

Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address significant issues and concerns.













MUNICIPAL CLASS EA PROCESS









Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address significant issues and concerns.

FOR FURTHER INFORMATION, PLEASE CONTACT:

The Township of Uxbridge Ben Kester, C.E.T. Director of Public Works 51 Toronto St. S. Uxbridge, ON L9P 1T1 905-852-9181 ext. 215 bkester@town.uxbridge.on.ca

PUBLIC CONSULTATION PLAN

Direct mailing to all stakeholders, advertisement in local newspaper, posting on municipal websites

PIC #1 has been scheduled during Phase 1 to communicate the goals of the study, introduce the Study Area, discuss the scope of proposed investigations, and solicit input into the local problems and issues related to

PIC #2 will be scheduled during Phase 2, and will focus on the results of the background review, summary of major issues in the context of the problems and opportunities being examined, the various options being considered, and identify recommended solutions.

PIC #3 will be scheduled during Phase 3, and will focus on the design alternatives for the preferred solution, identifying how local interests from PIC's #1 and 2 were brought forward into preliminary design.

Same distribution as the Notice of Study Commencement; the Environmental Study Report will be available for 30-days for public review and comment.

> The Regional Municipality of Durham David Dunn, C.E.T. **Engineering Technician** 605 Rossland Rd. E. Whitby, ON L1N 6A3 905-668-7711 ext. 3422 (1-800-372-1102) david.dunn@durham.ca







SRM Associates

Jennifer Haslett, B.Sc. EP **Environmental Project Coordinator** 110 Scotia Ct., Unit 41, Whitby, ON L1N 8Y7 905-686-6402 ext. 278 jhaslett@srmassociates.org





CONSULTANT'S TEAM

- Dale Dionne, Project Principal
- Jennifer Haslett, Project Manager/ EA Coordinator
- Erica Tsang, EA Assistant
- Andrea Keeping, Water Resources Engineer
- Paul Turner, Project Engineer
- John Semjan, Structural Engineer
- Paul Villard, Senior Geomorphologist
- Ken Chow, QA/QC Auditor
- Ben Kester, Director of Public Works, Township of Uxbridge
- David Dunn, Engineering Technician, Regional Municipality of Durham

Subconsultants

PipeFlo Contracting Corp. R.W. Bruynson Inc. Archeoworks Inc. Soil Engineers Ltd.

GENERAL PROJECT SCHEDULE



STUDY ORGANIZATION

UXBRIDGE WATERSHED ADVISORY COMMITTEE



PURPOSE: The Uxbridge Watershed Advisory Committee serves as an advisory body to Council.

OBJECTIVE: The Committee focuses on the environmental health and implementation of watershed plans within the Township. The Committee initiates / undertakes projects and in addition provides a community perspective on watershed management and work supporting environmental sustainability.

MEMBERSHIP: Members are volunteers and are appointed for the term of Council. In addition to a Township staff person, representatives of the Lake Simcoe Region Conservation Authority (LSRCA) and Toronto and Region Conservation Authority (TRCA) also sit on the Committee.

CURRENT MEMBERS:

- Tom Fowle, Chair
- Nicola Alston
- Janelle Andrews
- Peter Burtch, LSRCA
- Scott Grieve

- Charlie Gullickson
- Gwen Layton
- Jake Riekstins
- Howard Shrimpton
- Allan Wells
- Richard Vandezande, Township of Uxbridge



DOWNTOWN UXBRIDGE CULVERT REPLACEMENT PROJECT TECHNICAL STEERING COMMITTEE

PURPOSE: The Steering Committee serves as an advisory body to Council.

OBJECTIVE: The Steering Committee must ensure the overall objectives of the project remain in focus. Financial assistance from Federal, Provincial and other funding agencies is sought. Liaison as necessary with Township & Regional Councils, governments, and stakeholders. Undertake other activities as the Committee deems necessary.

MEMBERSHIP: Members are volunteers. The committee consists of a Chair, Director of Public Works of the Township, Ward 4 & 5 Councillors and one representative from the following list of agencies:

- Region of Durham's Works Department
- Lake Simcoe Region Conservation Authority
- Ministry of Environment
- Uxbridge Watershed Advisory Committee
- Business Improvement Area Chamber of Commerce
- EA Consultant/ Project Manager





1983 FLOOD RELIEF STUDY OF THE TOWN OF UXBRIDGE

BACKGROUND

The Regional storm floodline encompasses most of the downtown core of the Township of Uxbridge. Under severe rainfall events such as Hurricane Hazel, the potential losses due to flood damage are high, as the depth of water in the downtown would be up to 1.5 m (5 ft).

The Lake Simcoe Region Conservation Authority and the Township of Uxbridge commissioned a comprehensive analysis of the Uxbridge Brook watershed in 1983.

The **OBJECTIVES** of this study were two-fold:

- 1. Review the hydrologic and hydraulic characteristics of the drainage system, including a review of floodlines associated with the 1:100 year and Regional storm (Hurricane Hazel) events.
- 2. Establish the flood hazard associated with the drainage system and evaluate both structural and non-structural schemes to alleviate or at least minimize the potential for future flood damages and risk to personal safety and life.

HYDRAULIC CHARACTERISTICS

- The most distinguishing hydraulic feature during severe floods is the constriction caused by a combination of an undersized Brock Street culvert and extensive blockages of overland flow paths due to the presence of commercial buildings.
- Other major hydraulic characteristics of the Uxbridge Brook are the outlets from each of the reservoirs located upstream of the downtown area (Electric Light Pond, Brookdale Dam and Elgin Mill Pond).
- Under existing conditions there is a potential for extensive flood damage to occur during a Regional Storm event in the downtown core, especially in the vicinity of Brock Street.









UPSTREAM WATER STORAGE

- To reduce the effects of flooding by storing water upstream, 2390 hectare-meters (ha-m) of storage would be required.
- Elgin Mill Pond (the largest existing storage facility on the system) has a maximum storage capacity of approximately 133 ha-m.
- Therefore, a storage capacity approximately 18 times that associated with Elgin Mill Pond would be required.
- <u>Concluded that sufficient storage is not available upstream (this is not a feasible</u> solution).



1983 FLOOD RELIEF STUDY SUMMARY OF OPTIONS CONSIDERED

DIVERSION OF FLOW AT ELECTRIC LIGHT POND

- to an adjacent drainage system.
- under Toronto Street (12m span).





Construct a diversion structure at Electric Light Pond to divert a portion of the flow

The diversion channel could be located south of the Cottage Hospital and would run in a westerly direction for a distance of approximately 500 m before discharging into Tributary 8 just upstream of the CN Rail culvert.

The design could include a grass-lined channel and a new concrete box culvert

<u>Concluded that the diversion would only reduce flooding in the downtown by</u> 0.16 m, therefore having only marginal benefits (this is not a feasible solution).



3









1983 FLOOD RELIEF STUDY SUMMARY OF OPTIONS CONSIDERED

λιλτερ	
B STOPLOG STRUCTURE AT ELGIN MILL POND In order to accommodate the Regional Storm flow, a new stoplog structure would be required at Elgin Mill Pond. Designing the structure to accommodate a Regional Storm event would not result in any significant flood proofing benefits for either the area upstream or downstream. It would, therefore not be a cost-effective project.	 EMERGENCY OVERFLOW CULVERT AT BROCK STREET A 4.2 m by 2.4 m overflow culvert could be constructed extreme runoff events to convey Regional storm flow that Street culvert could not handle. Immediately north of Brock Street the channel would be oper Uxbridge Brook. The proposed culvert would be located immediately east of Acquiring of a permanent externet or the purchasing of privil
 C CONTROL STRUCTURE AT ELECTRIC LIGHT POND The control structure at this site has adequate capacity to pass the 1:100 year storm flow with all the stop logs removed. Selection of a design storm greater than the 1:100 year (i.e. Regional storm event) would be impractical unless the downstream reach was 	 Acquiring of a permanent easement or the purchasing of privible required, but building removal might not be required. It we in a loss of basement area. <u>This alternative would eliminate water over flowing Bascom but flooding of basements would still occur south of Brock Bascom Street.</u>
 similarly designed for the higher magnitude flood. IMPROVEMENTS IN THE VICINITY OF BROCK STREET CULVERT BUILDING REMOVAL AT BROCK STREET Removal of two building structures on Brock Street, west of Bascom Street, would minimize backwater effects, and reduce the floodline by approximately 0.37 m at the south side of Brock Street. Average water velocity within the central business district would be reduced to 2.36m/sec. This high velocity would still result in significant damage to the roads, sidewalks and structures. Building removal would also detract from the aesthetic quality of the downtown commercial district. 	Biologies Contraction of Cabion-lined Channel Brock Street E (Regional Road New Overflow Culvert
 This alternative was not considered to be feasible. 	 EXAMPLE 1 Subset of the reaction of the reactio
bildings Identified for Removal	Big



- uld be constructed to function during nal storm flow that the existing Brock
- nannel would be opened to its outlet at
- immediately east of the existing culvert. ne purchasing of private property would not be required. It would however result
- over flowing Bascom and Brock Streets ocur south of Brock Street and west of



- ncrete box culvert to the east of the kisting culvert.
- ivate property would be required north required.
- his alternative would provide not only e downtown core of the Township but Brock Street to Elgin Mill Pond.
- ast impact on the social and natural







OPTION D ii

EMERGENCY OVERFLOW CULVERT AT BROCK STREET

A twin 4.2 m x 2.4 m concrete box culvert was proposed to convey flow during extreme rainfall events such as Hurricane Hazel.

The structure would be located immediately east of the existing culvert, at a higher elevation, with a total length of 60m.

It was proposed that an open, gabion-lined (stone) channel be installed north of Brock Street, to the outlet at Uxbridge Brook (a length of approximately 85 m). The channel would be constructed of either gabion basket or concrete walls.



1983 FLOOD RELIEF STUDY PREFERRED OPTION

PLAN VIEW







PROPOSED OVERFLOW CULVERT CROSS SECTION





2010 ENVIRONMENTAL ASSESSMENT

PROBLEM STATEMENT

condition of the culvert necessitates a solution that includes replacement of the existing structure."

BACKGROUND

- **JUNE 2008** The Council of the Township of Uxbridge gave direction to work with the Lake Simcoe Region Conservation Authority (LSRCA) and the Region of Durham to develop a Terms of Reference for an Environmental Assessment study and to update the 1983 Flood Relief Study of the Town of Uxbridge.
- **OCTOBER 2008** Terms of Reference are drafted to alleviate if not eliminate the potential risks associated with flooding in the downtown area of the Town of Uxbridge.
- **JUNE 2009** Council approves the Terms of Reference for an Environmental Assessment, to be pursued as a 2010 project.
- SEPTEMBER 2009 -Council supports а recommendation to establish a Downtown Uxbridge Culvert Replacement Project Technical Steering Committee.
- JUNE 2010 SRM Associates is retained by the Township and the Region to conduct the Uxbridge Downtown Flood Reduction Class Environmental Assessment.

"A severe flood hazard under the Regional Storm Event (Hurricane Hazel) exists for lands adjacent to Uxbridge Brook, especially in the downtown core at Brock Street. The flood hazard is due to the presence of a long culvert which encloses Uxbridge Brook between Centennial Drive and the north limit of the parking lot 100 m north of Brock Street. The deteriorated

STUDY OBJECTIVES

- Build upon the 1983 Flood Relief Study, confirm that prior assumptions and studies are still valid, and propose new ideas where appropriate to best fit the engineering, environment, and permitting needs of current day.
- Reduce potential risk to personal safety and life and damage to properties associated with flooding in the downtown area.
- Reduce the extent of the Regulated Floodplain and related development controls that currently encompasses a large portion of the downtown area, thereby increasing development potential.

LOCAL ISSUES

- Regional Storm Floodline Area currently The encompasses a large portion of the downtown core of the Township of Uxbridge (refer to 2010 Study Location panel).
- A flood hazard exists during the Regional Storm (Hurricane Hazel) for land adjacent to the main branch of Uxbridge Brook, particularly between Elgin Pond and just downstream of Brock Street.



- The culvert which encloses Uxbridge Brook between Centennial Drive and the north limit of the parking lot 100 m north of Brock Street acts as a 'bottle-neck' during the Regional Storm event.
- The preferred solution must consider the constraints of working in the urban downtown which includes existing buildings and uses, significant transportation corridors, effects of flooding, and public uses/ objectives.
- The preferred solution must consider the objectives of the Uxbridge Brook Watershed Study by LSRCA, and integrate environmental protection and restoration policies where ever possible.
- Uxbridge, the Trail Capital of Canada, has an extensive trail system that connects with the Trans Canada and Oak Ridges Trails. Connectivity between the open green space within Centennial Park at Uxbridge Brook and the rail line is disjointed and highly urbanized.
- Several community events take place in and around Uxbridge Brook. These events must be considered during the implementation and construction staging of the preferred solution.
- Since the preferred solution could require encroachment into existing parking areas, a parking impact study is required to evaluate the potential impact.





