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Memo

File	Recipient	Company
121076	**Pruthvi Desai**	**Town of The Blue Mountains**
	Brian Worsley	**Town of The Blue Mountains**

Date	Purpose
April 2, 2025	**Drainage Master Plan, Town of The Blue Mountains Summary of Public Information Centre #3**

Message

Introduction

Tatham Engineering and The Town of The Blue Mountains hosted a Public Information Centre (PIC #3) on October 29, 2024 for the Town's Drainage Master Plan project. PIC #3 was the third PIC completed for this project, exceeding the public consultation requirements for the project, and was completed to provide a final touchpoint to present the results of the Drainage Master Plan to the public prior to finalizing the project.

The purpose of this memo is to summarize the discussions between Tatham Engineering, Town Staff, and attendees of PIC #3 and is included in Appendix M of the Final Drainage Master Plan Report along with the following additional materials from PIC #3:

- Notice of PIC
- PIC #3 Presentation and Script
- PIC #3 Sign-In Sheet
- Correspondence from [redacted] and response from Tatham Engineering
- Correspondence from [redacted] and responses from Tatham Engineering

Summary of PIC #3

The following is a summary of the conversations between Tatham Engineering, Town Staff, and attendees of PIC #3:

- Many of the attendees were residents of Phase 3 of the 2nd Nature Subdivision residing upon lots which back onto a naturalized corridor which contains Watercourse 1. These residents had concerns related to floodwaters from Watercourse 1 extending up to the rear of their lots which had occurred during a significant summer storm in 2023. This subdivision is yet to be assumed and Tatham and Town Staff advised residents that their concerns were being reviewed through the development project and will not undergo further assessment through the Drainage Master Plan.
- Discussion was had with a resident who is a member of the Blue Mountain Ratepayers Association (BMRA) to confirm that the DMP study included estimated costs for implementation of the recommendations and provides recommendations for potential funding sources to support implementation of the recommended solutions.
- Discussion was had with [redacted] of the Craigleith Working Group and BMRA regarding the comments he shared via an emailed letter prior to PIC #3. The

comments and Tatham's responses are summarized in the correspondence included with the materials appended to this memo.

- [redacted] of Tyrolean Village Resorts (TVR) was in attendance and conversation was had with him acknowledging his concerns and thoughts on the DMP process. Several stakeholder meetings have been held with [redacted] and his TVR team and his correspondence on this project file is summarized in the PIC #2 material.

From

Jacob Macdonald, Daniel Twigger

Town of the Blue Mountains Drainage Master Plan Notice of Public Information Centre 3

The Corporation of the Town of The Blue Mountains is undertaking a Drainage Master Plan under the Municipal Class Environmental Assessment Master Planning Process to identify existing drainage deficiencies and develop drainage solutions to address the deficiencies, reduce flooding, resolve public safety concerns, and improve maintenance opportunities within the settlement areas of the Town. A Public Information Centre (PIC1) was previously hosted in February 2022 to review the identified drainage deficiencies and elicit input from the public regarding additional observed deficiencies and public preference regarding potential alternative solutions. A second Public Information Center (PIC2) was held in March 2023 to present the preliminary preferred alternative solutions developed to address the drainage deficiencies identified throughout the study area and elicit input from the public regarding the solutions. A third Public Information Centre (PIC3) is planned to advise the public and interested stakeholders of the final preferred solution selected for implementation.

The Study area encompasses the whole Town with the primary focus being the settlement areas including Lora Bay, Thornbury and Clarksburg, Craigleith and Camperdown, and the Blue Mountains Village area. The existing drainage infrastructure in the study area consists of a combination of open channels, ditches, watercourses, culverts, storm sewers, overland flow routes, stormwater management facilities, and low impact development measures.

The Drainage Master Plan is being completed in accordance with Approach #2 of the Master Planning Process outlined in the Municipal Engineers Association Municipal Class Environmental Assessment document (October 2000, amended in 2007, 2011, 2015, and 2023). The Town has retained the consulting firm Tatham Engineering Limited to complete this Drainage Master Plan.

The Town hereby notifies all interested individuals and parties that Public Information Centre 3 will be held virtually and in-person. The PIC3 pre-recorded presentation will be posted to the project website (www.thebluemountains.ca/MasterDrainagePlanEA) on October 8, 2024. Following posting of the Virtual PIC, Town staff and representatives from Tatham Engineering will be hosting an in-person Open House Question and Answer Session on October 29, 2024, between 5:00 and 7:00 p.m. at the Town Hall.

Additional information related to the Drainage Master Plan is available on the Town of The Blue Mountains website (www.thebluemountains.ca/MasterDrainagePlanEA). Should additional information be required or to be added to the project mailing list, please contact:

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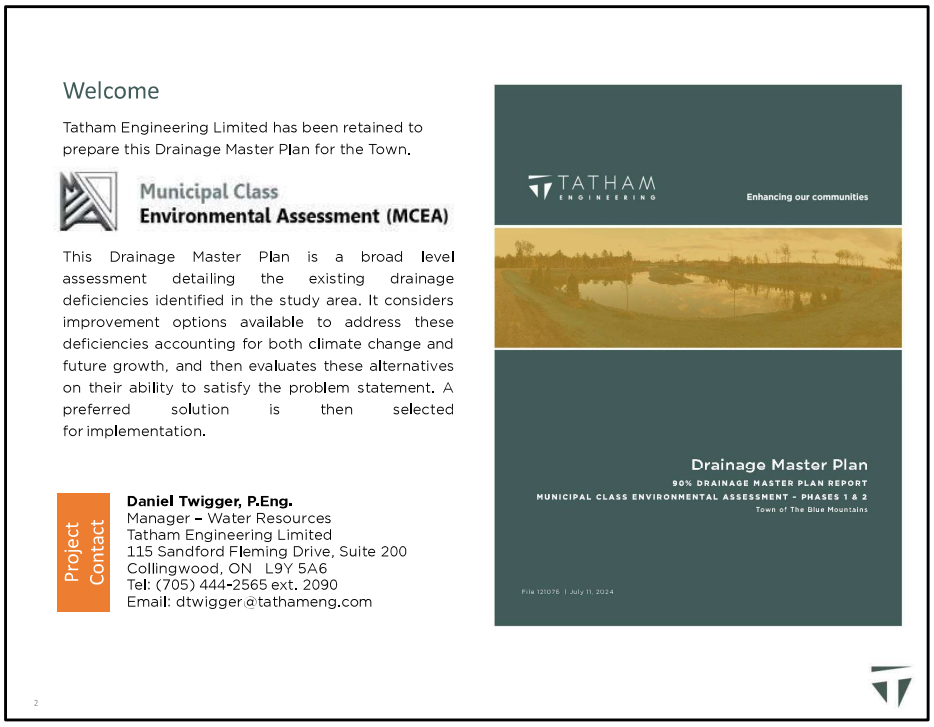
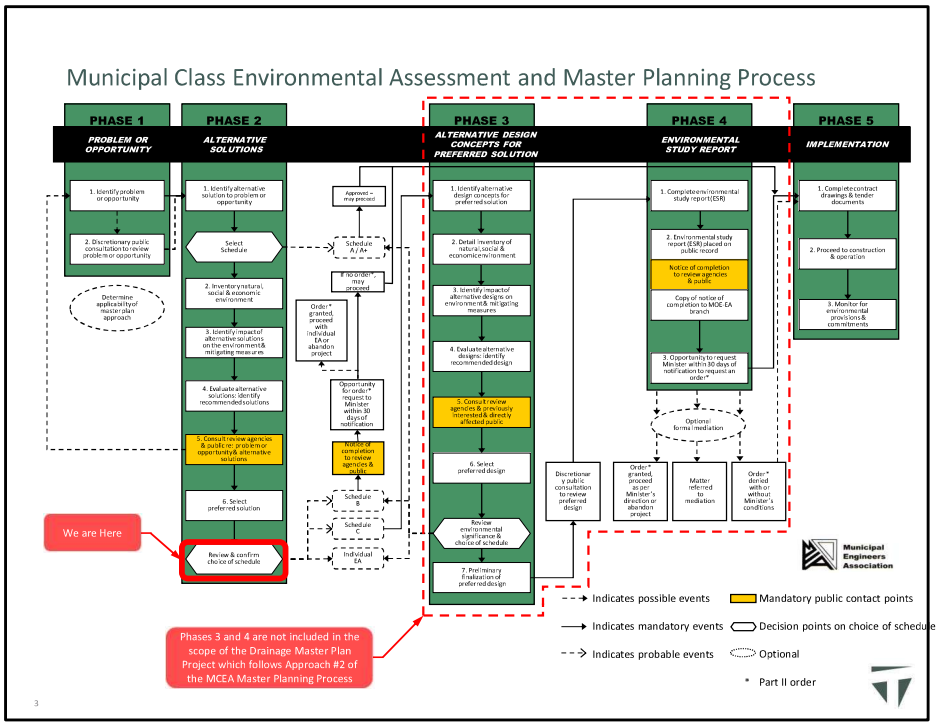
Hello and welcome to the Town of The Blue Mountains Drainage Master Plan public meeting presentation for Public Information Centre 3. This presentation has been prepared to highlight the final recommendations of the Town of The Blue Mountains Drainage Master Plan. The public will be provided an opportunity to ask questions during an in person public meeting question and answer session described later in this presentation.



Tatham Engineering has been retained by The Town of The Blue Mountains to undertake the Drainage Master Plan following Approach #2 of the Master Planning process outlined in the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment Document (October 2000, as amended in 2007, 2011, 2015 and 2023). This Drainage Master Plan is a broad level assessment detailing the drainage deficiencies identified in the study area. It considers improvement options to address these deficiencies, and the evaluation of these alternative solutions to assist in the selection of preferred solution to be implemented moving forward.

