



WEST HANTS REGIONAL MUNICIPALITY REPORT

Information ✓	Recommendation ✓	Decision Request ☐	Councillor Activity ✓
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To: West Hants Regional Municipal Council Committee of the Whole

Submitted by: Jim Ivey, Councillor, Windsor South

Date: September 24, 2024

Subject: Flood Chronology Information Report

LEGISLATIVE AUTHORITY

Meeting and Committee Procedural Policy – Councillor Reports

RECOMMENDATION or DECISION REQUEST

To be Determined

BACKGROUND

Property ✓	Public Opinion ✓	Environment ✓	Social ☐	Economic ✓	Councillor Activity ✓
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While this was initially intended to be an information report, it has become apparent over the last month and more broadly over the last three years that we do not have a structured storm water or flood management (action or actionable) plans to effectively managing our storm water issues.

We are still gathering data. As recently as two weeks ago, information recently requested identified that we hadn't received any information or detail on the trunk sewer transit system used to move the combined storm water and sewer along the waterfront to the pump station under the 101 highway and then to the wastewater treatment plant. It was identified as part of that discussion that the majority of the answers and details would be included in the phase 2 part of the study. It should be pointed out that when this process began three years ago, there

was no intent for a phase 2 part of the study, except that ‘Tremain Crescent’ would be addressed separately as a distinct catchment area.

Following is a summary chronology of discussions, motions and activity surrounding flooding issues, CSO’s, Cunnable Creek and other flood areas primarily in Windsor as well as West Hants over the past three years. Resulting from initial discussions with Council and residents in the region, it is clear that the combined sewer overflows and storm flooding events are not just a recent occurrence.

When the discussions on these events began following the flash flood on July 27, 2021, one the frequent comments from residents was that their prior recounts of flooding were either ignored or not satisfactorily addressed. Records of prior complaints have unfortunately not surfaced.

This brief journal reflects the path of some of the work undertaken and some of the information shared by residents, staff and council members that have been seeking to address this issue over the last 3 years.

Details from residents have included accounts of significant flooding and distressing overflow events which included the following dates:

Pre-2021	2021	2022	2023	2024
Sept 1999	Jul 27, 2021	Jan 17, 2022	Jan 26, 2023	Jun 24, 2024
Nov 7, 2010	Sept 2, 2021	Feb 18, 2022	July 21, 2023	July 6, 2024
Oct 6, 2011	Sept 10, 2021		July 27, 2023	July 8, 2024
Nov 2, 2014	Oct 17, 2021		Aug 8, 2023	July 11, 2024
Jun 21, 2019	Nov 1, 2021		Aug 30, 2023	
	Nov 23, 2021		Sept 14, 2023	

DISCUSSION

Flood Study discussions, activity and questions raised over the last 3-years has included issues of stormwater flooding, combined sewer overflows onto the streets, into private properties, parks and into the lake (Piziquid), on Windsor’s waterfront and throughout other areas of West Hants, including Hantsport, Ellershouse, Brooklyn, three Mile Plans, Falmouth and other areas of the West Hants region.

This compilation reflects a selection of some but not all comments from council meetings and its live zoom feed. Anecdotal information is included for street work done prior to 2020 from residents and public records that may not be 100% accurate for dates and timing.

2014	Stannus Street Reconstruction
	Stannus street was reconstructed with the new water and sewer pipes installed along with the removal of ditches on the roadside. As the project was