2010 STUDY LOCATION









HYDRAULIC STUDY



The focus of the Environmental Assessment is to examine alternatives to reduce flood risk in downtown Uxbridge. To evaluate the various flood reduction alternatives, the following hydraulic study tasks are underway:

- Field investigation of the creek and floodplain to confirm the assumptions made in the existing hydraulic model
- Revision to the existing hydraulic model if necessary to accurately represent the existing conditions of the creek
- Information search at the local library and newspaper office to obtain documentation of any reported flooding within the study area
- Input received through public consultation with local residents and stakeholders will also be considered

BUILDING STRUCTURAL ASSESSMENT



In reference to the 1983 Flood Relief Study of the Town of Uxbridge, one of the alternative solutions presented for flood reduction considered the need for removal of one or more buildings on Brock Street; therefore, the impact of building removal will be investigated should it be necessary.

To evaluate the feasibility of alternatives that include building removal, a structural assessment of the buildings is required. The assessment will include an evaluation of:

- The buildings' structural condition
- Potential effects on adjacent or attached buildings
- Issues related to practicality of removal
- Costs associated with demolition

GEOMORPHIC & ENVIRONMENTAL ASSESSMENT OF UXBRIDGE BROOK



A detailed assessment of Uxbridge Brook and the surrounding environment is required to understand the potential effects of the various flood reduction alternatives that will be considered. The study will include:

- corridor
- terrestrial habitats

PARKING IMPACT STUDY



Recognizing that one or more alternatives may require opening the creek channel, which may affect parking, a parking impact study is being conducted. This study includes:

- considered nearby facilities

SUPPORTING STUDIES

Inventories and assessments of fluvial geomorphology (the study of the processes and pressures operating on river systems), aquatic habitat and terrestrial resources

Review of all background information and data, reach delineation, and a historical channel assessment

Field reconnaissance to characterize the channel and the

Inventory and assessment of in-stream aquatic and

Detailed topographic survey of the channel corridor, upstream and downstream of the existing culvert

Survey of existing parking demands in the local area Determination of parking losses from alternatives being

Assessment of potential impacts and implications to

CULVERT SURVEY



Since the culvert under Brock Street will be a key consideration in any flood reduction solution, it is necessary to accurately survey the location of the culvert to identify the affected properties. The culvert survey includes:

- Detailed survey of the existing culvert's layout and grades
- Confirmation of the location of the 9 sections of the culvert
- Creation of a base plan showing the culvert location in relation to property lines

ENVIRONMENTAL SITE ASSESSMENT



An Environmental Site Assessment (ESA) may be required to identify potential on-site environmental contaminants that could affect decisions related to proposed alternatives or construction recommendations. A Phase 1 ESA would include:

- Records review of the site to assess past activities that could have had a potential impact on the environmental condition of the affected properties.
- Site reconnaissance to identify potential on-site environmental concerns.
- Cursory inspection of any affected buildings for detection of toxic substances, such as asbestos and PCBs
- Phase 1 Environmental Report containing the assessment, relevant research documents and recommendations





CULTURAL HERITAGE / **ARCHAEOLOGICAL STUDY**



To evaluate potential impacts to cultural heritage and/ or archaeological resources, a Stage 1 Archaeological Assessment and Built Heritage Assessment will be conducted. The cultural heritage and archaeological studies will follow the Ministry of Tourism and Culture's 2009 Standards and Guidelines for Consultant Archaeologists.

This study includes:

- Review of the archaeological site database for known site locations on and within a 2 km radius of the study area
- Review of historical atlases, maps and other relevant documents to establish land use history
- Determination of the physiographic characteristics and geomorphological history of the study area by examination of geological texts
- Review of existing conditions of the study area by identifying and photo-documenting high and low potential areas (i.e. disturbed and low-lying wet sections of the site) to establish the potential for recovery of significant archaeological resources





- **Complete**, summarize and present the supporting studies
- **Development of Alternative Solutions**

 - of Uxbridge.

NEXT STEPS

Consolidate existing conditions mapping and evaluate opportunities and constraints in the study area

Alternative solutions will be explored to reduce the flood risk in the downtown area, reduce the extent of the downtown area currently within the Regulatory Floodplain, and examine environmental enhancement opportunities.

The main focus will be on reducing the flood risk within study area and increasing development potential while considering recreational opportunities such as trail creation, enhancing fisheries and terrestrial habitats, minimizing or avoiding downstream erosion impacts, and managing the socio-economic impacts of implementing the solution.

Alternative solutions presented for this Class EA study will review and build upon those introduced in the 1983 Flood Relief Study of the Town

Assumptions, conclusions and recommendations from the 1983 study will be reviewed and confirmed and/or modified based on current conditions and findings prior to developing new or additional alternatives.

The alternatives must include replacement of the existing culvert under Brock Street due to the deteriorated condition.

Evaluate the design alternatives based on environmental information available and technical engineering constraints to reduce potential risk to personal safety, life and properties associated with flooding and reduce the extent of the Regulated Floodplain in the downtown area

Identify recommended solutions and present them at Public Information Centre #2

FOR ATTENDING THE PUBLIC INFORMATION CENTRE FOR THE UXBRIDGE DOWNTOWN FLOOD REDUCTION **CLASS ENVIRONMENTAL ASSESSMENT STUDY**

Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address significant issues and concerns.





E S S

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction

PUBLIC INFORMATION CENTRE #1 November 25, 2010



(Please Print) CD **Mailing Address** Email Name SCOTT GRIEVE France Neil taylor Goodwood Ber Nochust / ι harte Stalts Uxbridge. NINDIS ZEPTAR Monor Town of Uxbridge (Council) Gordon Highert John W D Wan + Carolinet liency Lephip GRANT BAINES đ Ken Hendry



SIGNIN SHE

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction



PUBLIC INFORMATION CENTRE #1 November 25, 2010

<i>(Please Print)</i> Name	Mailing Address	Email	CD
WYNN WALTERS Mary Margaver Walter	5		
Mary Margarei Walter MARY MARGARET WALTERS	K		
DOW CAMPBELL			
TOM RANCE			
HEINZ NITSCHKE			
Beuleolie			
BU DIVE BOULTON			
Phil Shuntz			
Ningkins			
Joan Witson			



Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction

PUBLIC INFORMATION CENTRE #1 November 25, 2010



CD

(Please Print) **Mailing Address** Email Name Han Wells C. Gulleton SIGN IN SHEE NON ANDREWS JIM + RIEDA GAMPBELL Jim Mc Gilton \bigcirc GEORGE PRAH COLON GRAFFAM Darbara murphy Emer bathatie Gwa Layton

TBob Sheppard



SIGNINSHEE

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction



PUBLIC INFORMATION CENTRE #1 November 25, 2010

<i>Please Print)</i> Name	Mailing Address	Email	CD
JOHN PAGIDAS			
			ם צם
· .			

	od Reduction CENTRE #1	
		 .
	Phone:	Cell (circle one)
)
ntial benefits to reducing the flood haz	zard in the downtown area?	· ·
		
relief options that were considered in	n 1983? Do you think any one opt	on still has merit
SEE THE CREEK OF	DEN WITH A BAIDE	E GOING
ULD MAKE IT PEOPLE I	CRIENDLY. ALMOSTEU	ÉRYONE
A BRIDGE LOOKING DI	OWN TO A FLOWING	(AÉÉK og RIVER
u like us to consider when developing	an updated list of flood relief opt	ions?
on reverse;: 		
	PUBLIC INFORMATION NOVEMBER 25, 2 Antial benefits to reducing the flood has relief options that were considered in relief options not previously considered in a relief options not previously considered in b SEE THE CREEK OF A BRIDG'E LOOKING' DO	PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010 Phone: Home.

Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 17, 2010** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENTSH		
Municipal Class Environmental As Uxbridge Downtown Flood Rec PUBLIC INFORMATION CENT NOVEMBER 25, 2010	luction	
Name (Please Print):		
Mailing Address:	Phone:	
	Home Cel	(circle one)
Email Address:		
1. What do you envision as potential benefits to reducing the flood hazard in the	e downtown area?	
2. What do you think of the flood relief options that were considered in 1983? I	Do you think any one option st	till has merit
today?	· · · · · · · · · · · · · · · · · · ·	
3.Do you have ideas for other flood relief options not previously considered? Ple	ase provide details.	
		<u></u>
4. What specific issues would you like us to consider when developing an update	ted list of flood relief options?	•
I HOPE THE OPER WILL BE OPENED	UP- IT WOUN	D SO
I HOPE THE CREEK WILL BE OPENED ENHANCE THE DOWNTOWN AND	DRAUL PET	$\mathcal{P}_{\mathcal{I}}$
FROM TOWN & BEYOND.	100 100	
	· · · ·	
Additional Comments (<i>more room on reverse</i>):		
	· · · · ·	
· · · · · · · · · · · · · · · · · · ·		
Thank you for providing input on this project. Comments will be maintained for reference throughout the p	project and will become part of the public	lic record Inder the

Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 17, 2010** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEET Municipal Class Environmental Assessment **Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010** Name (Please Print): Phone: Mailing Address: (Home) Cell (circle one) **Email Address:** 1. What do you envision as potential benefits to reducing the flood hazard in the downtown area? a unique and probably a now-or-never of portenity to implement a significant enhancement to The docentown care, by creative design of the reconstruction. should involve the opening up of the brook in the context of the createon ïła park or plaza area to provide a fixed point for the docentown, to the 2. What do you think of the flood relief options that were considered in 1983? Do you think any one option still has merit today? great penefit of residents and the commercial community. 3.Do you have ideas for other flood relief options not previously considered? Please provide details. Even with a larger culdert under the road, there is merit in opening the break to the north. This would involve some loss of parking - but parling is a solveable issue, and parking should not dectate character of the town 4. What specific issues would you like us to consider when developing an updated list of flood relief options? Revitabization of the downtown core must be a factor. Additional Comments (more room on reverse): "fixing" the culvert with a larger capacity would eliminate the tead, but squander the opportunity to implement significant term benefit to the community. Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by December 17, 2010 to one of the contacts listed below: Jennifer Haslett, B.Sc., EP Ben Kester, C.E.T.

Jenniter Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEET

Additional comments (continued):

There needs to be an additional IMPORTANT " that addresses the potential for Study porting dountour 9 by thes othe creative en of the dountour Nesth Alization the in t of community opinion regarding the toral pon as attractive ned posst atic cre activite

COMMENT SHEET
Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010
Name (Please Print):
Mailing Address: Phone:
Home / Cell (circle one)
Email Address:
1. What do you envision as potential benefits to reducing the flood hazard in the downtown area?
to protect our downtown core / along with eliminating Fiste elsewhere
2. What do you think of the flood relief options that were considered in 1983? Do you think any one option still has merit today?
Does not appear to
3.Do you have ideas for other flood relief options not previously considered? Please provide details.
4. What specific issues would you like us to consider when developing an updated list of flood relief options?
Additional Comments (<i>more room on reverse</i>):
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the

Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 17, 2010** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674

