: watershed planner/ urban design planner; GIS technologist, GIS analyst, GIS coordinator	Deliverables require the participation of multiple roles and skills working together efficiently	Team lead and GIS coordinator

<p>Ensure new development is governed by up to date regulations and policies to protect biodiversity and keep development away from flood plain areas.</p>	<p>Third party assessment by the urban planning department with the City of Toronto</p>	<p>Options and scenarios provided through the GIS app should be sound from a policy, legislative perspective. A Toronto and Region Watershed Planner will ensure this process is sound and will get reviewed by a city planner such as urban design planner</p>	<p>Team lead and GIS coordinator</p>
<p>Develop GIS mapping: application</p>	<p># of citizens participating in the project</p>	<p>The more people participate without issues the better the functionality proves to be</p>	<p>Team lead and GIS coordinator</p>

**Chart 1.** Outline of the performance measures for the proposed project plan of the Port Lands Flood Protection program’s GIS application development process.

## 5.0 Needs Assessment

The various land development scenarios that are proposed in this project require an environmental assessment and approvals from Ministry of Municipal Affairs and Housing, by Conservation Authority under the Conservation Authority Act, Species at Risk Act with Natural Resources and Forestry and Clean Water Act with Ministry of Environment and Climate Change. A lot of work is required to ensure that the proposed land use scenarios are conforming with the above requirements in order to get the needed approvals to move ahead. In building those scenarios by working with the public, it is important to include disclaimers to inform of pending approval.

In terms of the GIS application, extensive surveying and testing would be required to make sure that the public’s asks are met and that residents can be sufficiently informed using this tool. Consultations would have to be conducted to determine what features or information the public would want access to, such as development schedules, flood plains, or water flow patterns. Availability of data and usage rights would have to be considered as well, since this would be visible to the general public. Once the application is created, it would have to be tested for public release to ensure that all features work as intended. Consultations with other municipalities and other levels of government may also be beneficial, if the tool could be further developed for other uses.

## 6.0 Technical Analysis

The existing infrastructure in the Lower Don Lands is currently subjected to the technical issues related to Toronto’s water systems, including frequent flooding due to the proximity to

the mouth of the Don River. With the renaturalization and redevelopment comes a significant duty to protect the interests of both the public and the shareholder's throughout and after completion of the project, ensuring careful assessments are taken now to mitigate any problems in the future.

The project lacks a concise and informative tool to engage with the public and various municipal organizations on the development process and progress. There are few documents and websites as sources to provide current updates. Sensitive areas of Toronto's Waterfront, an integral public space of the city, will be subjected to varying development efforts encompassing the proposals plan. For transparency, it is ultimately in the municipalities and associated stakeholder's best interest to establish a public forum for feedback and concerns during the process. The app will continue to be useful after the development has been completed. It can be adapted to serve the needs of the community, exchange information about the local area, restaurants, retailers and other.

Our solution is to narrow this gap and build an interactive GIS mapping tool. Applying GIS is an innovative way to network the public and private sectors together. Investing in an online mapping application solution, addresses multiple problems, ultimately providing a cost-effective option with minimal maintenance after production. The alternatives for this app are increasing the number of meetings and workshops with the public and using surveys. Both of these options however, require a lot more intensive work to process the information after the events, and are subject to errors and non real-time information. This application is an upfront investment, but will require minimal maintenance after production. Data is also collected accurately in real time, with minimum staff required to pull the information together.

The second technical problem that may be encountered is related to the creation of sound land use scenarios. There are a lot of policies and regulations, and permit requirements that need to be satisfied and conflicting views with respect to the final development option. In order to accomplish this deliverable, expertise from the city of Toronto is needed and resources to balance out all the requirements. A consultation expert may also be needed to help out to ensure a fair consultation process is in place. Consultation provincial government is also needed to obtain necessary permits. Any other alternatives will increase the risk of not finishing the project on time (a two year current timeline).

## **Risks**

One of the largest risks associated with this project is related to the impacts of floods and the requirement to keep development out of flood plain. There is a lot of pressure to develop as close to the water as possible for enjoyment of the natural system. Current regulations in Ontario are not strong enough to keep development out of flood plains. These risks will become more clear as we advance through the project and consult with the public and the stakeholders All of the agencies involved would have to take significant precautions to minimize environmental impact at all stages of the project (including public and private redevelopment of the lands).

As previously mentioned, the Lower Don Lands are subject to flooding. The goal of this project is to eliminate that flooding risk and open up new land for development, but the viability of the new land would have to be communicated with developers based on



Year	Budget	Funds from donations, partners, grants	In kind contribution	Operating and Administrative costs	Cash flow statement
1	\$250,000	\$50,000	\$150,000	4 full time positions, \$250,000  Meetings, consultations, reviews from experts \$200,000	Property taxes for businesses Citizens may be asked to pay into a green fund to maintain natural features in the landscape 0.1% of business income to go towards maintenance of the GIS app
2	\$250,000	\$50,000	\$150,000	4 full time positions, \$250,000  Meetings, consultations, reviews from experts \$200,000	Annual returns of \$8M
<b>TOTAL</b>	<b>\$500,000</b>	<b>\$100,000</b>	<b>\$300,000</b>	<b>\$900,000</b>	

**Chart 2.** Financial budget for the proposed project plan of the Port Lands Flood Protection program’s GIS application development process.

## 7.0 Capital Asset Management Plan

While a lot of the development in the area will be completed by the private sector, the city is also developing roadways, bridges, and utility systems that will have to be managed in the future. Consultations would take place with all of the appropriate groups within the municipality to make sure they can also sufficiently manage the new infrastructure put in place by this project (such as road maintenance, utilities such as water and wastewater, etc). These groups would also be consulted in earlier phases of the project (especially for utilities) to make sure that the infrastructure could sufficiently service future development in the area.

The GIS mapping application would also become a capital asset that would have to be managed by the municipality. Data would have to be updated appropriately by GIS employees, which would include following an update schedule that would outline the

frequency of these updates. The map would also have to be hosted online during the project's lifespan and in the future to allow the general public to access the data.

## 7.1 Partner Profile

- 1. Toronto and Region Conservation Authority**
  - Provides project support and expertise with respect to the protection of water courses and flood plain maps.
- 2. City of Toronto**
  - Provides project coordination.
- 3. Other Municipalities in the GTHA**
- 4. Ducks Unlimited**
  - Will provide in-kind contribution, interest in protecting provincially significant wetlands (part of natural heritage).
- 5. Ministry of Natural Resources and Forestry**
  - Provides advice in the application of policies and regulations related to flood plains, natural heritage mapping.
- 6. Ministry of Environment and Climate Change**
  - Provides advice in the permitting process for any water takings, environmental assessment.
- 7. Ministry of Municipal Affairs, Ministry of Housing**
  - Provides advice with respect to land use planning.
- 8. Ontario Biodiversity Council**
  - Provides advice with respect to mapping and protecting the biodiversity of Ontario.

## 8.0 Appendix

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