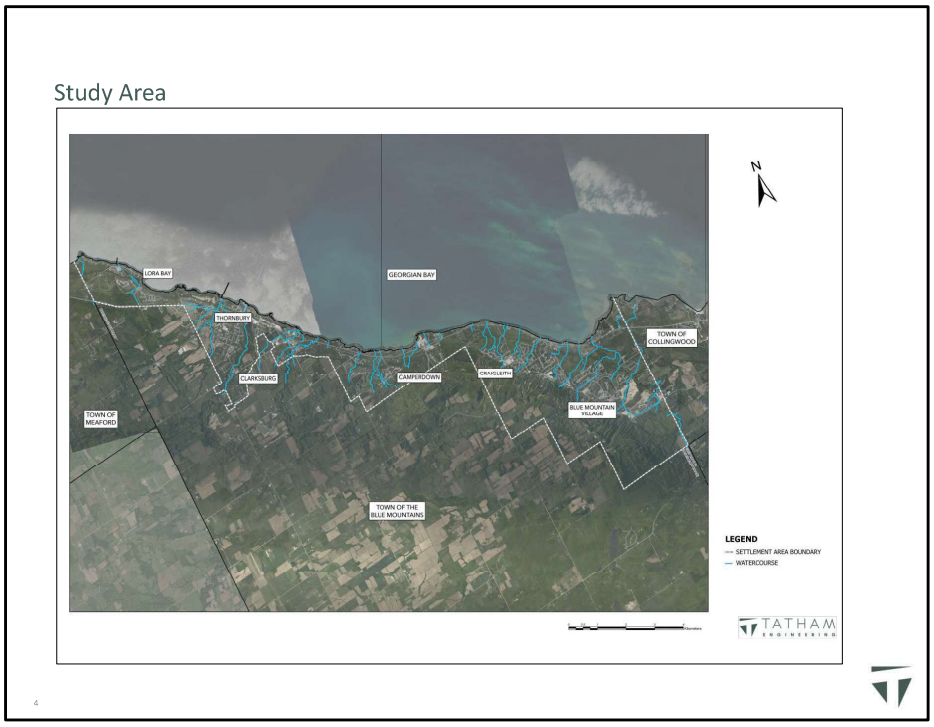
Daniel Twigger is the project manager for this project and Manager of Water Resources Engineering at Tatham Engineering. Daniel can be reached at dtwigger@tathameng.com or via telephone at (705) 444 2565 ext. 2090. Daniel will be available to answer questions at the in person question and answer session described later in this presentation.



What is a Municipal Class Environmental Assessment? A municipal class environmental assessment is a planning and design process to identify, compare, and evaluate alternative solutions to an identified problem. It applies to all municipal road, water, and wastewater projects and significant private projects as per the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (EA) document. It ensures all aspects of the environment: physical, natural, social, cultural and economic are considered in the evaluation and selection of the preferred solution to be implemented.

The Drainage Master Plan is approaching the end of Phase 2 and the 90% Drainage Master Plan Report is available on the project webpage on the Town's website. The public consultation requirements for this project were previously fulfilled through Public Information Centre 2 which was held in March 2023. This current Public Information Centre is not required per the EA process, however, given the large scope of this project, the Town is completing this Public Information Centre to present the final conclusions of the Drainage Master Plan to residents and to provide an opportunity for any questions regarding the conclusions of the Drainage Master Plan EA to be answered. The Final Drainage Master Plan will be finalized following Public Information Centre 3 and made available through the project webpage on the

Town's website.



This Drainage Master Plan is focused on developing drainage solutions for the settlement areas of the Town of The Blue Mountains including Lora Bay, Thornbury, Clarksburg, Craigleith, Camperdown and the Blue Mountain Village area. The study area covers the settlement areas from Christie Beach Road in the west, to Grey Road 21 or Osler Bluff Road in the East. Georgian Bay forms the north study boundary, and the settlement area boundary generally forms the study's south limit.

Municipal Class EA Process – Phase 1

Problem or Opportunity

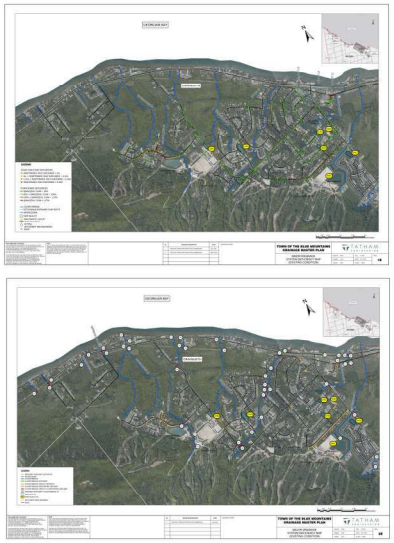
- Minor and major drainage system model development;
- Identified:
  - Minor drainage system deficiencies;
  - Major drainage system deficiencies; and
  - Extents of flooding.
- General improvement options were identified, including:
  - Storm sewer improvements;
  - Water quality/flow reduction improvements; and
  - Conveyance capacity improvements.

Public Information Centre 1 (February 2022)

Held to present results of Phase 1 of the MCEA and Elicit feedback from the public and interested stakeholders.

Preliminary Improvement Options Survey Results

IMPROVEMENT OPTION	# OF RESPONDENTS
1. Do Nothing	0 (0%)
2. Storm Sewer Improvements	7 (100%)
3. Water Quality/ Flow Reduction Improvements	3 (43%)
4. Conveyance Improvements	6 (86%)



5

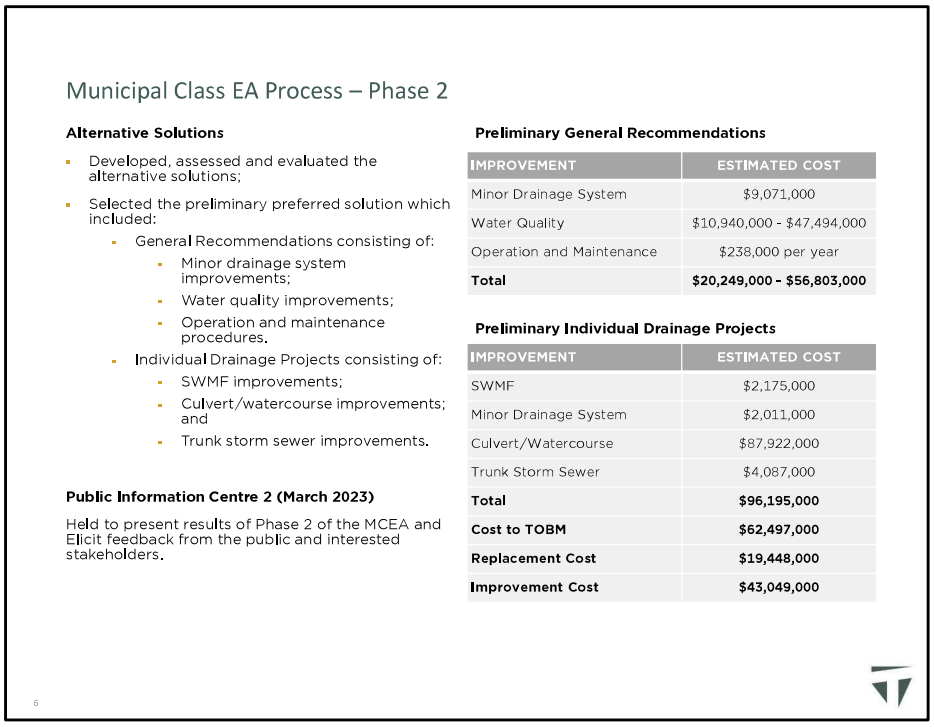
As part of Phase 1 of the Municipal Class Environmental Assessment process, the problem statement for the Drainage Master Plan was developed. Specifically, the problem statement for the Drainage Master Plan is "Identify drainage deficiencies and recommend solutions to improve the storm drainage systems across the Town of The Blue Mountains in consideration of impacts to the natural, social, physical, cultural and economic environments."

Town wide minor and major drainage system models were created to identify the existing drainage deficiencies associated with the Town's drainage infrastructure and the extent of flooding along each watercourse in the study area.

With an understanding of the drainage issues and deficiencies across the Town, general improvement options, including storm sewer improvements, water quality improvements, flow reduction improvements, and conveyance capacity improvements, were then identified.

Public Information Centre 1 was held at the end of Phase 1 of the Municipal Class Environmental Assessment process to inform the public and interested stakeholders of the drainage issues and deficiencies identified, elicit feedback regarding drainage issues observed

within the Town, and present the general improvement options being considered. The feedback from Public Information Centre 1 was used to complete the database of known drainage issues and the comments received supported the improvements being considered.

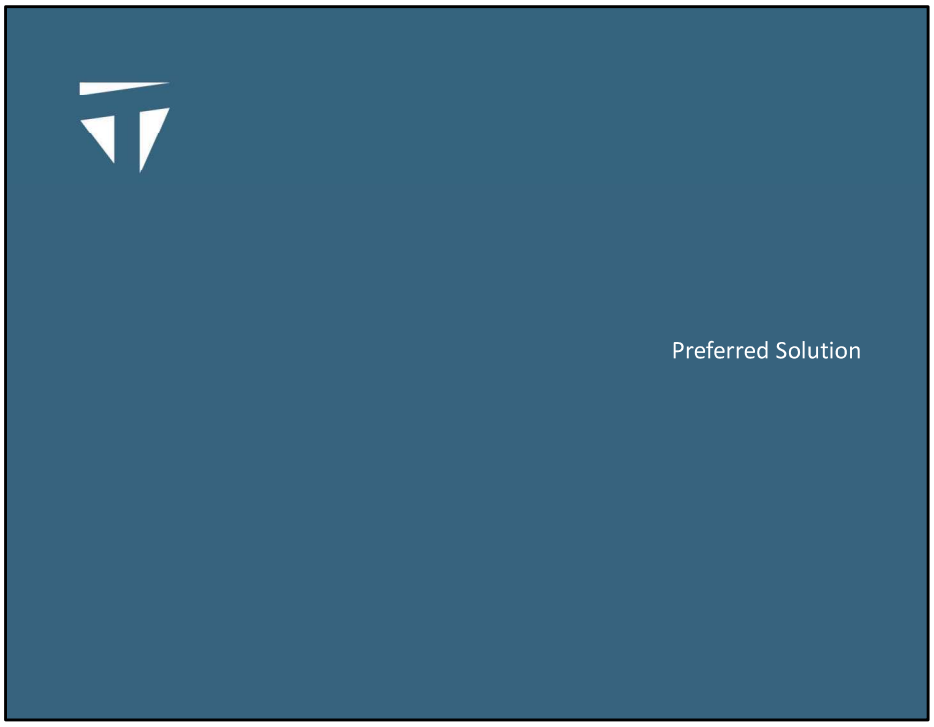


As part of Phase 2 of the Drainage Master Plan, alternative solutions to address the identified drainage issues and deficiencies were developed, assessed and evaluated. The alternative solutions were assessed using the minor and major drainage systems models created for the project to determine their effectiveness at addressing the identified drainage issues and deficiencies. The alternative solutions were then evaluated based on their physical, natural, social, cultural and economic impact. The alternative solutions having the greatest overall benefit were then identified as part of the preliminary preferred alternative solution.