David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEET
Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010
Name (Please Print):
Mailing Address: Phone: Home / Cell (circle one)
Email Address:
1. What do you envision as potential benefits to reducing the flood hazard in the downtown area?
more doudopment in the downtown area.
2. What do you think of the flood relief options that were considered in 1983? Do you think any one option still has merit today?
No
3. Do you have ideas for other flood relief options not previously considered? Please provide details.
admin we the channel
opening up the channel.
4. What specific issues would you like us to consider when developing an updated list of flood relief options?
bridge in Madbridge.
Additional Comments (<i>more room on reverse</i>):
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEET
Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010
Name (Please Print):
Mailing Address: Phone: Home / Cell (circle one)
Email Address:
1. What do you envision as potential benefits to reducing the flood hazard in the downtown area?
2. What do you think of the flood relief options that were considered in 1983? Do you think any one option still has merit today?
3. Do you have ideas for other flood relief options not previously considered? Please provide details.
4. What specific issues would you like us to consider when developing an updated list of flood relief options?
I am interested in ensuring that the changes in Flood levels during all storm events do not impact the Uxbridge Brook WPCP which is downstream of
He Uxbridge Brook WPCP which is downstream of Additional Comments (more room on reverse):
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEET
Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010
Name (Please Print):
Mailing Address: Phone: Home / Cell (circle one)
Email Address:
1. What do you envision as potential benefits to reducing the flood hazard in the downtown area?
SAFETY FROM FLOODING; ENVIRONMENTAL IMPROVEMENT OF WATER (PUALITY; IMPROVED APPEARANCE OF CORE AREA OF TOWN)
2. What do you think of the flood relief options that were considered in 1983? Do you think any one option still has merit today?
OPENING THE CREEK BROOK', NO CULVERT/PIPE
3.Do you have ideas for other flood relief options not previously considered? Please provide details.
NOT VET
4. What specific issues would you like us to consider when developing an updated list of flood relief options?
DISPUTTION OF THE POWNTOWN DURING CONSTRUCTION
DREORDIAMON OR THE HEPITAGE CHAPAPTER OF TOWN
POLLUMON OF IROOK DURING CONSTRUCTION.
-POLLUTION OF FROOK DURING CONSTRUCTION AFFECTS ON WATER POLLUTION CONTROL PLANT (SEWABE TREATMENT Additional Comments (more room on reverse): - DURING CONSTRUCTION + AFFER
``````````````````````````````````````
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Ercedom of Information Act and Ercedom of Privacy Act and the Environmental Assessment Act unless otherwise stated in the submission, any personal

Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 17, 2010** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

	COMMEN	ISHEET	
DURHAM REGION	Municipal Class Environ Uxbridge Downtown PUBLIC INFORMAT NOVEMBER	Flood Reduction ON CENTRE #1	
Name ( <i>Please Print</i> ):			
Mailing Address:		Phone:	
		<u></u>	Home / Cell (circle one)
Email Address:			
1. What do you envision as	potential benefits to reducing the flo	od hazard in the downtown ar	ea?
enhancement	t of the downton	m	
important	to prevent a disa	stie.	
could ha	we benefit to the	tril sipten	and
eurild-life Aa	entert	/	
2. What do you think of the today?	e flood relief options that were consid	ered in 1983? Do you think any	y one option still has merit
3.Do you have ideas for othe	r flood relief options not previously c	onsidered? Please provide det	ails.
4. What specific issues wo	uld you like us to consider when devel	oping an updated list of flood	relief options?
my dream	r would be to	open the tha	ok and
have the a	n would he to park where peop	le could gat	two and
conjug the	downlowen	Ú	
Additional Comments ( <i>more</i>	room on reverse):		
hist anxis	us to finace wh	at the & mine	rst.
Lecommend	us to finan wh actions are eling	so will wa	itch for
the new ne	ling		0
/			
Thank you for providing input on this	project. Comments will be maintained for referen	ce throughout the project and will beco	me part of the public record. Under the

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEE **Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010** Name (Please Print): Phone: Mailing Address: Home / Cell (circle one) **Email Address:** 1. What do you envision as potential benefits to reducing the flood hazard in the downtown area? 0  $\mathcal{O}$ 2. What do you think of the flood relief options that were considered in 1983? Do you think any one option still has merit today? 'an 3.Do you have ideas for other flood relief options not previously considered? Please provide details. 4. What specific issues would you like us to consider when developing an updated list of flood relief options? 110 ጉ Additional Comments (more room on reverse):

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEET			
Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010			
Name ( <i>Please Print</i> ):			
Mailing Address:	Phone: Home / Cell (circle one)		
Email Address:			
1. What do you envision as potential benefits to reducing the	e flood hazard in the downtown area?		
Increased security for the public in the area.	~ the private businesses		
in the area.			
2. What do you think of the flood relief options that were co today?			
I would have to see the w	aternay opened up q as		
Someone once Still "put the Bridg	aternay opened up q as a' buck in Uxbridge", It would been Uxbridge and would revitalize		
be a great attraction for tour	town uxbridge and would revitalize		
the towntown.			
3.Do you have ideas for other flood relief options not previous			
See above; in addition a down	town pork or green space that the troits in the		
would assist in connecting up	the troits in the		
"Trails Capital of Canada".			
4. What specific issues would you like us to consider when d			
That money should not be	an issue. If the vision is good		
That noney should not be enough a worth making bixbidge be considered	a better place than it should		
be considered			
Additional Comments ( <i>more room on reverse</i> ):			
	· · · · · · ·		
The first of the transformation of the second state will be realisted for an	ference throughout the project and will become part of the public record. Under the		

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

COMMENT SHEET
Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #1 NOVEMBER 25, 2010
Name (Please Print):
Mailing Address: Phone:
Home / Cell (circle one)
Email Address:
1. What do you envision as potential benefits to reducing the flood hazard in the downtown area?
-Private la dance-benetit
- Increase likelihood of better dev. dountown (ie new inestmat) good
-Lower economic / Social /env. risk.
2. What do you think of the flood relief options that were considered in 1983? Do you think any one option still has merit today?
-Datation - Preterred option sened viable - More nodern/ env. friedly for fish would be bitter however.
priore person provide a provide a construction of the construction
3.Do you have ideas for other flood relief options not previously considered? Please provide details.
- I ussame all options for storage further up insystem are not viable
acp not viable
4. What specific issues would you like us to consider when developing an updated list of flood relief options?
- Study shard present clear case into y do nothing " option and
costs and beefits as it (nothing vs something)
- Study should present clear case boby do nothing " option and costs and benefits at it (nothing vs something) - Any option should consider netwolization and downtown improvement objectives.
Additional Comments ( <i>more room on reverse</i> ):
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the

Jennifer Haslett, B.Sc., EP Project Coordinator SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 David Dunn, C.E.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051

jhaslett@srmassociates.org

bkester@town.uxbridge.on.ca

110 Scotia Court, Unit 41 Whitby, Ontario L1N 8Y7

T: 905.686.6402 F: 905.432.7877 www.srmassociates.org



### PUBLIC MEETING REPORT

DATE:	November 25, 2010	PROJECT NO.:	10257						
LOCATION:	Township of Uxbridge Municipal Office 51 Toronto St. S. Uxbridge								
PROJECT NAME:	Uxbridge Downtown Flood Reduction Municipal Class Environmental Assessment								
PURPOSE:	Phase 1 Public Consultation								
ATTENDING: NAME Ben Kester David Dunn Tom Fowle Dale Dionne Andrea Keeping	<b>COMPANY</b> Township of Uxbridge Region of Durham UWAC SRM Associates SRM Associates	EMAIL bkester@town.ux David.Dunn@du tomfowle@hotma ddionne@srmas akeeping@serna	rham.ca ail.com sociates.org						
Jennifer Haslett	SRM Associates	jhaslett@srmass							

Public Information Centre #1 was held on November 25, 2010 at the Township of Uxbridge Municipal Office from 5:00 to 9:00 p.m. Representatives from the Township, and the consultant, SRM Associates, were available to answer questions.

Thirty-two (32) members of the public attended. Twelve (12) panels were displayed to introduce the study and the Municipal Class EA process; outline the public consultation plan; describe the 1983 Study including the options considered and the preferred option; and a description of supporting studies underway. The following questions / issues were raised during the discussions:

- 1. What will be the impact on development opportunities in the downtown?
- 2. Why is so much money being spent to deal with an issue that is so infrequent?
- 3. What are the sensitivities of Uxbridge Brook?
- 4. If you open the channel, what will be the impacts on parking?
- 5. Can the entire channel be opened?
- 6. If buildings are removed, would it alleviate flooding?
- 7. How much land would be required if the channel was opened?
- 8. Would the floodplain be reduced downstream if culvert improvements are made?
- 9. If you alleviate flooding upstream, will it create a problem downstream?
- 10. What happens next in the process?
- 11. Would you implement the same solution as recommended in 1983?



### PUBLIC MEETING REPORT

- 12. Can a parking garage be used to deal with parking issues downtown?
- 13. When is PIC #2?
- 14. How likely is it that a Hurricane Hazel event will happen again?
- 15. Is the project information available on the web?
- 16. How much will the project cost? Who will pay?
- 17. When will it be built? How long is the EA process?
- 18. How high would the flooding be across Brock Road?
- 19. Will property acquisition be needed? Beyond what the township already owns?
- 20. What are the current development restrictions in the downtown?
- 21. What is the preferred solution?
- 22. Can ponds be installed upstream for water storage?

Comment sheets were available at the sign-in desk and on tables in the meeting room. The display boards were posted on the Town and Region's website for those that could not attend. Copies of the panels in CD and hard copy format were also given to participants at their request.

NOTE: If the information in this report does not agree with your record of this meeting, or if there are any omissions, kindly advise this office immediately, otherwise we shall assume its contents to be correct.

JH/ml

Distribution: All Present



Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address project issues and concerns.











# **2010 ENVIRONMENTAL ASSESSMENT**

### **PROBLEM STATEMENT**

condition of the culvert necessitates a solution that includes replacement of the existing structure."

### BACKGROUND

- **JUNE 2008** The Council of the Township of Uxbridge gave direction to work with the Lake Simcoe Region Conservation Authority (LSRCA) and the Region of Durham to develop a Terms of Reference for an Environmental Assessment study and to update the 1983 Flood Relief Study of the Town of Uxbridge.
- **OCTOBER 2008** Terms of Reference are drafted to alleviate if not eliminate the potential risks associated with flooding in the downtown area of the Town of Uxbridge.
- **JUNE 2009** Council approves the Terms of Reference for an Environmental Assessment, to be pursued as a 2010 project.
- SEPTEMBER 2009 -Council supports а recommendation to establish a Downtown Uxbridge Culvert Replacement Project Technical Steering Committee.
- JUNE 2010 SRM Associates is retained by the Township and the Region to conduct the Uxbridge Downtown Flood Reduction Class Environmental Assessment.

"A severe flood hazard under the Regional Storm Event (Hurricane Hazel) exists for lands adjacent to Uxbridge Brook, especially in the downtown core at Brock Street. The flood hazard is due to the presence of a long culvert which encloses Uxbridge Brook between Centennial Drive and the north limit of the parking lot 100 m north of Brock Street. The deteriorated

### **STUDY OBJECTIVES**

- Build upon the 1983 Flood Relief Study, confirm that prior assumptions and studies are still valid, and propose new ideas where appropriate to best fit the engineering, environment, and permitting needs of current day.
- Reduce potential risk to personal safety and life and damage to properties associated with flooding in the downtown area.
- Reduce the extent of the Regulated Floodplain and related development controls that currently encompasses a large portion of the downtown area, thereby increasing development potential.

### LOCAL ISSUES

- Regional Storm Floodline Area currently The encompasses a large portion of the downtown core of the Township of Uxbridge (refer to 2010 Study Location panel).
- A flood hazard exists during the Regional Storm (Hurricane Hazel) for land adjacent to the main branch of Uxbridge Brook, particularly between Elgin Pond and just downstream of Brock Street.



- The culvert which encloses Uxbridge Brook between Centennial Drive and the north limit of the parking lot 100 m north of Brock Street acts as a 'bottle-neck' during the Regional Storm event.
- The preferred solution must consider the constraints of working in the urban downtown which includes existing buildings and uses, significant transportation corridors, effects of flooding, and public uses/ objectives.
- The preferred solution must consider the objectives of the Uxbridge Brook Watershed Study by LSRCA, and integrate environmental protection and restoration policies where ever possible.
- Uxbridge, the Trail Capital of Canada, has an extensive trail system that connects with the Trans Canada and Oak Ridges Trails. Connectivity between the open green space within Centennial Park at Uxbridge Brook and the rail line is disjointed and highly urbanized.
- Several community events take place in and around Uxbridge Brook. These events must be considered during the implementation and construction staging of the preferred solution.
- Since the preferred solution could require encroachment into existing parking areas, a parking impact study is required to evaluate the potential impact.











# MUNICIPAL CLASS EA PROCESS



MANDATORY PUBLIC CONTACT POINTS (See Section A.3 Consultation)

PARTII ORDER (See Section A.2.8)





### **CONSULTANT'S TEAM**

- DALE DIONNE, Project Principal
- JENNIFER HASLETT, Project Manager/ EA Coordinator
- JILLIAN BIESER, EA Assistant
- ANDREA KEEPING, Water Resources Engineer
- PAUL TURNER, Project Engineer
- JOHN SEMJAN, Structural Engineer
- PAUL VILLARD, Senior Geomorphologist
- KEN CHOW, QA/QC Auditor
- BEN KESTER, Director of Public Works, Township of Uxbridge
- DAVID DUNN, Engineering Technician, Regional Municipality of Durham

### **Subconsultants**

PipeFlo Contracting Corp. R.W. Bruynson Inc. Archeoworks Inc. Soil Engineers Ltd.

### **GENERAL PROJECT SCHEDULE**



# STUDY ORGANIZATION

### **UXBRIDGE WATERSHED ADVISORY COMMITTEE**



**PURPOSE:** The Uxbridge Watershed Advisory Committee serves as an advisory body to Council.

**OBJECTIVE:** The Committee focuses on the environmental health and implementation of watershed plans within the Township. The Committee initiates / undertakes projects and in addition provides a community perspective on watershed management and work supporting environmental sustainability.

**MEMBERSHIP:** Members are volunteers and are appointed for the term of Council. In addition to a Township staff person, representatives of the Lake Simcoe Region Conservation Authority (LSRCA) and Toronto and Region Conservation Authority (TRCA) also sit on the Committee.

### **CURRENT MEMBERS:**

- Tom Fowle, Chair
- Nicola Alston
- Peter Burtch, LSRCA
- Scott Grieve
- Andrea Priestman
- Jacob Mantle
- Phil Shantz

- Charlie Gullickson
- Gwen Layton
- Jake Riekstins
- Howard Shrimpton
- Allan Wells
- Michael Goodyear
- Richard Vandezande, Township of Uxbridge



### **DOWNTOWN UXBRIDGE CULVERT REPLACEMENT PROJECT TECHNICAL STEERING COMMITTEE**

**PURPOSE:** The Steering Committee serves as an advisory body to Council.

**OBJECTIVE:** The Steering Committee must ensure the overall objectives of the project remain in focus. Financial assistance from Federal, Provincial and other funding agencies is sought. Liaison as necessary with Township & Regional Councils, governments, and stakeholders. Undertake other activities as the Committee deems necessary.

**MEMBERSHIP:** Members are volunteers. The committee consists of a Chair, Director of Public Works of the Township, Ward 4 & 5 Councillors and one representative from the following list of agencies:

- Region of Durham's Works Department
- Lake Simcoe Region Conservation Authority
- Ministry of Environment
- Uxbridge Watershed Advisory Committee
- Business Improvement Area Chamber of Commerce
- EA Consultant/ Project Manager

REVIEW EETING														
& OLDERS G			20	)1	2	)		_	LECT SIGN	PREFER	RED			
REFERRED	)									ENVIRO REPORT	NMEN	TAL		
ALTERNAT CONCEPTS E ALTERNA			PRE FOR	ELOP LIMIN PREFI UTION	ERRE		SIGNS	EN ST TC	IVIRO UDY DWNS	T DRAFT DNMENT REPORT SHIP, REC LSRCA	ТО			
DEC		J	AN	FE	B	N	1AR	APR		MAY	JUN	J	UL	
ATION 2							PUBLIC INFORM CENTRI	MATIC	DN		LIZE RONM DY REP		-	
HERE												ROJEC LOSE (		







# STUDY LOCATION







### HYDRAULIC STUDY



The focus of the Environmental Assessment is to examine alternatives to reduce flood risk in downtown Uxbridge. To evaluate the various flood reduction alternatives, the following hydraulic study tasks are underway:

- Field investigation of the creek and floodplain to confirm the assumptions made in the existing hydraulic model
- Revision to the existing hydraulic model if necessary to accurately represent the existing conditions of the creek
- Information search at the local library and newspaper office to obtain documentation of any reported flooding within the study area
- Input received through public consultation with local residents and stakeholders will also be considered

### BUILDING STRUCTURAL ASSESSMENT



In reference to the 1983 Flood Relief Study of the Town of Uxbridge, one of the alternative solutions presented for flood reduction considered the need for removal of one or more buildings on Brock Street; therefore, the impact of building removal will be investigated should it be necessary.

To evaluate the feasibility of alternatives that include building removal, a structural assessment of the buildings is required. The assessment will include an evaluation of:

- The buildings' structural condition
- Potential effects on adjacent or attached buildings
- Issues related to practicality of removal
- Costs associated with demolition

### **GEOMORPHIC & ENVIRONMENTAL** ASSESSMENT OF UXBRIDGE BROOK



A detailed assessment of Uxbridge Brook and the surrounding environment is required to understand the potential effects of the various flood reduction alternatives that will be considered. The study will include:

- corridor
- terrestrial habitats

### PARKING IMPACT STUDY



Recognizing that one or more alternatives may require opening the creek channel, which may affect parking, a parking impact study is being conducted. This study includes:

- considered nearby facilities

# **SUPPORTING STUDIES**

Inventories and assessments of fluvial geomorphology (the study of the processes and pressures operating on river systems), aquatic habitat and terrestrial resources

Review of all background information and data, reach delineation, and a historical channel assessment

Field reconnaissance to characterize the channel and the

Inventory and assessment of in-stream aquatic and

Detailed topographic survey of the channel corridor, upstream and downstream of the existing culvert

Survey of existing parking demands in the local area Determination of parking losses from alternatives being

Assessment of potential impacts and implications to

### **CULVERT SURVEY**



Since the culvert under Brock Street will be a key consideration in any flood reduction solution, it is necessary to accurately survey the location of the culvert to identify the affected properties. The culvert survey includes:

- Detailed survey of the existing culvert's layout and grades
- Confirmation of the location of the 9 sections of the culvert
- Creation of a base plan showing the culvert location in relation to property lines

### **ENVIRONMENTAL SITE ASSESSMENT**



An Environmental Site Assessment (ESA) may be required to identify potential on-site environmental contaminants that could affect decisions related to proposed alternatives or construction recommendations. A Phase 1 ESA would include:

- Records review of the site to assess past activities that could have had a potential impact on the environmental condition of the affected properties.
- Site reconnaissance to identify potential on-site environmental concerns.
- Cursory inspection of any affected buildings for detection of toxic substances, such as asbestos and PCBs
- Phase 1 Environmental Report containing the assessment, relevant research documents and recommendations





### CULTURAL HERITAGE / **ARCHAEOLOGICAL STUDY**



To evaluate potential impacts to cultural heritage and/ or archaeological resources, a Stage 1 Archaeological Assessment and Built Heritage Assessment will be conducted. The cultural heritage and archaeological studies will follow the Ministry of Tourism and Culture's 2009 Standards and Guidelines for Consultant Archaeologists.

This study includes:

- Review of the archaeological site database for known site locations on and within a 2 km radius of the study area
- Review of historical atlases, maps and other relevant documents to establish land use history
- Determination of the physiographic characteristics and geomorphological history of the study area by examination of geological texts
- Review of existing conditions of the study area by identifying and photo-documenting high and low potential areas (i.e. disturbed and low-lying wet sections of the site) to establish the potential for recovery of significant archaeological resources








		GENERAL REACH	CHARACTERISTCS		
Reach	Bankfull	Bankfull	Substrate		
	Width (m)	Depth (m)	Pool	Riffle	
UX1	7 - 12	0.5 - 1.0	sand, silt and clay	coarse gravel and sand, few cobbles	
UX2	7 - 8	0.5 - 1.0	sand, silt and clay	gravel and cobbles	
UX3		Piped - RGA /	RSAT not completed		
UX4	6.5 - 8	0.8 - 1.5	sand, silt and clay	gravel and cobbles; boulders and concrete rubble	

	RESULTS OF RAPID GEOMORPHIC ASSESSMENTS					
	RGA			RSAT		
Reach	Score	Condition	Dominant Systematic Adjustment	Score	Condition	Limiting Features(s)
UX1	0.38	In Transition / Stress	Evidence of Widening	22	Fair	Physical Instream Habitat
UX2	0.33	In Transition / Stress	Evidence of Widening	23	Fair	Riparian Habitat Conditions
UX3			Pipeo	d channel section	n - RGA / RSAT not completed	
UX4	0.25	5 In Transition Evidence 26 Good Riparian / Stress of Widening 26 Good Habitat Conditions		Habitat		
< 0.20 = Stable / In Regime < 0.21 - 0.40 = Stressed / Transitional 11 >0.41 = In Adjustment 21			· 1 2	x 13 = Poor Cond 13 - 24 = Fair Cor 25 - 34 = Good C	•	

## EXISTING CONDITIONS





ownstream view of wooden footbridge and commissioned rail line. Wetted width was 7m and wetted epth was 0.6m. Note: minor vegetation encroachment, woody ebris jam and garbage debris

and the second s



Jpstream view of straight channel section. The main low flow path was in the centre of channel. Low to moderate input of 0.5 to 0.75m.



Downstream view from CSP culvert at parking lot. Defined right bank, poorly defined left bank. Note the manicured lawn to the edge of the channel.







## SIMULATION OF A REGIONAL STORM EVENT FLOODING IN THE DOWNTOWN



RECENT HURRICANE IRENE PHOTOS FROM VERMONT (SIMILAR TO THE MODELLED LOCAL REGIONAL STORM)









## ALTERNATIVE SOLUTIONS

### **ALTERNATIVE 1 - NEW LARGER CULVERT UNDER BROCK STREET**

#### DESCRIPTION

Removal and replacement of entire existing culvert with a new larger culvert that could convey the Regional Storm flows.

#### PROS

- Provides opportunity to replace deteriorated existing culvert
- Significant reduction of the floodplain
- Opportunity for re- development within downtown
- Opportunity for improving creek function

#### CONS

- Will likely require removal of buildings, or removal of basements
- Extensive construction and road closures for prolonged periods
- Costly ( ~ \$3.5M)



#### **CROSS SECTION AT BROCK STREET**



#### DESCRIPTION

Removal of entire existing culvert with construction of an open channel to convey the Regional Storm flows. New bridges at Brock Street and Centennial Drive.

#### PROS

- Removes deteriorated culvert
- Significant reduction of the floodplain
- Opportunity for re- development within downtown, but some buildings permanantly lost
- Opportunity for a trail, but space is restricted

#### CONS

- Buildings must be removed and businesses would have to relocate
- Extensive constructionand road closures for prolonged periods
- Costly (~ \$5M)
- Permanent loss of some development potential in downtown











## ALTERNATIVE SOLUTIONS

### ALTERNATIVE 3 - OVERLAND FLOW (REMOVAL OF BUILDINGS)

#### DESCRIPTION

Demolition of multiple buildings on the north and south sides of Brock Street to create an overland flow path for floodwaters. The existing culvert would remain.

#### PROS

- Demolition of buildings may not require road closures
- Opportunity for new open space, trail, or leisure facilities
- Less expensive than other alternatives (~\$1M)
- Some reduction of the floodplain

#### CONS

- Permanent loss of many buildings, requiring businesses to relocate
- Does not address deteriorated condition of existing culvert
- Does not eliminate flooding in downtown
- No opportunity to improve the watercourse







### **ALTERNATIVE 4 - OVERFLOW PIPE AT BASCOM STREET**

#### DESCRIPTION

Construction of a separate pipe system along Bascom Street to convey partial floodwater flows to the outfall at the downstream limit of existing culvert . The existing culvert would remain.

#### PROS

- Minimal requirements for building demolition
- Significant reduction of the floodplain
- Opportunity for re-development in the downtown

#### CONS

- Does not address deteriorated condition of existing culvert
- No opportunity to improve the watercourse
- Size of overflow pipe requires major construction, utility re-locates and prolonged construction periods
- Costly (~ \$4M)









## ALTERNATIVE SOLUTIONS

### **ALTERNATIVE 5 - DOWNSTREAM IMPROVEMENTS**

#### DESCRIPTION

Provision of additional flood capacity downstream (north) of Brock Street. Options to consider could include items such as: widening existing floodplain through excavation; increasing size of culverts under downstream road crossings at Dominion Street, Toronto Street and Main Street; replacement of existing downstream culverts with bridges; and / or removal of one or more of the crossing streets.

#### PROS

- Reduces the tailwater flooding at Brock St. (lower flood elevation on the north side of Brock St. increases capacity of the culvert
- Minimal construction impacts to Brock St. businesses and minimal traffic disruption
- Opportunity for improving the watercourse
- No requirements for building demolition
- Opportunity for open space, trails, or leisure facilities