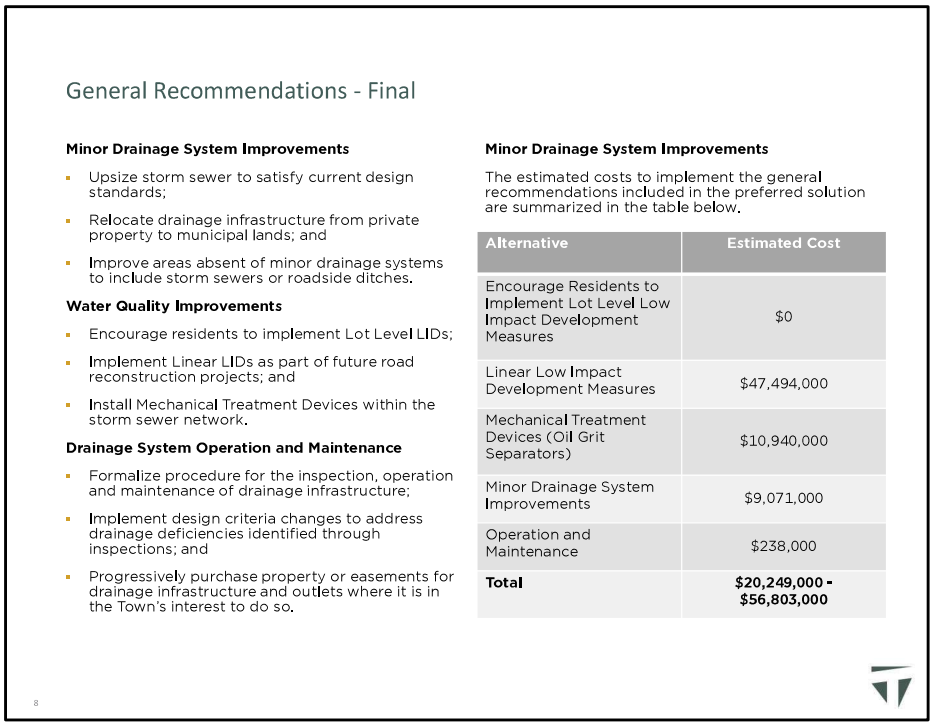
The preliminary preferred alternative solution included general recommendations consisting of minor drainage system improvements, water quality improvements, and operation and maintenance procedures, and individual drainage projects consisting of SWMF improvements, trunk storm sewer improvements, and culvert and watercourse improvements.

Public Information Centre 2 was held towards the end of Phase 2 of the Municipal Class Environmental Assessment process to inform the public and interested stakeholders of the preliminary preferred solution identified, elicit feedback regarding the solutions selected, and advise regarding next steps. The feedback from Public Information Centre 2 was used to

refine the preferred solution and the comments received generally supported the improvements being recommended.



As mentioned, the feedback from Public Information Centre 2 was used to refine the preferred solution selected. The final preferred solution recommended for implementation by the Town is presented in the following slides.



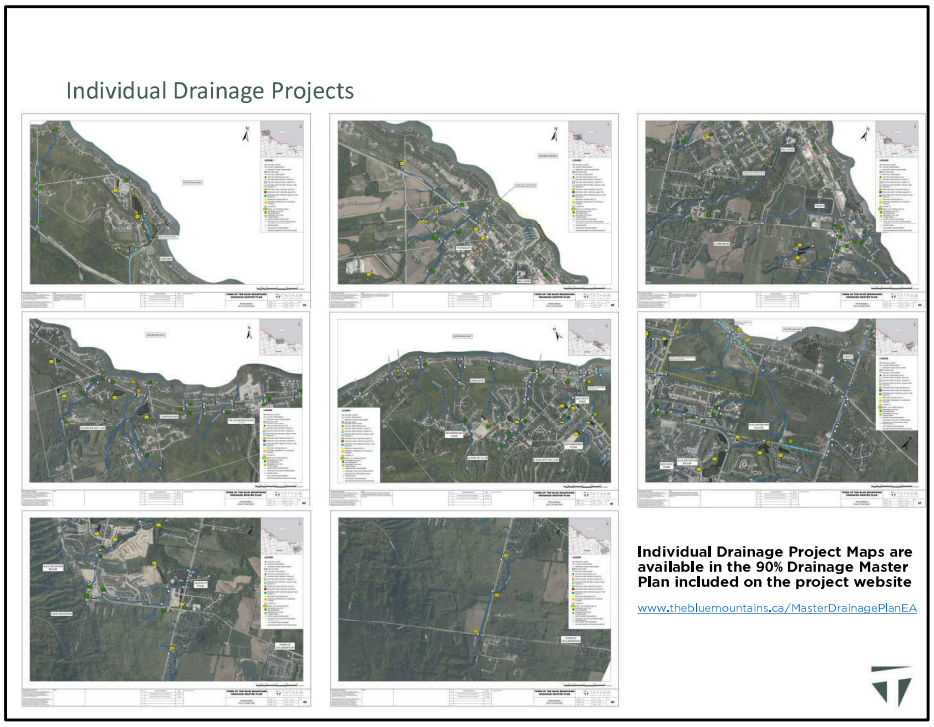
Following the screening of improvement alternatives as previously described, general recommendations were identified for inclusion in the preliminary preferred solution. These general recommendations generally consist of Schedule A or A+ projects and are pre-approved for implementation at the Town's discretion, as deemed feasible, in conjunction with planned infrastructure renewal and road reconstruction projects as infrastructure reaches the end of its service life. The following general recommendations were selected for inclusion in the preliminary preferred solution:

Minor drainage system improvements including upsizing storm sewer to satisfy current design standards, relocating drainage infrastructure from private property to municipal lands, and improving areas currently absent of minor drainage systems to include storm sewers or roadside ditches as part of future road reconstruction projects;

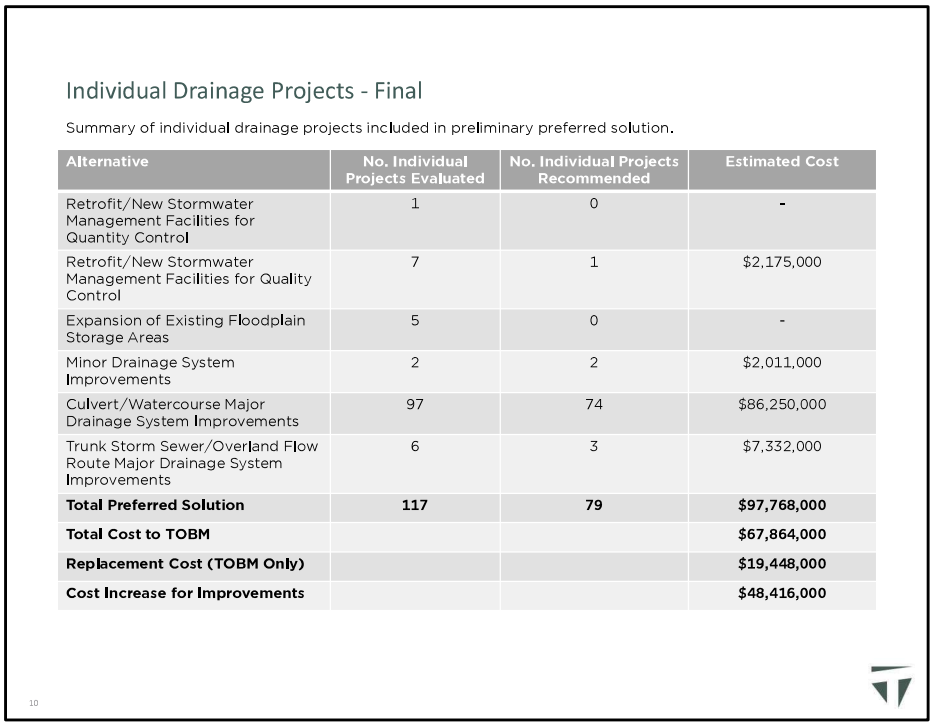
Water quality improvements including encouraging residents to implement lot level low impact development measures such as rain barrels and soakaway pits where feasible, implementing linear low impact development measures such as perforated pipe systems and infiltration systems as part of future road reconstruction projects where local conditions are favourable, and installing mechanical stormwater treatment devices within the storm sewer network as part of future road reconstruction and infrastructure renewal projects.

The estimated construction costs of the general recommendations are illustrated on this slide.

The general recommendations are estimated to cost between $20,249,000 and $56,803,000 depending on the extent of linear low impact development measures which can implemented across the study area.



The individual drainage projects recommended through the Drainage Master Plan include retrofitting an existing stormwater management pond, culvert and watercourse improvements, and trunk storm sewer improvements. The individual drainage projects recommended through the Drainage Master Plan are illustrated on Individual Drainage Project Maps included in the 90% Drainage Master Plan included on the project webpage on the Town's website.



Individual Drainage Projects - Final

Summary of individual drainage projects included in preliminary preferred solution.