#### CONS

- Does not address deteriorated condition of existing culvert
- Costly (~ \$3M)
- As a stand-alone solution, does not reduce flooding in downtown
- Easements may be required on private property





Alternative 1 Floodline



Alternative 5 Floodline Alternative 3 Floodline





## EVALUATION MATRIX

### LEGEND



			Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Category	Evaluation Criteria	Do Nothing	New Larger Culvert Under Brock Street	Remove the Culvert and Install Bridges at Road Crossings	Create an Overland Flow Route (Building Removal)	Install an Overflow Pipe along Bascom Street	Downstream Improvements to Reduce Tailwater
Natural Environment	Effect on creek channel stability	No impacts. Existing channel is generally stable.	<ul> <li>May improve flow and sediment transport processes during larger return-period flows.</li> <li>Provides an opportunity to create inlet and/or outlet pool features at culvert ends.</li> </ul>	Crossing structures would be sized for channel migration. Opportunity to improve channel form and function and allow for migration within the floodplain, where feasible. May reinstate a more natural flow and sediment transport regime.	No changes to the watercourse.	No changes to the watercourse.	Opportunity to enhance the corridor through varying channel and floodplain improvements. Allow the channel to migrate, where feasible, and reinstate a more natural flow and sediment transport regime.
	Effect on fish habitat	No changes to the watercourse and no opportunity to improve fish habitat and/or fish passage.	<ul> <li>Improve fish passage opportunity upstream through reduction of fish velocity thresholds.</li> <li>Provide resting areas (i.e. inlet and outlet pool features) at culvert ends.</li> </ul>	<ul> <li>Channel day-lighting and enhancement of aquatic habitat through the installation of new channel.</li> <li>Improvement to fish passage and potential for increase in particulate organic matter inputs, canopy and instream cover.</li> </ul>	No changes to the watercourse and no opportunity to improve fish habitat and/or fish passage.	No changes to the watercourse and no opportunity to improve fish habitat and/or fish passage.	Enhance aquatic habitat through the installation of varying habitat components. Increase particulate organic matter inputs, canopy cover and instream cover.
	Effect on riparian zone	No changes to the watercourse, and no opportunity to improve riparian habitat conditions.	No changes to the watercourse, and no opportunity to improve riparian habitat conditions.	<ul> <li>Installation of riparian vegetation and potential enhancement of terrestrial habitat. Potential for contribution to a continuous natural riparian corridor.</li> </ul>	No changes to the watercourse, and no opportunity to improve riparian habitat conditions.	No changes to the watercourse, and no opportunity to improve riparian habitat conditions.	Installation of larger riparian vegetation area and enhancement of terrestrial habitat.
Social Environment	Reduction of the floodplain in the downtown	0% reduction in the floodplain; ~2.3m flood depth on Brock Street.	34% reduction in the floodplain; no flood flow overtop of Brock Street.	31% reduction in the floodplain; no flood flow overtop of Brock Street.	7% reduction in the floodplain; ~1.3m flood depth on Brock Street.	31% reduction in the floodplain; no flood flow overtop of Brock Street.	2% reduction in the floodplain; ~2.3m flood depth on Brock Street.
	Improvements to egress / ingress, habitable space on Brock Street (access and safety during a flood)	0% access and safety improvement during a flood.	100% access and safety improvement during a flood.	100% access and safety improvement during a flood.	25% access and safety improvement during a flood.	100% access and safety improvement during a flood.	0% access and safety improvement during a flood.
	Requirement for building removal	No requirement for building removal.	5 buildings north & south of Brock Street might have to be demolished with major shoring to 3.	<ul> <li>5 buildings north &amp; south of Brock Street would have to be demolished with major shoring to 3.</li> <li>Occupants of the buildings to be demolished would have to re-locate.</li> </ul>	9 buildings north & south of Brock Street would have to be demolished. This would require many businesses to re-locate.	1 building would have to be removed and 2 shored.	No requirement for building removal.
	Encroachment of works onto private property	<ul> <li>No encroachment onto private property.</li> </ul>	<ul> <li>4 non-municipal buildings north &amp; south of Brock Street would be affected. Easements may be required over these properties if re- developed.</li> </ul>	4 non-municipal buildings north & south of Brock Street would be affected, with permanent loss of private property.	8 non-municipal buildings north & south of Brock Street would be affected, with permanent loss of private property.	1 non-municipal building north of Brock Street would be affected. Easement may be required over this property if re-developed.	No buildings affected; easements may be required on up to 10 properties for downstream improvement work in backyard areas.
	Effect on parking availability	No effect on parking; status quo maintained.	<ul> <li>No effect on parking; status quo maintained.</li> <li>Parking demand during construction could be accommodated within the surrounding area.</li> </ul>	<ul> <li>17% overall reduction in parking availability. The increased demand could be accommodated within the surrounding area with the remaining legal parking spaces.</li> </ul>	<ul> <li>No effect on parking; status quo maintained.</li> <li>Potential to increase off-site parking due to building removal.</li> </ul>	<ul> <li>No effect on parking; status quo maintained.</li> <li>Parking demand during construction could be accommodated within the surrounding area.</li> </ul>	<ul> <li>10% overall reduction in parking availability. Increased demand could be accommodated in the surrounding area with the remaining legal parking spaces.</li> </ul>
	Opportunities for leisure or trail facilities	No opportunity for adding leisure or trail facilities.	No opportunity for adding leisure or trail facilities.	<ul> <li>Leisure or trail facilities could be incorporated along the channel, but the space restrictions are limiting.</li> </ul>	<ul> <li>Leisure or trail facilities could be incorporated into the newly created open space.</li> </ul>	No opportunity for adding leisure or trail facilities.	<ul> <li>Leisure or trail facilities could be incorporated into the newly created open space.</li> </ul>
	Duration of construction disturbance	No construction required.	~6 months construction for building demolition and culvert replacement. Reconstruction of buildings would create additional disturbance.	~6 months construction for building demolition and channel creation.	<ul> <li>~2 months construction for building demolition.</li> </ul>	~6 months construction for building demolition, utility re-locates and installation of pipe.	~3 months construction for downstream improvements.
Economic Environment	Capital cost (comparative estimate)	* None	\$3.5M	\$5M	✓ \$1M	\$4M	\$3M
	Operation and maintenance	Continuous monitoring and repairs.	Minimal	Minimal	Minimal	Minimal	Minimal
	Opportunities for re- development	No opportunity for re-development.	<ul> <li>~ 32 properties removed from the regulatory floodplain.</li> </ul>	<ul> <li>✓ ~ 36 properties removed from the regulatory floodplain, but 5 buildings permanently lost.</li> </ul>	~ 12 properties removed from the regulatory floodplain.	<ul> <li>~ 32 properties removed from the regulatory floodplain.</li> </ul>	No opportunity for re-development.
Cultural Environment	Archaeological resources	No impact to buried cultural heritage.	<ul> <li>If construction extends beyond the existing alignment of the culvert, there is potential to disturb deeply buried resources tied to the 1850s mill.</li> </ul>	<ul> <li>If construction extends beyond the existing alignment of the culvert, there is potential to disturb deeply buried resources tied to the 1850s mill.</li> </ul>	No impact to buried cultural heritage.	No impact to buried cultural heritage.	Potential disruption to historic and pre-contact Aboriginal resources.
Technical Factors	Addressing the tailwater flooding on the Brock Street culvert	Does not reduce the tailwater flooding on the Brock Street culvert.	Does not reduce the tailwater flooding on the Brock Street culvert.	Does not reduce the tailwater flooding on the Brock Street culvert.	Does not reduce the tailwater flooding on the Brock Street culvert.	Does not reduce the tailwater flooding on the Brock Street culvert.	Potential for significant reduction or elimination of the tailwater flooding.
	Requirement for utility relocation	<ul> <li>No requirement for utility relocation.</li> </ul>	• Would require some relocation of utilities.	Would require significant relocation of utilities.	• Would require some relocation of utilities.	Would require significant relocation of utilities.	• Would require some relocation of utilities.
	Addressing the deteriorated condition of the existing culvert	Does not address the deteriorated condition of the existing culvert.	Replaces the existing deteriorated culvert with a new structure.	Removes the deteriorated culvert.	Does not address the deteriorated condition of the existing culvert.	Does not address the deteriorated condition of the existing culvert.	Does not address the deteriorated condition of the existing culvert.
	Effect on structural integrity of existing buildings	No effect on existing buildings.	Significant work will be required for the foundations of the buildings that are to remain, to ensure they remain stable during and after re-construction.	Significant work will be required for the foundations of the buildings that are to remain, to ensure they remain stable during and after reconstruction.	Minor work will be required for the foundations of the buildings that are to remain, to ensure they remain stable during and after re-construction.	Minor work will be required for the foundations of the buildings that are to remain, to ensure they remain stable during and after re- construction.	No effect on existing buildings.
	Construction complexities	No construction required.	Difficult to construct new culverts under existing buildings, where building salvage will be attempted. Basements may be permanently lost.	The work would be relatively straightforward under a full road closure and after adjacent buildings are removed.	<ul> <li>Building demolition is straightforward.</li> </ul>	Installation of a large overflow pipe would be difficult in the confined area of Bascom Street. Conflict with existing infrastructure would be significant.	<ul> <li>Downstream improvements options are routine and straightforward.</li> </ul>
	Summary Rating		*	$\checkmark$			$\checkmark$







## PREFERRED ALTERNATIVE

### PREFERRED ALTERNATIVE - COMBINATION OF ALTERNATIVES 1, 2 & 5

#### DESCRIPTION

Combine downstream improvements with a new larger culvert and some open channel to provide additional flood capacity downstream, reduce the tailwater at Brock Street, and accomodate as much of the Regional Storm flow as possible.

#### PROS

- Using downstream improvements to reduce the tailwater results in reduced structure size requirements for culvert replacement under Brock Street
- Significant floodplain reduction
- Provides an opportunity for re-opening and re-naturalizing some of the channel that has been previously enclosed by the existing culvert
- Opportunity for re-development in the downtown
- Opportunity to replace deteriorated culvert
- Opportunity for open space, trails, or leisure facilities

#### CONS

- Would affect property beyond that owned by the Township
- Will impact some buildings and basements
- Prolonged construction disturbance
- Costly ( \$3-5M)



Opportunity for open channel to be investigated

Brock Street

**(D)** 

2









## PUBLIC CONSULTATION PLAN



NOTICE OF **PUBLIC INFORMATION CENTRE #1** 

WE ARE HERE

NOTICE OF **PUBLIC INFORMATION CENTRE #2** 

NOTICE OF **PUBLIC INFORMATION CENTRE #3** 

> NOTICE OF **STUDY COMPLETION**

Direct mailing to all stakeholders, advertisement in local newspaper, posting on municipal websites

PIC #1 occurred during Phase 1 to communicate the goals of the study, introduce the Study Area, discuss the scope of proposed investigations, and solicit input into the local problems and issues related to flooding in the downtown.

PIC #2 focuses on the results of the background studies, documentation of existing conditions, summary of major issues in the context of the problems and opportunities being examined, development of alternative solutions, evaluation of alternatives, environmental impact mitigation plan and identification of recommended solution.

PIC #3 will be scheduled during Phase 3, and will summarize and evaluate the design alternatives for the preferred solution, identify environmental impact mitigation measures, and how local interests from PIC's #1 and 2 were brought forward into preliminary design.

Same distribution as the Notice of Study Commencement; the Environmental Study Report will be available for 30-days for public review and comment.

Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address project issues and concerns.

FOR FURTHER INFORMATION, PLEASE CONTACT:

The Township of Uxbridge

Ben Kester, C.E.T. Director of Public Works 51 Toronto St. S. Uxbridge, ON L9P 1T1 905-852-9181 ext. 215 bkester@town.uxbridge.on.ca

The Regional Municipality of Durham David Dunn, C.E.T., E.I.T.

**Engineering Technician** 605 Rossland Rd. E. Whitby, ON L1N 6A3 905-668-7711 ext. 3422 (1-800-372-1102) david.dunn@durham.ca

**SRM Associates** Jennifer Haslett, B.Sc. EP Manager, Environmental Assessments 110 Scotia Ct., Unit 41, Whitby, ON L1N 8Y7 905-686-6402 ext. 278 jhaslett@srmassociates.org











- **Review and respond to public and agency comments expressed at PIC #2**
- **Confirm that the preferred alternative is appropriate**
- Develop design concepts for the preferred alternative (refine culvert size, type of downstream improvements required, and details of open channel)
- Identify impact of alternative designs on environment, and mitigating measures
- **Present preliminary design at Public Information Centre #3**
- Notice of Public Information Centre #3 with the date, time and location will be advertised
- Information related to this study will be posted on the Regional Municipality of Durham website www.durham.ca under: **Departments > Works > Construction, Design and Environmental Assessment Projects**



## NEXT STEPS

# THANK 400

### FOR ATTENDING THE PUBLIC INFORMATION CENTRE FOR THE UXBRIDGE DOWNTOWN FLOOD REDUCTION **CLASS ENVIRONMENTAL ASSESSMENT STUDY**

Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address project issues and concerns.





PUBLIC INFORMATION CENTRE #2 November 2, 2011



SIGN IN SHEET

(Please Print)			
Name	Mailing Address (if you are not already on our list)	Email	CD
John Mc Kenna			ØPAÝ⊡N
Sulah I Shier			
JeHN PAGIDAS			
Memlyn Norsh			©1Ý ⊡N
ROBER VARLET	COSMOS.		
Peter + Carol buinas	e/		
Kathy Brunstale			
REID WILSON MARGARET WILSON			
CONRAD BOYOS			
Colin , Dancy Graham			



#### **PUBLIC INFORMATION CENTRE #2** November 2, 2011



(Please Print) SIGN IN SHEE

Name	Mailing Address (if you are not already on our list)	Email	CD
John & Marsha Ludwig			N□ Y⊠
Don Andrews			
Karin & Roger Cooper			
DAVID & CONNIE MOKIBBON			
Beuz Larry Leslie			
Darryl Knight			⊠Y ⊡N
Brian Buckles			
DAVE BOULTON			
Barb + George Pratt			
HOWARD SHRIMPTON			



#### **PUBLIC INFORMATION CENTRE #2** November 2, 2011



(Please Print) SIGN IN SHE

Name	Mailing Address (if you are not already on our list)	Email	CD
PAT MIKUSE	COUNCILOR.		
JACK BAllingen	REGIONAL COUNCILLOR		
JOHN RODYCH			
Maria Guido			
RUCK EDWARDS			
MARGO, Martie Gullickson			
SCOTT CARIEVE			
Tan John Robin John			
Robin John			
Brian Hingston			



#### PUBLIC INFORMATION CENTRE #2 November 2, 2011



(Please Print)

Name	Mailing Address (if you are not already on our list)	Email	CD
MICHAEL TUCKER			ØY ⊡N
NIKI & JOHN PAGIDAS URBAN PANTRY			DY 🕅 N
RIGH VANDEZANDE	TWP OF VXBRIDGE		
Bar Denherd			
Bruce McMullen			
Mary Hogg			
MIKE TROIANI			
temper Weller			
Fernin Willer Earle Lockerby CHARLES MACDONELL			
CHARLES MAG DONGLL			



SIGN IN SHEE

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction

#### PUBLIC INFORMATION CENTRE #2 November 2, 2011



(Please Print)

Name	Mailing Address (if you are not already on our list)	Email	CD
Nathalie Emer			
GERRI LYNN O'CONNOR			
GORDOW HIGHET			
Mr + Mrs Michuel Goodyean			
Alan Wells			
David + Kim Cooper			DÍY 🗆 N
Be Northeast			
Philshatz			ÉY ON



#### PUBLIC INFORMATION CENTRE #2 November 2, 2011



(Please Print)

Name	Mailing Address (if you are not already on our list)	Email	CD
JOHN NEWZU			⊡¥ ⊡n

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #2 NOVEMBER 2, 2011
Name ( <i>Please Print</i> ):
Mailing Address: Phone:
Email Address:
1. Which flood reduction alternative do you like best and why?
While I prefer to "politie bridge tack in lobbidge" I see the bridger diam colsept two downstream improvements as the preferred solution
2. What do you envision as the benefits and drawbacks of the preferred alternative shown at the PIC?
The ability to redevelop upstream of the
Lones in the floodplain
×
3. What are your specific concerns related to flood risk as it was presented at the PIC?
The potential loss of life should use
experience a Herel Lype storm
event
¢
4. If it is not possible to eliminate all flooding, how much flooding overtop of Brock Street would be acceptable to you?
Some none is acceptable
Additional Comments (use reverse if necessary)
I hope that the Township, Region and
Repartillo Concernation - Dellerriter
can find the reasoned Leveling

Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 2, 2011** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Manager, Environmental Assessments SRM Associates 110 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 jhaslett@srmassociates.org

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 bkester@town.uxbridge.on.ca

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #2 NOVEMBER 2, 2011
Name (Please Print):
Mailing Address: Phone:
Email Address:
1. Which flood reduction alternative do you like best and why?
ALTERNATIVE #1 AT MINIMUM, ALTERNATIVE #2 IF FUNDING- IS AVAILABLE
2. What do you envision as the benefits and drawbacks of the preferred alternative shown at the PIC?
IDO NOT SEE NRAWBACKS-
3. What are your specific concerns related to flood risk as it was presented at the PIC?
4. If it is not possible to eliminate all flooding, how much flooding overtop of Brock Street would be acceptable to you?
AT GRADE M
Additional Comments (use reverse if necessary)
ID LIKE TO SEE WATER LEVELS SHOWN ON A CONTROLL
MAP TO SEE HOW THE CHANCES WOULD EFFECT FLOOD PLAN,
ALONG BASCOM, AT THIS TIME FLOOD WATERS CHOULD GROSS
BASCOM ST, WHERE WOULD THE BE AFTER CHANGES - AT WHAT CONTOUR
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the

Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 2, 2011** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Manager, Environmental Assessments SRM Associates '0 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 jhaslett@srmassociates.org

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 bkester@town.uxbridge.on.ca

David Dunn, C.E.T., E.I.T. Engineering Technician Regional Municipality of Durham 605 Rossland Rd. E, Whitby, ON L1N 6A3 Phone: 905-668-7711 ext. 3422 Fax: 905-668-2051 david.dunn@durham.ca ł

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #2 NOVEMBER 2, 2011
Name (Please Print):
Mailing Address: Phone:
Email Address:
1. Which flood reduction alternative do you like best and why?
ALT. #2 It creates an attractive feature for the downfour area; which is greatly needed. It recomments He urban with The Mrol. & enbraces par "Trails Capital of Canada" Dranding with the environmental berefits of any
2. What do you envision as the benefits and drawbacks of the preferred alternative shown at the PIC? gen Cabiept- Benefits ore to open the Brook to the Pastic for Viewily however the Cost is significant a The disruption to Hounform furthy Construction would be difficult for
Image: Second state         3. What are your specific concerns related to flood risk as it was presented at the PIC?
The potential devestating effects on property abusilesses.
4. If it is not possible to eliminate all flooding, how much flooding overtop of Brock Street would be acceptable to you?
Additional Comments (use reverse if necessary) 72:5 Las the apportanity really prove a our otherwise plain Janafour.
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the

Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 2, 2011** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Manager, Environmental Assessments SRM Associates 110 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 jhaslett@srmassociates.org

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 bkester@town.uxbridge.on.ca

Municipal Class Environmental Assessment Uxbridge Downtown Flood Reduction PUBLIC INFORMATION CENTRE #2 NOVEMBER 2, 2011
Name (Please Print):
Mailing Address: Phone:
Email Address:
1. Which flood reduction alternative do you like best and why?
# 7-
It is one of the options that increases
BRINGE book in Urbred
2. What do you envision as the benefits and drawbacks of the preferred alternative shown at the PIC?
3. What are your specific concerns related to flood risk as it was presented at the PIC?
Not sercous enough
4. If it is not possible to eliminate all flooding, how much flooding overtop of Brock Street would be acceptable to you?
Some may haven
Joint mapping
Additional Comments (use reverse if necessary)
lande of the would be don.
pot the both
Turt in ruscory in my
THE IS A DIR MAINTIN
Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the

Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 2, 2011** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Manager, Environmental Assessments SRM Associates 110 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 jhaslett@srmassociates.org

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 bkester@town.uxbridge.on.ca

COMMENT SHEET
n Flood Reduction TION CENTRE #2 R 2, 2011
Phone:
Email Address:
1. Which flood reduction alternative do you like best and why?
PIPE THE CULVERT FROM NORTH TO SOUTH. THERE IS NO ENVIRONMENTAL UPSIDE TO A GREENSPARE DELE TO HEAVY TRUCK & BUS EMISSIONS
2. What do you envision as the benefits an <del>d drawbacks</del> of the preferred alternative shown at the PIC? DINCREASED PROPERTY VALUES
3 ARE BEREAR TO INTEGRATE & UNIFY THE DOWNTOWN
AREA BECOWES FEASIBLE (D THE PROJECT CAN BE TRANSFORMED INTO A MARKETING OPPORTUNIT 3. What are your specific concerns related to flood risk as it was presented at the PIC?
THE FLOOD HUB BEFORE THE WORK IS COMPLETE
4. If it is not possible to eliminate all flooding, how much flooding overtop of Brock Street would be acceptable to you?
THE PRUJECT IS NOT WORTH& DOING UNLESS THE RISK
IS COMPLETELY ELIMINATED DUE TO THE UNSOUND
NATURE OF THE BUILDING FOUNDATIONS
Additional Comments (use reverse if necessary)
THIS PROJECT NEEDS to BE DONE AND DONE
PROPERLY TO ELIMINATE THE PROBLEM COMPLETELY.
ANY THING LESS WILL CAUSE THE ISSUE TO BE REVISITED
IN THE FUTURE & COST A LOT MORE

Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **December 2, 2011** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Manager, Environmental Assessments SRM Associates 110 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 jhaslett@srmassociates.org

Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 bkester@town.uxbridge.on.ca

ŧ

110 Scotia Court, Unit 41 Whitby, Ontario L1N 8Y7

T: 905.686.6402 F: 905.432.7877 www.srmassociates.org



#### PUBLIC MEETING REPORT

DATE:	November 2, 2011	PROJECT NO.:	10257			
LOCATION:	Township of Uxbridge Municipal Office 51 Toronto St. S. Uxbridge					
PROJECT NAME:	Uxbridge Downtown Flood Reduce Assessment	ction Municipal Class E	Environmental			
PURPOSE:	Phase 2 Public Consultation					
ATTENDING: NAME Ben Kester David Dunn Tom Fowle Dale Dionne	<b>COMPANY</b> Township of Uxbridge Region of Durham UWAC SRM Associates	EMAIL bkester@town.ux David.Dunn@du tomfowle@hotma ddionne@srmass	rham.ca ail.com sociates.org			
Andrea Keeping Lucy Benham Jennifer Haslett	SRM Associates SRM Associates SRM Associates	akeeping@serna lbenham@sernas jhaslett@srmass	s.com			

Public Information Centre #2 was held on November 2, 2011 at the Township of Uxbridge Municipal Office from 6:00 to 8:30 p.m. Representatives from the Township, and the consultant, SRM Associates, were available to answer questions.

Fifty-eight (58) members of the public attended. Fifteen (15) display panels were available for review, outlining the study background, results of field investigations, a simulation of a flooding event in downtown Uxbridge, the alternative solutions considered, an evaluation matrix, and preliminary opinion on a preferred solution. The following questions / comments were raised during the discussions:

- 1. What type of work exactly is meant by "downstream improvements"?
- 2. How many buildings would be demolished to implement the preferred solution?
- 3. What is meant by "Hurricane Hazel" in reference to a storm event?
- 4. What would be the cost of replacing the culvert?
- 5. What are the upstream and downstream impacts?
- 6. Where will the money come from for this project?
- 7. What is the likelihood of Hurricane Hazel occurring again?
- 8. Does the culvert run perpendicular to Brock Street, or is it on an angle?
- 9. Have you considered by-passing the downtown, by having the watercourse re-routed at Elgin Pond Dam and outletting north of Brock Street? Are there concerns for erosion at Elgin Pond Dam in a flood?



#### PUBLIC MEETING REPORT

- 10. Would a new culvert be designed to convey a Regional event?
- 11. Have you considered losses to entrances of buildings?
- 12. It would have been helpful to show the floodline on the preferred solution panel.
- 13. Do the costs shown in the evaluation include the costs of expropriation?
- 14. Would we have any warning of a flood event of the magnitude shown in the simulation panel?
- 15. Why is this issue just coming to light now?
- 16. There is garbage in the creek it is unsightly and bad for the environment.
- 17. We support opening up part of the creek and reducing the floodlines.
- 18. What would happen to the owners of the affected properties? How would the expropriation process work?
- 19. What would the opportunities for re-development be?
- 20. When will we have more details?

Comment sheets were available at the sign-in desk and on tables in the meeting room. The display boards were posted on the Town and Region's website for those that could not attend. Copies of the panels in CD and hard copy format were also given to participants at their request.

NOTE: If the information in this report does not agree with your record of this meeting, or if there are any omissions, kindly advise this office immediately, otherwise we shall assume its contents to be correct.

JH/

Distribution: All Present



Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address project issues and concerns.











## 2010 - 2012 ENVIRONMENTAL ASSESSMENT

### **PROBLEM STATEMENT**

condition of the culvert necessitates a solution that includes replacement of the existing structure."

### BACKGROUND

- **JUNE 2008** The Council of the Township of Uxbridge gave direction to work with the Lake Simcoe Region Conservation Authority (LSRCA) and the Region of Durham to develop a Terms of Reference for an Environmental Assessment study and to update the 1983 Flood Relief Study of the Town of Uxbridge.
- **OCTOBER 2008** Terms of Reference are drafted to alleviate if not eliminate the potential risks associated with flooding in the downtown area of the Town of Uxbridge.
- **JUNE 2009** Council approves the Terms of Reference for an Environmental Assessment, to be pursued as a 2010 project.
- SEPTEMBER 2009 -Council supports а recommendation to establish a Downtown Uxbridge Culvert Replacement Project Technical Steering Committee.