Alternative	No. Individual Projects Evaluated	No. Individual Projects Recommended	Estimated Cost
Retrofit/New Stormwater Management Facilities for Quantity Control	1	0	-
Retrofit/New Stormwater Management Facilities for Quality Control	7	1	$2,175,000
Expansion of Existing Floodplain Storage Areas	5	0	-
Minor Drainage System Improvements	2	2	$2,011,000
Culvert/Watercourse Major Drainage System Improvements	97	74	$86,250,000
Trunk Storm Sewer/Overland Flow Route Major Drainage System Improvements	6	3	$7,332,000
Total Preferred Solution	**117**	**79**	**$97,768,000**
Total Cost to TOBM			**$67,864,000**
Replacement Cost (TOBM Only)			**$19,448,000**
Cost Increase for Improvements			**$48,416,000**

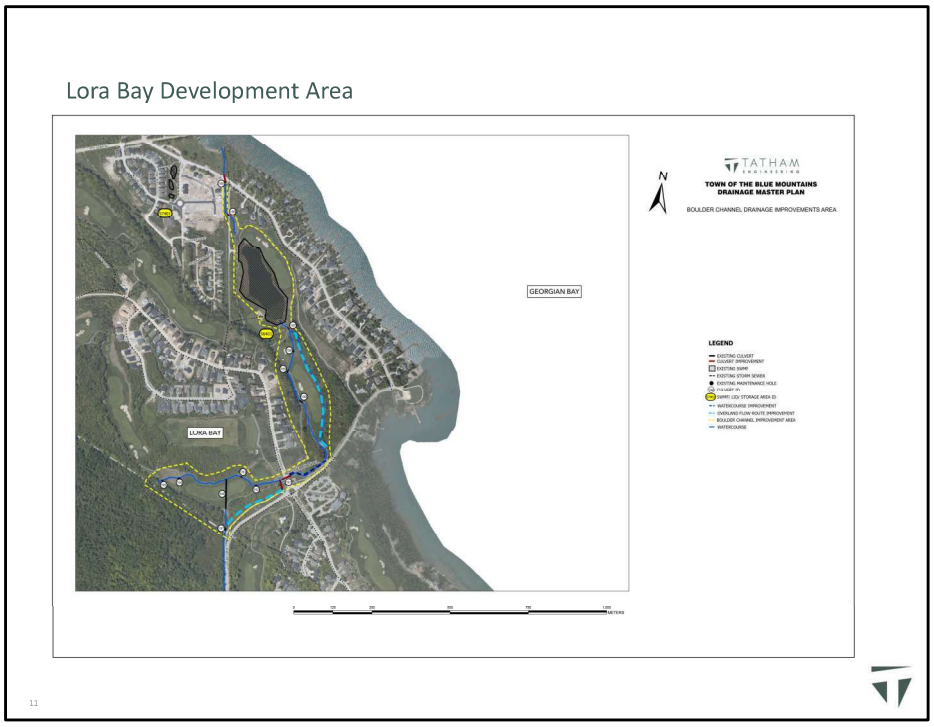
10

The number and types of individual drainage projects evaluated and recommended, and the estimated costs of the recommended projects are summarized on this slide.

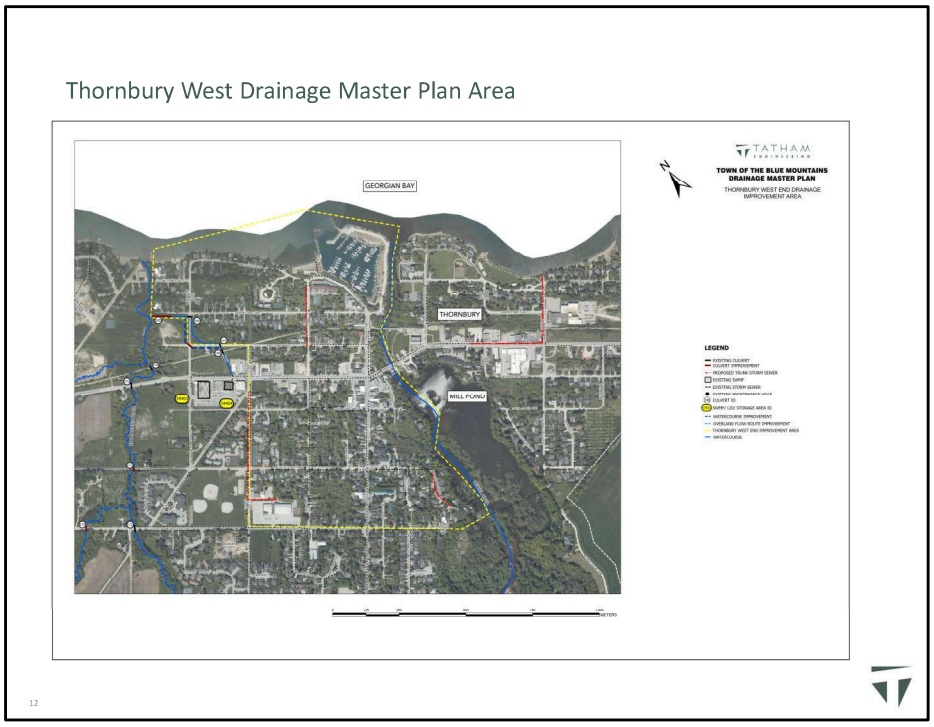
A total of 79 individual drainage projects were selected for inclusion in the preferred solution. Of these 79 projects there is 1 stormwater management facility retrofit for quality control, 2 specific minor drainage system improvement projects, 74 culvert and watercourse major drainage system improvement projects, and 2 trunk storm sewer and overland flow route major drainage system improvement projects. The total cost of all the recommended individual drainage improvement projects is estimated to be $97,768,000.

However, some of the recommended drainage improvements fall under the responsibilities of The Municipality of Meaford, Grey County, and the MTO. The estimated cost to implement the recommended drainage projects which are the responsibility of the Town of The Blue Mountains is $67,864,000. Of this cost, an estimated $19,448,000 would be required to replace existing infrastructure at the current level of service, meaning the actual cost to the Town to implement the recommended improvements is estimated to be $48,416,000.

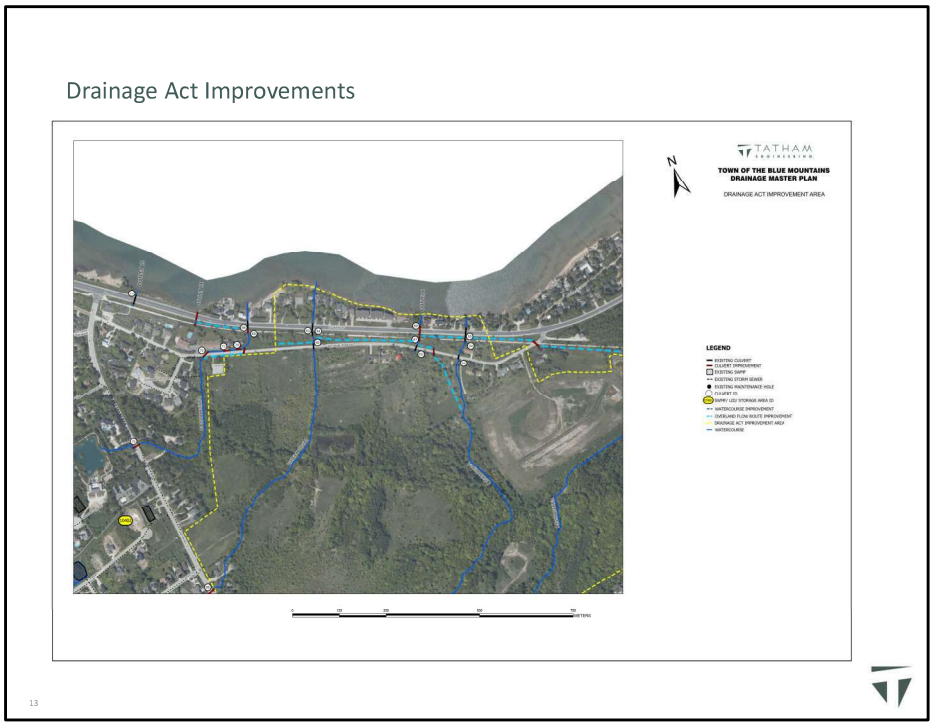
We note that this estimated cost assumes that the drainage improvement projects will be constructed individually, while in reality there will be cost savings as some of the recommended drainage improvements can be completed during road reconstruction and infrastructure renewal projects. Additionally, the Town is calibrating the Drainage Master Plan models to improve model accuracy. The current models are conservative (produce higher than anticipated peak flows), and we anticipate that model calibration will result in reduced peak flows allowing for smaller infrastructure to be constructed at reduced costs to the Town.



In the Lora Bay development area, drainage improvements shown within the Boulder Channel Drainage Improvements Area – outlined in yellow - were recommended as part of a site-specific study of the local drainage system. These improvements are currently being implemented by Lora Bay. If future drainage improvements are required for this area, they will be assessed and implemented by Lora Bay in accordance with site specific studies in support of future development through the Master Development Agreement process.



Drainage improvements shown within the Thornbury West Drainage Master Plan Area – outlined in yellow - were recommended as part of the Thornbury West Drainage Master Plan Municipal Class EA completed by Tatham Engineering in 2019. The drainage improvements recommended by the 2019 Municipal Class EA were reviewed as part of this Drainage Master Plan and are recommended to be implemented as described in the 2019 Municipal Class EA. Some of these recommendations have been or are currently being implemented as part of the Thornbury West Reconstruction Project.

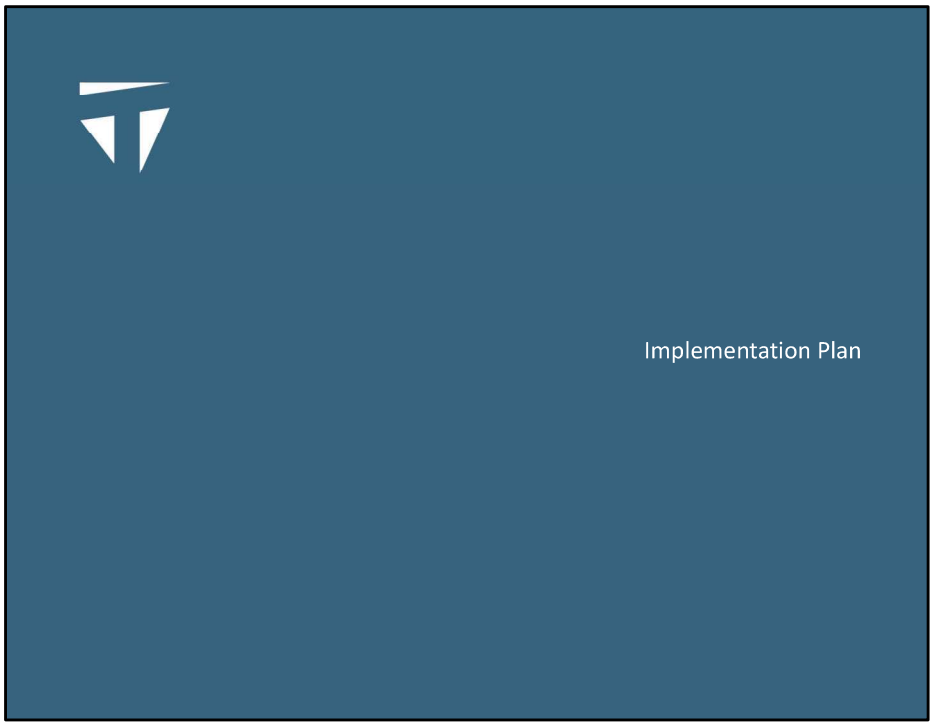


Conceptual designs of the drainage solutions proposed to be completed through the Drainage Act Assessment have been prepared by Crozier Consulting Engineers and peer reviewed by WT Infrastructure. WT Infrastructure also reviewed the proposed drainage improvements, and the process for the Drainage Act project to ensure the proper process is followed in accordance with a petition for drainage works under the Drainage Act. The proposed drainage solution involves improvements to existing municipal drains. Watercourse 7 in the study area is the Blue Mountain Outlet Drain, Outlet 8 is the Blue Mountain Diversion Drain, and Watercourse 9 in the study area is the Ford Outlet Drain. The proposed drainage solution includes the following works:

- An overflow channel will be constructed between the Georgian Trail and Lakeshore Road East to convey flow exceeding the capacity of Watercourse 9 from Watercourse 9 to Outlet 8;
- An existing spill from Watercourse 7 towards Watercourse 6 will be eliminated thereby incrementally improving flooding along Watercourse 6 and an overflow channel will be constructed along Watercourse 7 and Lakeshore Road to convey flow exceeding the capacity of Watercourse 7 from Watercourse 7 to Outlet 8; and

- The culverts crossing the Georgian Trail and Highway 26 along Outlet 8 will be improved to convey the additional flow directed to Outlet 8 by the proposed overflow channels.

As part of this Drainage Master Plan, Tatham also reviewed the drainage improvements proposed under the Drainage Act Assessment and is in agreement with the proposed drainage improvement concept. We are in agreement that the sections of Watercourse 9 and Watercourse 7 downstream of Highway 26 do not have sufficient capacity and therefore flow should be directed from these watercourses to Outlet 8 which discharges across municipally owned property to Georgian Bay and can therefore be improved to convey the additional flow. As these proposed improvements are being undertaken through a Drainage Act process, they are exempt from the Ontario Environmental Assessment Act. Additionally, it is noted that modification of existing Drains created through the Ontario Drainage Act is outside the scope of the Municipal Engineers Association Class EA.



Following the selection of the preferred solution, the individual drainage projects were prioritized through a risk assessment considering other factors such as infrastructure condition and current capital plans. After prioritizing the individual drainage projects, a 10-year implementation plan was developed considering available budget. The implementation plan is outlined in the following slides.

Project Prioritization

Risk Assessment

- Individual projects prioritized through risk assessment considering:
  - Severity of the deficiency;
  - Probability of failure; and
  - Economic, social and environmental consequence of failure.
- The preliminary prioritization of the individual projects was established from the cumulative risk.

Other Considerations

- From the preliminary prioritization, other factors were considered to establish the final prioritization ranking, such as:
  - Identified replacement date;
  - Planned works (road, sanitary, water and drainage improvements) included in Capital Plans;
  - Order of implementation required for the individual drainage projects.

Risk Assessment Matrix

PROBABILITY OF FAILURE	CONSEQUENCE OF FAILURE				
	None	Insignificant	Minor	Moderate	Major
Rare	No Risk	Low Risk	Low Risk	Moderate Risk	Moderate Risk
Occasional / Possible	No Risk	Low Risk	Moderate Risk	Moderate Risk	High Risk
Moderate / Likely	No Risk	Moderate Risk	Moderate Risk	High Risk	Extreme Risk
Certain / Very Likely	No Risk	Moderate Risk	High Risk	Extreme Risk	Extreme Risk

15

As discussed, the individual drainage projects were prioritized through a risk assessment developed for the Drainage Master Plan. Specifically, the risk assessment considered the severity of the existing drainage deficiency, the probability of failure, and the economic, social and environmental consequence of failure. Based on the probability and consequence of failure, a cumulative risk was assigned to each individual drainage project, in accordance with the table included on this slide. The individual drainage projects were prioritized based on their cumulative risk and prioritization of the projects was refined considering the condition of the existing infrastructure, works included in the current capital plan, and the need to implement projects starting downstream and moving upstream in a watershed.

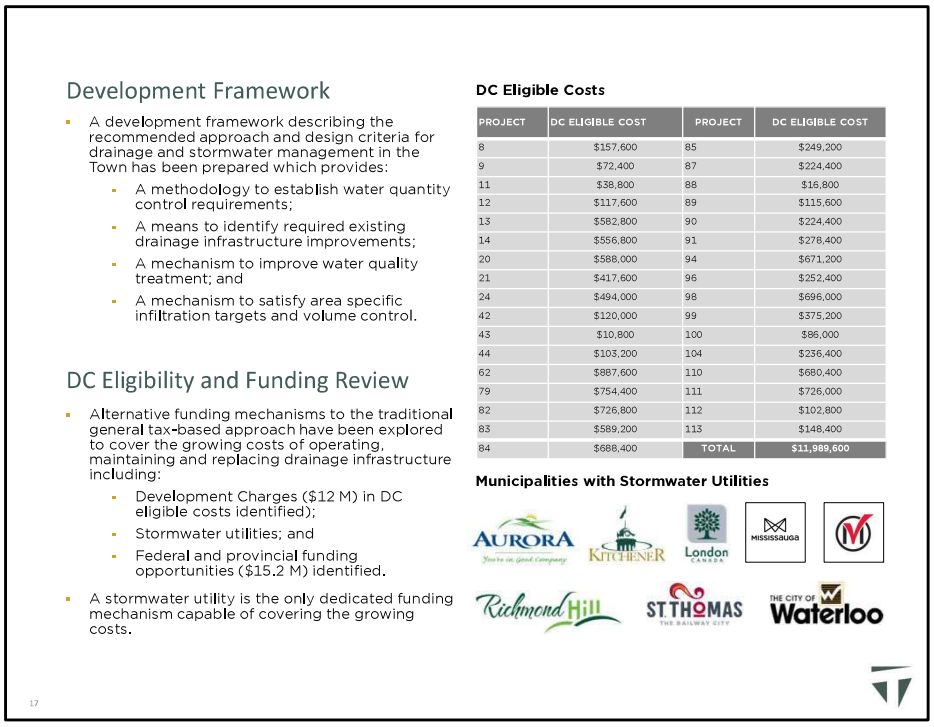
10-Year Implementation Program

REPLACEMENT DATE	PROJECT NO.	IMPROVEMENT NAME/ID	LOCATION	COST
2025	9G	Culvert No. 176 / TOBM Asset ID CUL72	Alice Street West	$370,000
2025	10A	Culvert No. 179	Baring Street	$180,000
2025	12A	Culvert No. 171	Alfred Street West	$1,614,000
2025	20G	Culvert No. 147 / TOBM Asset ID CUL88	Lakeshore Road	$2,063,000
2025	21G	Culvert No. 148	Georgian Trail	$1,194,000
2026	79E	New Outlet to Georgian Bay	Watercourse 6	$1,886,000
2026	73G	Culverts No. 69, 70, 71 and 72	Lakeshore Road East	$1,158,000
2027	74H	Trunk Storm Sewer No. 6	Grey Road 19	$3,246,000
2027	18A	Decommission Historical Flume	Beaver River	$716,000
2028	94	Monterra Road Drainage Improvements	Monterra Road	$1,678,000
2028	96A	Culvert No. 42 / TOBM Asset ID CUL286	Monterra Road	$1,005,000
2029	17A	Storm Sewer Relocation	Clark Street / Mary Street	$1,295,000
2030	46A	Culvert No. 114	Georgian Trail	$764,000
2030	47E	Culvert No. 114 / TOBM Asset ID CUL100	Wensley Drive	$903,000
2031	24A	Culvert No. 156	Clark Street	$1,400,000
2032	38E	Culvert No. 124 / TOBM Asset ID CUL93	Hoover Lane	$1,410,000
2033	15A	Trunk Storm Sewer No. 2	King Street East / Elgin Street North	$2,625,000
Total				**$23,507,000**

16

A 10-year implementation program has been developed considering the project prioritization along with current capital plans, the MTO proposed Highway 26 improvements, neighbourhood renewal programs, and condition assessments. The 10-year implementation plan is summarized on this slide. The 10-year implementation plan includes implementing 17 of the recommended drainage improvements between 2025 and 2034 at a total cost of $23,507,000, or an average annual expenditure of $2,351,000.

The Town intends to undertake the recommended drainage improvements as per the 10-year implementation plan subject to available funding and capital budget. As available funding sources are not guaranteed and the capital budget varies, the implementation plan is subject to change as part of future capital plan updates.



As part of the Drainage Master Plan, a development framework outlining the recommended approach and criteria for the design and approval of future development applications in the Town from a drainage and stormwater management perspective has been prepared. The development framework includes:

- a more rigorous methodology to establish water quantity control requirements for developments to control peak flows and prevent further erosion throughout the watershed;
- a means to identify where improvements to existing drainage infrastructure and/or watercourses are required to protect public safety and public and private property;
- a mechanism to improve the water quality control requirements for developments to protect the natural environment and health of Georgian Bay; and
- a mechanism to require the use of low impact development (LID) measures to satisfy area specific infiltration targets and achieve a level of volume control in advance of the release of the MECPs Low Impact Development Manual.

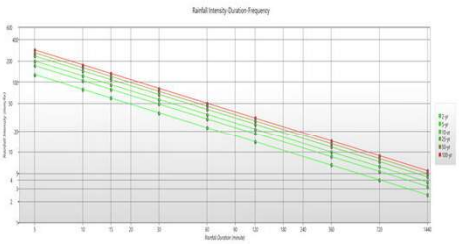
As stormwater management has evolved so has the need for alternative funding mechanisms

to support municipal infrastructure. As a result of this evolution, municipalities are seeking alternative funding mechanisms to the traditional tax-based approach to cover the growing costs of operating, maintaining and replacing their existing stormwater assets. Alternative funding mechanisms include development charges, stormwater utilities, grants, and water quality trading. These alternative funding mechanisms, including Development Charge eligibility of the various projects, have been explored as part of the Drainage Master Plan. Through our review, the DC eligible costs will only cover a portion of the estimated improvement costs and a stormwater utility was identified as the only dedicated funding mechanism capable of covering the growing costs of stormwater management. It is recommended the Town explore a stormwater utility further through a Stormwater Utility Rate Study.

Climate Change

- A review of the Town's current approach to adapting to climate change was completed:
  - Town applies a 10% increase to current rainfall intensity-duration-frequency data developed from historic rainfall data; and
  - Climate change models predict a 4% to 10% increase in rainfall depth and intensity through 2050 and 2100.
- It's recommended the Town reassess the climate change adjustment factor as part of future design standard updates to ensure storm infrastructure is properly designed for its estimated life-span.