- JUNE 2010 SRM Associates is retained by the Township and the Region to conduct the Uxbridge Downtown Flood Reduction Class Environmental Assessment.

"A severe flood hazard under the Regional Storm Event (Hurricane Hazel) exists for lands adjacent to Uxbridge Brook, especially in the downtown core at Brock Street. The flood hazard is due to the presence of a long culvert which encloses Uxbridge Brook between Centennial Drive and the north limit of the parking lot 100 m north of Brock Street. The deteriorated

#### **STUDY OBJECTIVES**

- Build upon the 1983 Flood Relief Study, confirm that prior assumptions and studies are still valid, and propose new ideas where appropriate to best fit the engineering, environment, and permitting needs of current day.
- Reduce potential risk to personal safety and life and damage to properties associated with flooding in the downtown area.
- Reduce the extent of the Regulated Floodplain and related development controls that currently encompasses a large portion of the downtown area, thereby increasing development potential.

#### LOCAL ISSUES

- Regional Storm Floodline Area currently The encompasses a large portion of the downtown core of the Township of Uxbridge (refer to 2010 Study Location panel).
- A flood hazard exists during the Regional Storm (Hurricane Hazel) for land adjacent to the main branch of Uxbridge Brook, particularly between Elgin Pond and just downstream of Brock Street.



The culvert which encloses Uxbridge Brook between Centennial Drive and the north limit of the parking lot 100 m north of Brock Street acts as a 'bottle-neck' during the Regional Storm event.

The preferred solution must consider the constraints of working in the urban downtown which includes existing buildings and uses, significant transportation corridors, effects of flooding, and public uses/ objectives.

The preferred solution must consider the objectives of the Uxbridge Brook Watershed Study by LSRCA, and integrate environmental protection and restoration policies where ever possible.

Uxbridge, the Trail Capital of Canada, has an extensive trail system that connects with the Trans Canada and Oak Ridges Trails. Connectivity between the open green space within Centennial Park at Uxbridge Brook and the rail line is disjointed and highly urbanized.

Several community events take place in and around Uxbridge Brook. These events must be considered during the implementation and construction staging of the preferred solution.

Since the preferred solution could require encroachment into existing parking areas, a parking impact study is required to evaluate the potential impact.





#### **CONSULTANT'S TEAM**

- DALE DIONNE, Project Principal
- JENNIFER HASLETT, Project Manager/ EA Coordinator
- JILLIAN BIESER, EA Assistant
- ANDREA KEEPING, Water Resources Engineer
- PAUL TURNER, Project Engineer
- JOHN SEMJAN, Structural Engineer
- PAUL VILLARD, Senior Geomorphologist
- KEN CHOW, QA/QC Auditor
- BEN KESTER, Director of Public Works, Township of Uxbridge
- DAVID DUNN, Engineering Technician, Regional Municipality of Durham

#### **Subconsultants**

PipeFlo Contracting Corp. R.W. Bruynson Inc. Archeoworks Inc. Soil Engineers Ltd.

#### **GENERAL PROJECT SCHEDULE**



## STUDY ORGANIZATION

#### UXBRIDGE WATERSHED ADVISORY COMMITTEE



**PURPOSE:** The Uxbridge Watershed Advisory Committee serves as an advisory body to Council.

**OBJECTIVE:** The Committee focuses on the environmental health and implementation of watershed plans within the Township. The Committee initiates / undertakes projects and in addition provides a community perspective on watershed management and work supporting environmental sustainability.

**MEMBERSHIP:** Members are volunteers and are appointed for the term of Council. In addition to a Township staff person, representatives of the Lake Simcoe Region Conservation Authority (LSRCA) and Toronto and Region Conservation Authority (TRCA) also sit on the Committee.

#### **CURRENT MEMBERS:**

- Tom Fowle, Chair
- Nicola Alston
- Peter Burtch, LSRCA
- Scott Grieve
- Andrea Priestman
- Jacob Mantle
- Phil Shantz

- Charlie Gullickson
- Gwen Layton
- Jake Riekstins
- Howard Shrimpton
- Allan Wells
- Michael Goodyear
- Richard Vandezande, Township of Uxbridge



#### **DOWNTOWN UXBRIDGE CULVERT REPLACEMENT PROJECT TECHNICAL STEERING COMMITTEE**

**PURPOSE:** The Steering Committee serves as an advisory body to Council.

**OBJECTIVE:** The Steering Committee must ensure the overall objectives of the project remain in focus. Financial assistance from Federal, Provincial and other funding agencies is sought. Liaison as necessary with Township & Regional Councils, governments, and stakeholders. Undertake other activities as the Committee deems necessary.

**MEMBERSHIP:** Members are volunteers. The committee consists of a Chair, Director of Public Works of the Township, Ward 4 & 5 Councillors and one representative from the following list of agencies:

- Region of Durham's Works Department
- Lake Simcoe Region Conservation Authority
- Ministry of Environment
- Uxbridge Watershed Advisory Committee
- Business Improvement Area Chamber of Commerce
- EA Consultant/ Project Manager











MUNICIPAL ENGINEERS ASSOCIATION

## MUNICIPAL CLASS EA PROCESS



MANDATORY PUBLIC CONTACT POINTS (See Section A.3 Consultation) DECISION POINTS ON CHOICE OF SCHEDULE

PARTII ORDER (See Section A.2.8)





## PREFERRED ALTERNATIVE PRESENTED AT PIC # 2





improvements to help reduce flooding.

Widen the valley

Investigate options for opening the watercourse.











## **DESIGN ALTERNATIVE EVALUATION** DECISION POINTS 1 - 5

**DECISION 1** 

A range of new, larger culvert sizes, were examined on a building-by-building footprint basis. Each column of the design options table represents a culvert(s) size that will fit under various numbers of buildings.

			•	
S TABLE	1 Culvert	2 Culverts	2 Culverts	2 Culve
	Under 1 Building	Under 2 Buildings	Under 3 Buildings	Under 4 Bu
of Existing Culvert	~ 268.8 m	~ 266.5 m	~ 264.4 m	~ 263.8
	\$1.8 million	\$5.9 million	\$10.0 million	\$11.9 mi
open ~60m of Channel North of	~ 268.8 m	~ 266.5 m	~ 264.6 m	~ 264.0
t	\$3.5 million	\$7.0 million	\$9.8 million	\$12.0 mi
ert AND Valley Widening North of	~ 268.6 m	~ 266.4 m	~ 264.4 m	~ 263.7
t	\$4.1 million	\$8.2 million	\$12.2 million	\$14.2 mi
rt AND Valley Widening North of ND ominion St.	~ 268.5 m \$4.3 million	~ 266.3 m \$8.4 million	~ 264.2 m \$12.4 million	~ 263.6 \$14.4 mi
ert AND Valley Widening North of ND nion St.	~ 268.5 m \$4.4 million	~ 266.3 m \$8.5 million	~ 264.1 m \$12.5 million	~ 263.4 \$14.5 mi
	DECISION	5	he table contain the floo ption, plus an estimate	

### Cross-section of the back-side of the buildings on the south side of Brock Street.

-			-	-	
	and the initial				and the second
		Cu	lvert Replaceme	ent Zone	

Imagine that you are standing on the culvert on Centennial Drive, right overtop of Uxbridge Brook, looking at the back of the buildings on Brock Street.















### **DECISION 7**

The majority of flood waters would be conveyed by new, larger culverts, but there would still be some flooding within the valley. There would be some flooding of basements, but the water would not rise up and over Brock Street – the downtown area would remain dry.

-		 _	
		_	
-			

			V		
DESIGN OPTIONS TABLE	1 Culvert Under 1 Building	2 Culverts Under 2 Buildings	2 Culverts Under 3 Buildings	2 Culverts Under 4 Buildings	2 Culverts Under 5 Buildings
Replacement of Full Length of Existing Culvert	~ 268.8 m	~ 266.5 m	~ 264.4 m	~ 263.8 m	~ 263.6 m
	\$1.8 million	\$5.9 million	\$10.0 million	\$11.9 million	\$16.2 million
Replacement of ~ 135m of Existing Culvert, open ~60m of Channel north of	~ 268.8 m	~ 266.5 m	~ 264.6 m	~ 264.0 m	~ 263.8 m
Brock Street	\$3.5 million	\$7.0 million	\$9.8 million	\$12.0 million	\$15.7 million
eplacement of Full Length of Existing Culvert AND Valley Widening North of	~ 268.6 m	~ 266.4 m	~ 264.4 m	~ 263.7 m	~263.5 m
Brock Street	\$4.1 million	\$8.2 million	\$12.2 million	\$14.2 million	\$18.5 million
eplacement of Full Length of Existing Culvert AND Valley Widening North of	~ 268.5 m	~ 266.3 m	~ 264.2 m	~ 263.6 m	~ 263.3 m
Brock Street AND 5m x 2.5m culvert at Dominion St.	\$4.3 million	\$8.4 million	\$12.4 million	\$14.4 million	\$18.7 million
eplacement of Full Length of Existing Culvert AND Valley Widening North of	~ 268.5 m	~ 266.3 m	~ 264.1 m	~ 263.4 m	~ 263.1 m
Brock Street AND Removal of Dominion St.	\$4.4 million	\$8.5 million	\$12.5 million	\$14.5 million	\$18.8 million

## **DESIGN ALTERNATIVE EVALUATION** DECISION POINTS 6 - 11

**DECISION 6** 

Once the magnitude of the required solution became clear, the project team reconvened with the Steering Committee to re-evaluate the project goal. It was determined that a better balance of flood reduction benefit vs. social impact could be achieved by aiming to keep flood waters below the first floor elevation of the buildings (265.9m).

Cross-section of the back-side of the buildings on the south side of Brock Street.



### ECISION 8

revised goal opened up a much broader range of solutions for flood ction. Any combination of solutions in the last three columns of the would keep the water below the 265.9m elevation.

### ECISION 9

nit the number of buildings affected, a solution within the 3-building nn made most sense. Within that column however, there is only 30 cm rence in flood reduction between the simplest / least expensive solution row) and the most aggressive / expensive solution (bottom row).

### ECISION 11

top two cells in the 3-building column represent the best reasonable tion for flood reduction. The second option in the column provides an prtunity to open a portion of the creek, which would have significant ronmental and social benefits. For these reasons, it is recommended as oreferred design.





ENVI	RO	Ν	N
------	----	---	---

						Category	Evaluation Criteria		
DESIGN OPTIONS TABLE	1 Culvert Under 1 Building	2 Culverts Under 2 Buildings	2 Culverts Under 3 Buildings	2 Culverts Under 4 Buildings	2 Culverts Under 5 Buildings	Category	Evaluation Criteria		2 culverts (7.0m x 2.5m and 8.0m x 2.5m) under 3 buildings East and West culverts 195m long (each) - no open channel
Replacement of Full Length of Existing Culvert	~ 268.8 m \$1.8 million	~ 266.5 m \$5.9 million	~ 264.4 m \$10.0 million	~ 263.8 m \$11.9 million	~ 263.6 m \$16.2 million	Natural Environment	Length and stability of		
Replacement of ~ 135m of Existing Culvert, open ~60m of Channel north of Brock Street	\$3.5 million	~ 266.5 m \$7.0 million	~ 264.6 m \$9.8 million	~ 264.0 m \$12.0 million	~ 263.8 m \$15.7 million		natural channel in the Uxbridge Brook System		Replacement of the full length of the existing culvert does not provide any opportunity for increasing the length of open creek channel in the Uxbridge Brook system. However, pool enhancement can occur at the outlet of the new culvert.
Replacement of Full Length of Existing Culvert AND Valley Widening North of Brock Street	f ~ 268.6 m \$4.1 million	~ 266.4 m \$8.2 million	~ 264.4 m \$12.2 million	~ 263.7 m \$14.2 million	~263.5 m \$18.5 million		Quality of fish habitat		
Replacement of Full Length of Existing Culvert AND Valley Widening North of Brock Street AND 5m x 2.5m culvert at Dominion St.	\$4.3 million	~ 266.3 m \$8.4 million ~ 266.3 m	~ 264.2 m \$12.4 million ~ 264.1 m	~ 263.6 m \$14.4 million ~ 263.4 m	~ 263.3 m \$18.7 million ~ 263.1 m				Without eliminating part of the culvert, there is no opportunity to improve the quality of fish habitat. The design will ensure however, that fish can pass through the culvert to maintain connectivity in the system. Resting areas for
Replacement of Full Length of Existing Culvert AND Valley Widening North of Brock Street AND Removal of Dominion St.	f \$4.4 million	\$8.5 million	\$12.5 million	\$14.5 million	\$18.8 million				fish can be created upstream and downstream of the culvert.
			LEG	END			Quality of riparian zone	•	Without eliminating part of the culvert, there is limited opportunity to improve the quality of riparian habitat along the creek. Re-vegetation along the banks at the inlet and outlet of the new culvert could occur, but no additional creek bank would be available for re-vegetation.
			•	Negative			Water Quality	~	Improvement to flow and sediment transport processes druring large flow events.
			0	Neutral		Social Environment	Reduction of the floodplain in the downtown	~	There would be an approximate 4.5m reduction in flood elevation from existing conditions, meaning that flood waters would stay within the creek valley during a severe storm event, and no longer overtop and flood the downtown. This would remove the majority of buildings in the downtown area from the floodplain.
				Positive			Requirement for easement / acquisition of private property	0	To implement this solution, the property at #30/32 Brock Street requires acquisition, and the existing building to be demolished. After construction, the building could be replaced, if desired. In addition, small portions of other private properties will require acquisition and/or easements for construction.
							Effect on parking availability	0	There would be no loss or gain in parking spaces.
							Effect on aesthetic quality of downtown	0	After construction, the only visual change in the downtown area would be from the loss of the building at #30/32 Brock Street. Should a decision be made to replace this building however, the downtown area would look essentially the same as prior to construction.
							Compatibility with Downtown Community Improvement Plan	~	Removes restrictions on redevelopment in the downtown associated with the Regulatory floodplain, for the majority of buildings in the area.
							Opportunities for leisure of trail facilities	~	If the building at #30/32 Brock Street is not replaced after construction, there would be opportunity to create a pedestrian pathway to connect Centennial Drive and Brock Street.
						Economic Environment	Estimated construction cost (not including property costs)		\$10 million