Town's Climate Adjusted IDF Curves



Model Calibration

- A recommendation of the Drainage Master Plan is to calibrate the major drainage system hydrologic model.
- The Town initiated a streamflow monitoring program in the spring of 2024 to collect the necessary data to complete the hydrologic model calibration.
- The streamflow monitoring program is approved for 2024 and model calibration will follow once sufficient data has been collected.
- Following model calibration, the Town will consider whether re-evaluating the recommendations of the Drainage Master Plan are warranted.
- The calibrated hydrologic model will be used to design Town drainage infrastructure once available.

Peak Flow Comparison

WATERCOURSE	1:100-YEAR PEAK FLOW (m^3/s)			
	SWS (1993)	DMP CHICAGO	DMP 6 HOUR SCS	DMP 24 HOUR SCS
Watercourse 1	11.34	9.20	14.19	21.32
Watercourse 6	8.89	13.64	19.43	27.28
Watercourse 7	7.24	6.56	9.77	14.17
Watercourse 14	7.85	4.23	6.47	8.83
Watercourse 15	3.34	4.48	6.89	12.33
Watercourse 19	11.55	17.11	25.93	37.62
Watercourse 21	2.85	5.66	8.24	11.49

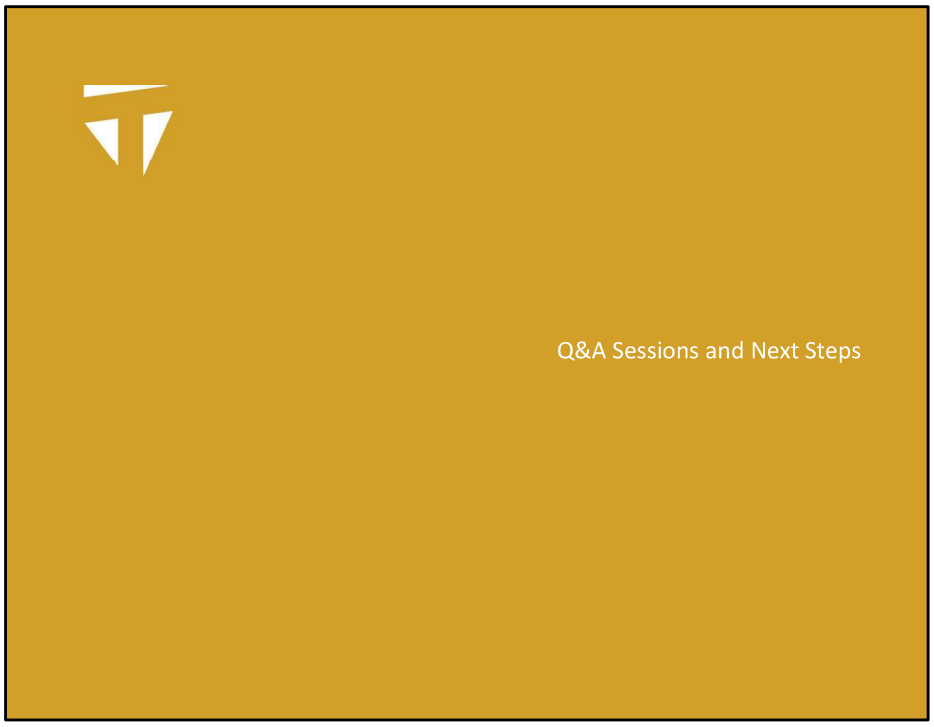
18

Proactively, the Town of The Blue Mountains currently applies a simple approach to adapting to climate change by applying a 10% increase to the available rainfall intensity-duration-frequency (IDF) relationships developed from historic rainfall data for the area. As part of the Drainage Master Plan, A review of approaches currently used by municipalities to adjust their rainfall design standards to account for climate change has been completed. Current climate change models predict a 4% to 10% increase in rainfall depth and intensity through 2050 and 2100, respectively.

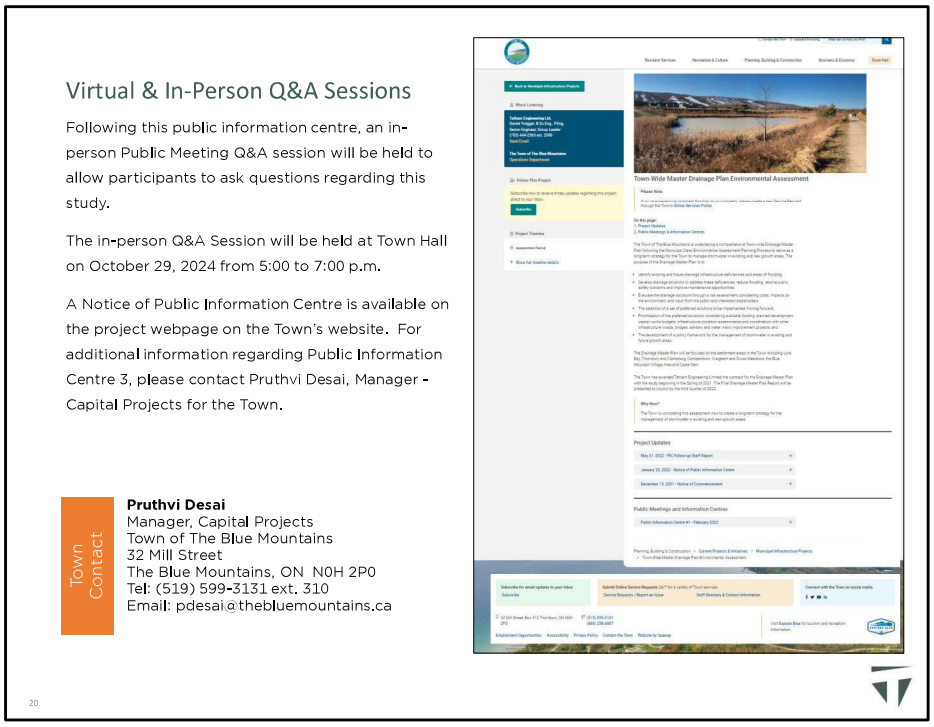
Based on the comparisons of the predicted future IDF curves from the various climate change prediction tools, the current Town of The Blue Mountains intensity-duration-frequency (IDF) relationships adjusted by 10% to account for climate change are valid for infrastructure sizing through the planning horizon 2050 and potentially beyond. It is recommended that the Town reassess the 10% adjustment factor used to account for climate change when IDF curve updates are released, or at a minimum as part of every design standard update, to ensure the Town's design standards remain valid and properly account for climate change for the anticipated life span of the infrastructure being designed.

As part of the development of the minor and major drainage system models, notable discrepancies were identified between the results of the Drainage Master Plan hydrologic model and the hydrologic model prepared as part of the 1993 Grey Sauble Conservation Authority *Craigleith Camperdown Subwatershed Study*. Generally, higher (more conservative) peak flows were produced by the Drainage Master Plan hydrologic model which may be leading to conservative infrastructure sizing and inflated project costs. The hydrologic models prepared as part of the Drainage Master Plan were developed following the recommended/approved approach of the NVCA, GSCA and MTO. To alter the hydrologic parameters and approach beyond standard recommended values/methods, justification through model calibration is required.

Based on Tatham's recommendation to calibrate the hydrologic models, the Town of The Blue Mountains has initiated a streamflow monitoring program to collect streamflow monitoring data for a one-year period allowing the model to be calibrated. It is recommended that the streamflow monitoring program continue beyond one-year to gain additional streamflow monitoring data to further refine the model calibration in the future. After the model is calibrated using the available streamflow data, the results of the calibrated model will be compared against the uncalibrated model results to identify the change in flows and impacts on the recommendations of this Drainage Master Plan. Once the results are known, the Town will consider next steps, specifically whether re-evaluating the preferred solutions is warranted. The calibrated hydrologic model results will be used to complete the detailed design of the preferred solutions once available.



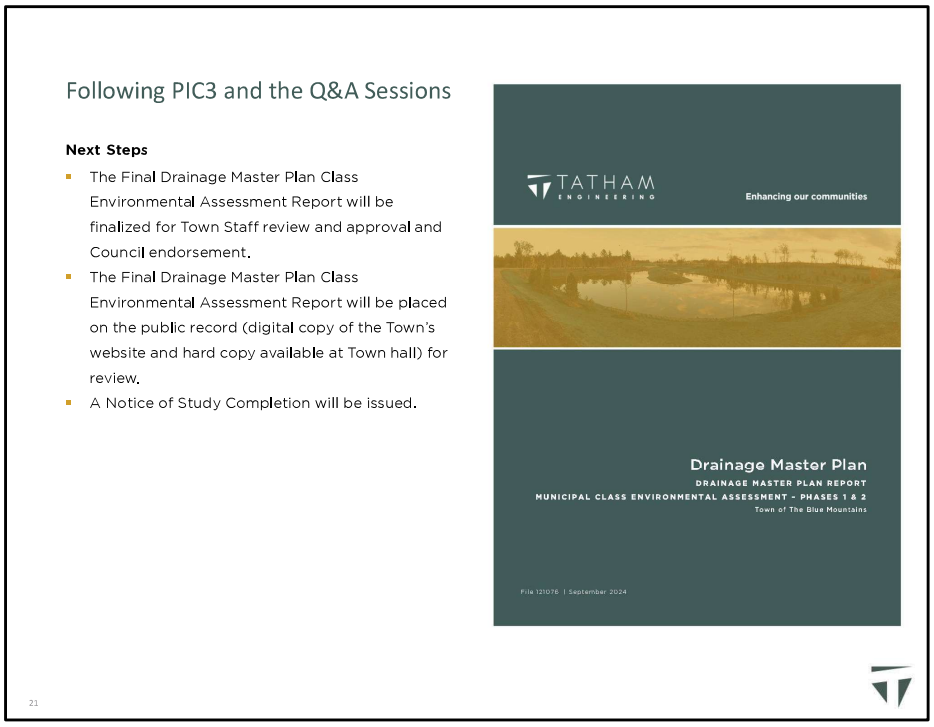
As discussed, the public will be provided an opportunity to ask questions during an in person public meeting question and answer session. Information regarding the Q&A session and next steps in the project is provided in the following slides.



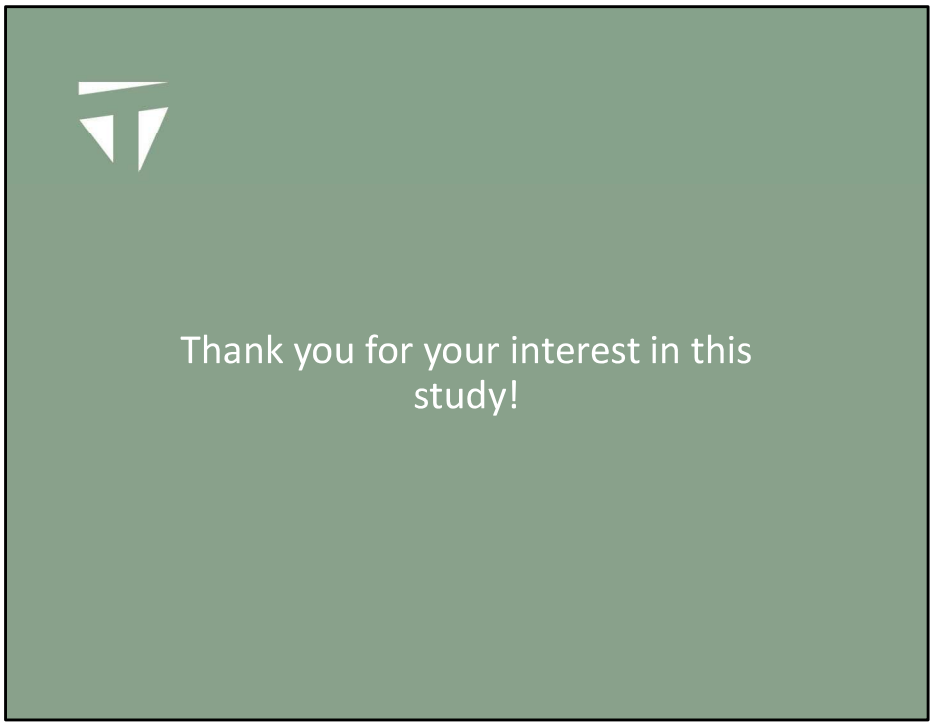
An in-person public meeting question and answer sessions will be held to allow participants to ask questions regarding this Drainage Master Plan. The in-person Q&A session will be held at Town Hall on October 29, 2024 from 5:00 to 7:00 p.m.

A Notice of Public Information Centre is available on the project webpage on the Town's website. For additional information regarding Public Information Centre 3, please contact Pruthvi Desai, Manager - Capital Projects for the Town.

Registration is not required for the in-person Q&A session and all are encouraged to attend. If you cannot attend the in-person public meeting Q&A session and have questions regarding this study, please contact the Town of The Blue Mountains or Tatham Engineering Limited at the addresses provided in this presentation.



Following Public Information Centre 3 and the in-person public meeting question and answer session, the Final Drainage Master Plan document will be finalized for Staff review and Council endorsement. The Final Drainage Master Plan Class Environmental Assessment document will then be placed on the public record for review. A digital copy of the report will be placed on the project webpage on the Town's website and a hard copy will be available at Town hall. The Notice of Study Completion will then be issued, closing the project.



We encourage everyone to participate in the in-person public meeting Q&A session scheduled October 29, 2024 . If you cannot attend the in-person public meeting Q&A session and have questions regarding this study, please contact the Town of The Blue Mountains or Tatham Engineering Limited at the addresses provided in this presentation.

We would like to thank you for viewing this presentation and participating in the Town of The Blue Mountains Drainage Master Plan.

This concludes the presentation.

Town of The Blue Mountains Drainage Master Plan
Public Information Centre Q&A Sign-in Sheet
October 29, 2024

Name	Address	City	Postal Code	Email	Phone Number	Keep Informed
[redacted]						Yes
						Yes
						YES
						No
						Yes
						✓
						✓
						Yes

Response to comments received from [redacted] dated October 24, 2024:

Thank you for providing your comments regarding the Town of The Blue Mountains Drainage Master Plan. We have prepared the following response to your questions and comments dated October 24, 2024, which are appended for reference.

The assessment which outlines the flood extents across the Town was completed using the available digital terrain model (DTM) at the time the project was initiated. The project was initiated in the Spring of 2021, and the Town's 2019 DTM was used for the assessment. The 2019 DTM does not reflect the final grading of the Second Nature Development as the grading was completed after 2019. We have reviewed this issue with the Town and updated modelling confirms the flooding that has been observed. However, as this is not an issue with Town infrastructure, no project has been included in the Drainage Master Plan. Rather, the Town is working with the developer and their engineer to solve this issue and protect the residential properties from flooding.

The Flood Inundation Maps are NOT official floodplain maps. The Flood Inundation Maps were prepared to identify potential deficiencies in the Town's existing drainage infrastructure using uncalibrated hydrologic model results. These maps were prepared based on conservative modeling assumptions and it is anticipated that calibration of the DMP hydrologic model will reduce the illustrated inundation areas. Similar maps were prepared for all mapped watercourses throughout the settlement areas of the Town as part of the Existing Conditions Report which is included as Appendix A of the Drainage Master Plan document. Preparing floodplain maps was not part of the scope of the Drainage Master Plan. As such, the existing conditions assessment will not be updated as part of the completion of the Drainage Master Plan.

The Grey Sauble Conservation Authority is responsible for regulating any interference or development within the floodplain across a majority of the Town. The GSCA regulated area which highlights areas within the GSCA watershed regulated for natural hazards, including flooding, is available on their website. The existing development approvals process includes requirements for natural hazard assessments (where hazards are present) which include the assessment of flood and erosion hazards. Standard practice for the Town and GSCA for new development is to ensure that proposed lots are located outside of the Regulatory floodplain.

As the Flood Inundation Maps are not official Floodplain Maps, they will not be incorporated into the land use designations in the Town's Official Plan at this time. The GSCA regulation maps should be referred to when identifying areas susceptible to flooding. The Development Framework section of the Drainage Master Plan (Section 13) outlines the new recommended approach to assessing stormwater for developments which includes the use of watershed scale stormwater models to ensure the impacts of development are properly assessed and mitigated throughout the watershed.

As discussed, the Town is aware of the noted issue in the Second Nature Subdivision and is working with the developer and their engineer to resolve the issue.

October 24,2024

To: Pruthi Desai, Manager of Capital Projects
Town of the Blue Mountains

CC: Daniel Twigger, Senior Engineer, Group Leader, Tatham Engineering Limited
Adam Smith, Director of Planning & Development Services
Shawn Postma, Senior Policy Planner, Re: OPR

From: [redacted]
Craigleith Resident,TBM

Re: Public Input in Town-Wide Master Drainage Plan – 90% Draft Report Submission

Pruthi:

Having read the background documents and listened to the video presentation on-line as presented on the Town-Wide Master Plan Drainage Report, I have some comments and questions I'd like to submit for review concerning some content and guidelines outlined in this report at this stage of the 90% Draft report completion.

Hopefully these can be answered and considered in the final completion stages of this report before going to Council for final approval?

My points made are keeping within the core guidelines as outlined on the Town's website Re: The Town-Wide Master Drainage Plan:

- **Identify existing and future drainage infrastructure deficiencies and areas of flooding;**
- **Develop drainage solutions to address these deficiencies, reduce flooding, resolve public safety concerns and improve maintenance opportunities;**
- **Evaluate the drainage solutions through a risk assessment considering costs, impacts on the environment, and input from the public and interested stakeholders;**

I'm a full time resident living in the un-assumed [redacted] development of Craigleith in TBM. This area lies directly in the surrounding area of Watercourse 1 and is adjoining the Windfall, Blue Vista and Bluemont developments in this study area of the TBM.

Having read the report with all its Appendices and Maps at the 90% draft stage, I have some questions pertaining to the flood challenges currently encountered in our new development neighbourhood and how this is noted in the report.

The report appears not to illustrate our flood zone issues in the data and it is to this point a request for update completeness to this report data and guidelines be added better reflecting

Watercourse 1 flood zone area,#1402 in the current Appendices and maps section provided.(See attached slide)

Question: Is it possible to incorporate similar maps since these exist at the Town into the Town-wide Drainage Master Plan? This way interested public ,local residents and stakeholders can easily review important respective flood zone areas within the TBM and relate this to their risk assessment concerns ?

Having reviewed the report this type of map was not available and I feel this is a very important graphic illustration required especially when builders of developments do not indicate this important information to respective stakeholders in the site plan/purchase stage in an open transparent manner. Having such document referencing with historic current information available to the public could be very beneficial. Can this be considered in the final stage of the report for inclusion? I mention this in referencing the core guidelines of the Town-wide Master Drainage plan in evaluating the drainage solutions through a risk assessment considering costs, impacts on the environment, and input from public and interested stakeholders.

Under section 13, page 206

Question:

What mechanisms in the report as noted will safeguard new developments in having necessary environmental flood zone mitigation work done by a developer/builder before properties are built? Is there a policy here being recommended or exists in the EA/Engineering/development process outlined?

As an example mentioned:

Second Nature in the graphic photo provided, has subsequently experienced flooding recently of an un-assumed development with residential properties in said zone areas. To my knowledge, this flood zone area was not evident in any public mapping provided during the site development/purchase process and the current report of the Town-wide Master Drainage Plan appears not to show this area in my review and I was wondering why as it is a documented current issue?

Does the Engineering data reflect this issue and can you clarify this as the area 1402 of Watercourse 1 doesn't appear to note this in the Final Preferred Solutions Summary, Table 22? Can this be incorporated into the report as cost remediation concerns as a project need to be clarified or noted. Can this be identified as part of the final stage of this report?

Question: With the above points made and the importance for having the Town-wide drainage Master plan as a guiding principles document to TBM will it be added to the TBM Official Plan currently being reviewed? The Transportation Master Plan is noted currently in the OPR and I was hoping this would have similar importance given to our OPR?

Also attached is Tatham report Alternative Solutions Map #7 G provided of our area.#1402 /115 respectively.

Questions/Comment:

1) As mentioned, not seeing in this draft report the flood zone area in the residential development areas or the 2 major culverts constructed now off Crosswinds and Windfall development , can updated maps be included in this report to better reflect our area in the final phase report?
2) Under table 22 of the report- Final Preferred Solutions. With previous comments made should this area not be updated in the report based on flooding having occurred recently? Could this be reflected as a priority project item for planning attention under the final preferred solution summary given the development is not assumed yet?
3) Comment to the above: See examples Section Existing Conditions Analysis: Under flood zone analysis, #7.5, page 31 - Private Property Drainage Issues, #5.2 , page 46 –Future Conditions Systems Analysis or the Appendix "A", page 31 Major Drainage System Analysis.

Under Existing Policies & Guidelines of TWDMP Report:

Re: pages 3 – section 1.4

-"After the completion of the Master Plan, Schedule C projects are required to fulfill Phases 3 and 4 prior to completing the Environmental Study Report (ESR) for public review."