							Future development opportunities	•	Removes restrictions on redevelopment in the downtown associated with the Regulatory floodplain, for the majority of buildings in the area.
						Cultural Environment	Effect on archaeological resources	0	There is preliminary evidence of an historic mill site near the existing culvert behind the buildings on the south side of Brock Street. Additional archaeological investigations will be required prior to construction, but there is no effect
						Technical Factors	Difficulty of construction		on location of the proposed culvert.
									Due to the varying design constraints in the downtown, the culvert will have to be designed and constructed with 4 zones: 1) Under and adjacent to buildings on the south side of Brock Street; 2) under Brock Street; 3) between buildings on the north side of Brock Street; and 4) in the parking lot behind the buildings north of Brock Street.
							Addressing the deteriorated condition of the existing culvert	•	Removes all deteriorated sections of the existing culvert. Minor repairs are required for the section of culvert that would remain under the Youth Centre.
							Effect on Uxbridge Brook Water Pollution Control Plant	0	There are no changes to the downstream flood elevations past Main Street. Therefore there is no impact to the Uxbridge Brook Water Pollution Control Plant, which is further downstream.





## MENTAL IMPACT EVALUATION OF PREFERRED DESIGNS



		2 culverts (7.0m x 2.5m and 8.0m x 2.5m) under 3 buildings East culvert 195m long; West culvert 135m long; 60m open channel
of w	•	Eliminating 60m of culvert provides an opportunity for increasing the length of open creek channel in the Uxbridge Brook system.
;n or	•	By opening part of the system, there is an opportunity to improve the quality of fish habitat. The design will also ensure that fish can pass through the culvert to maintain connectivity in the system. Resting areas for fish can be created upstream and downstream of the culvert. There will also be an increase in particulate organic matter inputs and canopy and instream cover.
ıg al	~	By opening part of the system, there is opportunity to improve the quality of riparian habitat along the creek. Vegetation of the engineered side slopes can be accomplished through the use of "green" rock protection, and installation of plant material to shade the creek and improve the visual appeal of the channel.
	~	Improvement to flow and sediment transport processes during large flow events.
od ie	•	There would be an approximate 4.5m reduction in flood elevation from existing conditions, meaning that flood waters would stay within the creek valley during a severe storm event, and no longer overtop and flood the downtown. This would remove the majority of buildings in the downtown area from the floodplain.
er	•	To implement this solution, the property at #30/32 Brock Street requires acquisition, and the existing building to be demolished. After construction, the building could be replaced, if desired or advantageous. In addition, small portions of other private properties will require acquisition and/or easements for construction. The open channel would be primarily on land owned by the Township.
	0	The open creek channel would result in a loss of approximately 12 parking spaces. The loss could be offset by creating parking in the footprint of the building to be demolished, or building a parking structure in the downtown area.
2 ly	~	After construction, the main visual change in the downtown area would be from creation of an open channel north of Brock Street. The visual impact from loss of the building at #30/32 Brock Street depends on future decisions regarding replacement.
ţy	•	Removes restrictions on redevelopment in the downtown associated with the Regulatory floodplain, for the majority of buildings in the area. Also, contributes to the objective of reinstating Uxbridge Brook as a feature in the downtown area.
а	•	If the building at #30/32 Brock Street is not replaced after construction, there would be opportunity to create a pedestrian pathway to connect Centennial Drive and Brock Street. Also, there is opportunity to create future open space or leisure facilities adjacent to the open section of the creek north of Brock Street.
		\$10 million
tγ	~	Removes restrictions on redevelopment in the downtown associated with the Regulatory floodplain, for the majority of buildings in the area.
:h ct	0	There is preliminary evidence of an historic mill site near the existing culvert behind the buildings on the south side of Brock Street. Additional archaeological investigations will be required prior to construction, but there is no effect on location of the proposed culvert.
:h :n	•	Due to the varying design constraints in the downtown, the culvert will have to be designed and constructed with 4 zones: 1) Under and adjacent to buildings on the south side of Brock Street; 2) under Brock Street; 3) between buildings on the north side of Brock Street; and 4) in the parking lot behind the buildings north of Brock Street.
at	~	Removes all deteriorated sections of the existing culvert. Minor repairs are required for the section of culvert that would remain under the Youth Centre.
ie	0	There are no changes to the downstream flood elevations past Main Street. Therefore there is no impact to the Uxbridge Brook Water Pollution Control Plant, which is further downstream.
		RECOMMENDED DESIGN





### T ROS VES DZ AT Ζ S DESIGN DLINES FLOOI













### **PLAN VIEW**

Culvert section under Youth Centre will . . • - • remain.

> West culvert is 135m long, open bottom, aligned with watercourse to maintain fish passage, ending 40m north of Brock Street, allowing for creation of an open channel.

East culvert is 195m long with a concrete bottom, functioning only during larger storm events.

### **CROSS-SECTION TWIN CULVERTS**

Two concrete culverts with a total span (width) of 15m, under the footprint of 3 buildings. The building at #30/32 Brock Street will have to be removed to install the culvert. Building replacement would be possible, if desired. The west culvert would be aligned with Uxbridge Brook. The east culvert would only function during flood events.



## **RECOMMENDED DESIGN**



### **CROSS-SECTION OPEN CHANNEL**

60m of open channel north of Brock Street. Side slopes will be steep, as the creek is 4.5 - 6.0 m below the existing parking lot. 12 parking spaces will be lost. A pedestrian railing will be installed as a safety feature. The side slopes would be vegetated for environmental benefit.











## PUBLIC CONSULTATION PLAN

NOTICE OF **STUDY COMMENCEMENT** 

NOTICE OF **PUBLIC INFORMATION CENTRE #1** 

NOTICE OF PUBLIC INFORMATION CENTRE #2

WE ARE HERE

NOTICE OF **PUBLIC INFORMATION CENTRE #3** 

> NOTICE OF **STUDY COMPLETION**

Direct mailing to all stakeholders, advertisement in local newspaper, posting on municipal websites

PIC #1 occurred during Phase 1 to communicate the goals of the study, introduce the Study Area, discuss the scope of proposed investigations, and solicit input into the local problems and issues related to flooding in the downtown.

PIC #2 focuses on the results of the background studies, documentation of existing conditions, summary of major issues in the context of the problems and opportunities being examined, development of alternative solutions, evaluation of alternatives, environmental impact mitigation plan and identification of recommended solution.

PIC #3 will be scheduled during Phase 3, and will summarize and evaluate the design alternatives for the preferred solution, identify environmental impact mitigation measures, and how local interests from PIC's #1 and 2 were brought forward into preliminary design.

Same distribution as the Notice of Study Commencement; the Environmental Study Report will be available for 30-days for public review and comment.

Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address project issues and concerns.

FOR FURTHER INFORMATION, PLEASE CONTACT:

The Township of Uxbridge

Ben Kester, C.E.T. Director of Public Works 51 Toronto St. S. Uxbridge, ON L9P 1T1 905-852-9181 ext. 215 bkester@town.uxbridge.on.ca

The Regional Municipality of Durham David Dunn, C.E.T., E.I.T. **Engineering Technician** 

605 Rossland Rd. E. Whitby, ON L1N 6A3 905-668-7711 ext. 3422 (1-800-372-1102) david.dunn@durham.ca

**SRM Associates** Jennifer Haslett, B.Sc. EP Manager, Environmental Assessments 110 Scotia Ct., Unit 41, Whitby, ON L1N 8Y7 905-686-6402 ext. 278 jhaslett@srmassociates.org











- **Review and respond to public and agency comments expressed at PIC # 3**
- Select preferred design alternative

www.durham.ca/cdeap

www.town.uxbridge.on.ca



## FINAL STEPS

**Complete an Environmental Study Report and make available for public review and comments** Notice of Study Completion will be advertised, and the Environmental Study Report will be available for public review Information related to this study will be posted on the Regional Municipality of Durham and Township of Uxbridge websites at:

## THANK YOU FOR ATTENDING THE PUBLIC INFORMATION CENTRE FOR THE UXBRIDGE DOWNTOWN FLOOD REDUCTION **CLASS ENVIRONMENTAL ASSESSMENT STUDY**

Your comments are encouraged and appreciated, as this will provide us with an opportunity to study and address project issues and concerns.





#### PUBLIC INFORMATION CENTRE #3 May 16, 2012

Mailing Address (if you are not already on our list)

LSRCA

Utbridge Uxbridge Email

ป

t. hogenbirk@lsrca.on.ca



IZÍÝ ⊡N

CD

(Please Print) Name Tom Hogenbirk MARK STABB SIGN IN SHEE Jacob Mantle. Tan John Geny Wood unered Wignen Alterters

Page \ of \.

DURHAM REGION	Municipal Class Enviror Uxbridge Downtown PUBLIC INFORMA May 16,	Flood Reduction	
Name (Please Print):			
Mailing Address:		Phone:	
Email Address:	0		
A 900	od reven ctical solu	with	
a pro	ctical Solu	to	
/			
	<u></u>		··· ·
			···
	· • • • • • • • • • • • • • • • • • • •		
	. <u></u>		·····
	·······		<u></u>
	- 1980		
			<u></u>
······	·····		

Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **June 30, 2012** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Manager, Environmental Assessments SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 jhaslett@srmassociates.org Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 bkester@town.uxbridge.on.ca

DURHAM REGION	Uxbridge Downto PUBLIC INFOR	vironmental Assessmer own Flood Reduction MATION CENTRE #3 16, 2012	nt
Name (Please Print):			
Mailing Address:		Phone	
Email Address:		l	······································
town not	ict should do everything just an invisible enginee	ing solution to a potent	tic publicm. The
opening of	the brook, at least parties lirection - but having	they, in the particing let is	a slep in the
right 0	med visical enhancement	another with it.	would be into d
the land 4	here the two buildings	on knort St have to be	ze taken down
	using them as a part		
	My enhance the down		
	por parlette forming a		0
Dountoren	Uxbridge desperately	needs an "open space	e forces " - and
This coved	ke a start. Eventua	ly the Mac's Mile	area word ke
	al central plaza.		
			· · · ·
		· · · · · · · · · · · · · ·	
·····			
L			

Thank you for providing input on this project. Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information Act and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person. Please submit comments by **June 30, 2012** to one of the contacts listed below:

Jennifer Haslett, B.Sc., EP Manager, Environmental Assessments SRM Associates 10 Scotia Court, Unit 41, Whitby, Ontario L1N 8Y7 Phone: (905) 686-6402 Fax (905) 432-7877 jhaslett@srmassociates.org Ben Kester, C.E.T. Director of Public Works Township of Uxbridge 51 Toronto St. S, P.O. Box 190, Uxbridge, ON L9P 1T1 Phone: 905-852-9181 ext. 215 Fax: 905-852-9674 bkester@town.uxbridge.on.ca

110 Scotia Court, Unit 41 Whitby, Ontario L1N 8Y7

T: 905.686.6402 F: 905.432.7877 www.srmassociates.org



#### PUBLIC MEETING REPORT

DATE:	May 16, 2012	PROJECT NO.:	10257
LOCATION:	Township of Uxbridge Municipal Office 51 Toronto St. S., Uxbridge		
PROJECT NAME:	Uxbridge Downtown Flood Reduction Municipal Class Environmental Assessment		
PURPOSE:	Phase 3 Public Consultation		
ATTENDING: NAME Ben Kester David Dunn Tom Fowle Dale Dionne Andrea Keeping	<b>COMPANY</b> Township of Uxbridge Region of Durham UWAC SRM Associates SRM Associates	<b>EMAIL</b> bkester@town.ux David.Dunn@du tomfowle@hotma ddionne@srmass akeeping@serna	rham.ca ail.com sociates.org is.com
Jennifer Haslett	SRM Associates	jhaslett@srmass	ociates.org

Public Information Centre #3 was held on May 16, 2012 at the Township of Uxbridge Municipal Office from 6:00 to 8:00 p.m. Representatives from the Township, Region, and the consultant, SRM Associates, were available to answer questions.

Seven (7) members of the public attended. Twelve (12) display panels were available for review, outlining the study organization, background, Municipal Class EA process, design alternatives for the preferred solution, an evaluation matrix, and preliminary opinion on the recommended design. The following questions / comments were raised during the discussions:

- 1. How many buildings need to be demolished?
- 2. Can the Youth Centre stay?
- 3. What is the benefit of having an open watercourse?
- 4. What can be done to offset parking losses?
- 5. Do the owners of the buildings to be demolished know what is being proposed?
- 6. What is the overall cost?
- 7. What size of storm event is being designed for?
- 8. What's the likelihood of a 'Regional' storm happening?
- 9. Who benefits from the solution? Who pays?
- 10. When will the project be implemented?



#### PUBLIC MEETING REPORT

Comment sheets were available at the sign-in desk and on tables in the meeting room. The display boards were posted on the Town and Region's website for those that could not attend. Copies of the panels in CD and hard copy format were also given to participants at their request.

NOTE: If the information in this report does not agree with your record of this meeting, or if there are any omissions, kindly advise this office immediately, otherwise we shall assume its contents to be correct.

JH/ml

Distribution: All Present