Summary comment/question:

Can other graphic watercourse 1 mapping of respective flood zones be included to the report to address the need for open disclosure of potential risk to public and respective stakeholders as part of new developments?

Can this request be considered or expanded upon under section 13 in the final report stage?

comment consideration Under Section 13:

With the above said, under full transparency and disclosure to TBM residents and stakeholders can new developments under the TWDMP as part of the Official Plan be able to have complete builder site plans with all approvals and EA assessments provided especially when flood zone areas are involved?

This refers Section: 1.5.5 -, page 8- Town of The Blue Mountain Official Plan (2016) currently being reviewed and in its updating could this consideration be part of this section as a possibility?

- **Determine and describe the necessary measures required to be undertaken during construction to mitigate potential negative impact of development.**

I look forward to the open house happening on Oct/29th and receiving your feedback to my questions and comments presented as input consideration. I appreciate the public opportunity and work to-date in this process and look forward to seeing the final stage report when ready for Council approval/review.

Respectfully,

Jacob Macdonald

From: Jacob Macdonald
Sent: Tuesday, November 12, 2024 2:39 PM
To: [redacted]
Cc: Daniel Twigger; Pruthvi Desai
Subject: RE: 90% Draft Report Now Available - Town-Wide Master Drainage Plan

Hi [redacted]

The timeline for any improvements will need to be resolved with the Town.

Thank you,
Jacob

Jacob Macdonald P.Eng.
Engineer

jmacdonald@tathameng.com **T** 705-444-2565 x2161
115 Sandford Fleming Drive, Suite 200, Collingwood, Ontario L9Y 5A6

tathameng.com

From: [redacted]
Sent: Friday, November 1, 2024 1:41 PM
To: Jacob Macdonald <jmacdonald@tathameng.com>
Subject: Re: 90% Draft Report Now Available - Town-Wide Master Drainage Plan

Hi,
Yes it was a misunderstanding.

If the ditch drained the water to a nearby creek where it eventually ends up after a trip through our property that would be wonderful. No longer would our property be flooded and damaged and it would ease our worries about our house being flooded again.
When will these improvements to the drainage happen ?

Thank you,
[redacted]
Sent from my iPhone

On Nov 1, 2024, at 1:15 PM, Jacob Macdonald <jmacdonald@tathameng.com> wrote:

Hi [redacted]

My apologies, there seems to be a misunderstanding of the terminology. In the context of drainage systems, we refer to roadside/trailside ditches as part of the 'minor drainage system'. Therefore, we interpret your drainage issues as arising from a deficiency with the ditch or 'minor drainage system'. To be clear, where issues such as yours are identified with ditch systems, our report recommends the ditch be improved to convey drainage to an appropriate outlet. In this case, we would recommend the ditch along the trail be improved to convey drainage to the nearby watercourse.

I hope this helps to ease your concern.
Thank you,
Jacob

Jacob Macdonald P.Eng.
Engineer

jmacdonald@tathameng.com **T** 705-444-2565 x2161
115 Sandford Fleming Drive, Suite 200, Collingwood, Ontario L9Y 5A6

tathameng.com

From: [redacted]
Sent: Tuesday, October 29, 2024 10:04 AM

To: Jacob Macdonald <jmacdonald@tathameng.com>
Subject: Re: 90% Draft Report Now Available - Town-Wide Master Drainage Plan

---

Since draining the water from your property onto a neighbouring property is illegal I find this response inadequate and was expecting you to apply the laws and bylaws to the town as well as the private property owners I find this answer unacceptable.

The town allowed drainage into a condo property to be diverted. Are the rules different for developers??

A minor drainage issue as you describe it, is from your point of view for your convenience. As the recipient of large amounts of water directed by the town causing damage it is much more. It makes me feel that the town puts itself above its own laws.

What would happen if it were the other way around and water from our property was directed onto town property and doing damage?? I somehow doubt it would be described as minor and the full weight of laws and bylaws would come into play.

[redacted]

Sent from my iPhone

> On Oct 29, 2024, at 9:10 AM, Jacob Macdonald <jmacdonald@tathameng.com> wrote:
>
> Hi [redacted]
>
> Thank you for providing that additional information. I will not comment on the legal interpretation of the situation. In the context of our project, this sounds like an issue arising from the lack of a minor drainage system to convey the water crossing the Georgian Trail to an appropriate outlet, resulting in this water flowing freely across your property. We have made a general recommendation in the Drainage Master Plan that areas with insufficient minor drainage systems be improved to adequately convey drainage to an appropriate outlet. We will include this correspondence in

the project documentation and will make the appropriate Town staff aware of the issue.

Thank you for engaging with this project and bringing this issue to our attention.
Jacob

<~WRD0005.jpg>

Jacob Macdonald P.Eng.
Engineer

jmacdonald@tathameng.com **T** 705-444-2565 x2161
115 Sandford Fleming Drive, Suite 200, Collingwood, Ontario L9Y 5A6

tathameng.c
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<instagramemailsignature-march2023-01_b5a095b2-91ef-4380-b089-c29f83e2ec5
<facebookemailsignature-march2023-01_a1cd4b13-d557-47d7-a9e2-5fbd383de1a

From: [redacted]
Sent: Friday, October 25, 2024 9:37 AM
To: Jacob Macdonald <jmacdonald@tathameng.com>
Subject: Re: 90% Draft Report Now Available - Town-Wide Master Drainage Plan

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Hi
This is a seasonal flow of water and after particular heavy rain fall.
The water that flows off the property south of the trail drains onto the trail property and is directed under the trail via culverts onto our property.
The town bylaw officer said it was historic and we must accept it. However it once flowed from our yard onto the neighbours' property but by then it was no longer historic and they were allowed to block it.

The bylaw officer Mr Dewitt also told us that we were not allowed to drain it into the highway ditch. We do as there is no alternative.

I have been researching historic water flow definitions and have discovered that it refers to water courses that have occurred naturally without human interference. The water that flows across our property does not meet that definition by any stretch of the imagination.

The town has not applied their “definition” of historic water flow evenly. When Craigleith Shores condos were built the builders were permitted to close off a stream similar to the one on our property directing more water across an adjoining property. This was contested by these owners without success and they were forced by the town to accept the increased flow.

After years of worry, and thousands of dollars spent trying to deal with the water and repairing damage it has caused we want the town to do a simple fix and direct the runoff from the trail directly to the creek a few hundred feet away.

[redacted]
Sent from my iPhone

On Oct 24, 2024, at 11:22 AM, Jacob Macdonald <jmacdonald@tathameng.com> wrote:

Hi [redacted]

As part of the Drainage Master Plan (DMP) study, we have reviewed all mapped watercourses throughout the Town and there is no mapped watercourse crossing your property at [redacted]. Please refer to the attached image which illustrates the mapped watercourse locations in relation to your property.

Could you provide more details regarding the issue you are experiencing? If you are experiencing drainage issues related to lot grading, this is outside the scope of the Drainage Master Plan as this project is focused on municipal infrastructure.

Thank you,
Jacob

<~WRD1741.jpg>

Jacob Macdonald P.Eng.
Engineer

jmacdonald@tathameng.com T 705-444-2565 x2161
115 Sandford Fleming Drive, Suite 200, Collingwood, Ontario L9Y 5A6

tatha
<linkedinemailsignature-march2023-01_c089bbdd-004b-4faf-9f6b-cd45e
<instagramemailsignature-march2023-01_b5a095b2-91ef-4380-b089-c29f8
<facebookemailsignature-march2023-01_a1cd4b13-d557-47d7-a9e2-5fbd3

From: [redacted]
Sent: Thursday, October 17, 2024 5:01 PM
To: Jacob Macdonald <jmacdonald@tathameng.com>
Subject: Re: 90% Draft Report Now Available - Town-Wide Master Drainage Plan

---

[redacted]

On Oct 17, 2024, at 3:06 PM, Jacob Macdonald <jmacdonald@tathameng.com> wrote:

[redacted]

Can you please provide me with your address so I can review the issue that you mention in your email below?

Thank you,
Jacob

From: [redacted]
Sent: Thursday, October 17, 2024 12:25 PM
To: Jason Petznick <jpetznick@thebluemountains.ca>
Subject: Re: 90% Draft Report Now Available - Town-Wide Master Drainage Plan

Thank you. I do hope that something is done to stop the trail from draining their water onto our property.

[redacted]

> On Oct 17, 2024, at 8:56 AM, Jason Petznick <jpetznick@thebluemountains.ca> wrote:
>
> [redacted]
> Thanks for your email.
> If you would like to share your address, I can pass your comment along to Tatham and our project manager for follow up.
>
> Jason
>
> <image005.png>
> **Jason Petznick**
> Communications Coordinator, Capital Projects
> Town of The Blue Mountains
> 32 Mill Street, P.O. Box 310, Thornbury, ON N0H 2P0
> Tel: 519-599-3131 x302 | Fax: 519-599-7723
> jpetznick@thebluemountains.ca
> |www.thebluemountains.ca
>
> As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.
>
> [redacted]
> **Sent:** Wednesday, October 16, 2024 7:30 PM
> **To:** Communications

<communications@thebluemountains.ca>
Subject: Re: 90% Draft Report Now Available - Town-Wide Master Drainage Plan

I am disappointed to see that the water course across my property is still not noted and there is no correction of this problem of water being directed from the trail onto my property
[redacted]
Sent from my iPhone

On Oct 16, 2024, at 3:26 PM, Town of The Blue Mountains <communications@thebluemountains.ca> wrote:

Click here to view this update in your browser

<~WRD2377.jpg>

October 16, 2024

90% Draft Report Now Available - Town-Wide M Plan

To accompany the presentation for Public Information Centre #3, Drainage Report is now available for public review, along with rel Maps. Members of the public can send any questions to the proje attend the in-person Q&A Session for theTown-Wide Master Drai Tuesday, October 29 at Town Hall.

View 90% Draft Report

View Appendices

View Maps

For more information, please contact:

Pruthvi Desai
Manager of Capital Projects
(519) 599-3131 ext. 310

Learn more about all the Infrastructure Projects happening in

Municipal Infrastructure Projects

Email sent to [redacted]

Town of The Blue Mountains
32 Mill Street, Box 310
Thornbury, Ontario |N0H 2P0 | Canada
(519) 599-3131 | (888) 258-6867 |communications@theblue

<~WRD2698.jpg>

<Drainage Map Excerpt - 209440 Highway 26.jpg>