	nearing completion, the street had an overflow the night before paving was due to begin. (Residents of Stannus account)
2015-2016	Windsor Wastewater Treatment Facility Construction Beginning in the spring of 2015 and through to the of fall of 2016, the Windsor Wastewater Treatment Plant (WWTP) was designed and constructed. It involved the installation of a new pipe to connect Pumping Station 1 on the Windsor waterfront to Pumping Station 7, which was installed at the old Tourist Bureau site. Its purpose was / is to pump the storm and sanitary sewer to the WWTP located at the end of Colonial Road for treatment before depositing its treated effluent into the St Croix River.
2017	Gerrish Street Reconstruction (2017 and east end Sidewalk 2018)
2018	Alexander Street Reconstruction (West between Clifton and Wiley) Separation of storm and sewer with ditch removal on Alexander Street West with sanitary storm and sewer combined at its deposit points on Wiley or Clifton
2019	Alexander Street Reconstruction (East between Wiley and No Exit End) Separation of storm and sewer with ditch removal on Alexander Street East with the sanitary storm and sewer combined at its deposit point on Wiley from the no exit end of the street (year to be confirmed).
2020 & 2021	Highland Avenue and Churchill Avenue Reconstruction Separation of storm and sewer with ditch removal on Highland Avenue East (2020) and then West end (2021) with the sanitary storm and sewer combined at its deposit points on Wiley and separation of Churchill Street with ditch removal.
June 8, 2021	2021 Provincial Funding Application Motion: MOVED THAT IT BE RECOMMENDED TO COUNCIL THAT COUNCIL SUPPORT AN APPLICATION TO THE 2021 PROVINCIAL CAPITAL ASSISTANCE PROGRAM (PCAP) TO FUND 50% OF THE CENTENNIAL DRIVE STORMWATER CULVERT REPLACEMENT PROJECT, WITH THE REMAINING FUNDS TO COME FROM COMMUNITY BUILDING FUND RESERVE. MOTION CARRIED. Funding from PCAP must be used for municipally owned infrastructure projects like: • water supply • sewage disposal • solid waste management Projects that reduce or eliminate actual and potential environmental and health problems in the municipality are given priority. Priority is also given to projects that include collaborating with multiple municipalities or have beneficial impacts for larger populations. Flood Risk Infrastructure Investment Program and approved for funding application.

Motion: MOVED THAT IT BE RECOMMENDED TO COUNCIL THAT COUNCIL SUPPORT AN APPLICATION TO THE 2021 FLOOD RISK INFRASTRUCTURE INVESTMENT PROGRAM (FRIIP) TO FUND 50% OF A WINDSOR FLOOD RISK IMPACT STUDY, WITH THE REMAINING FUNDS TO COME FROM COMMUNITY BUILDING FUND RESERVE. MOTION CARRIED.

The report identified the funding could be used to create: • river training and floodway improvements • floodwater containment and flood intensity mitigation • studies including mapping to identify flood-prone areas and identification of potential solutions to mitigate flood impacts.

In discussion it was identified that former studies are not being repeated, the initiative is to look at a master stormwater plan.

More details can be found in the June 8, 2021 agenda package.

Both motions were passed at the June

June 22, 2021

Motions from June 8

PCAP motion for funding application passed
FRIIP motion for funding application passed

July 27, 2021

Flood event causing severe flooding of neighbourhoods throughout Windsor and West Hants and combined sewer overflow events around Victoria Park and Stannus Street area, Tremain Crescent and other areas.

Sept 2, 2021

Flood event causing significant rain and overflow events around Windsor and through the Cunnable Creek combined sewer and stormwater system into Lake Piziquid.

Sept 10, 2021

Flood event causing significant rain and overflow events around Windsor and through the Cunnable Creek combined sewer and stormwater system into Lake Piziquid.

Sept 14, 2021

Committee of the Whole

MOTION:

MOVED THAT IT BE RECOMMENDED TO COUNCIL, THAT COUNCIL REQUEST A STAFF REPORT ON THE *HISTORICAL ISSUES OF WATER DRAINAGE* DURING HEAVY RAIN FALLS IN THE STANNUS, GRAY, TREMAINE, VICTORIA AND WILEY AREAS, AND OPTIONS TO HELP PREVENT FURTHER ISSUES. MOTION CARRIED.

Discussion on Windsor Drainage Issues

Questions were raised as to what could be done to investigate a short-term solution while awaiting reports. It was noted that the most immediate and impactful thing to do would be to evaluate and address performance. It's

important to make sure the system is performing to its capacity. *It is possible that a maintenance issue may come out of this report.*

*It was reiterated that this system performed **as designed**.*

It was indicated the flooding in areas such as Victoria Street are not a new issue but their volume and frequency have been measurably increased and increasing since the street was resurfaced in 2014.

Sept 28, 2021

Council Meeting

MOTION:

MOVED THAT COUNCIL REQUEST A STAFF REPORT ON THE HISTORICAL ISSUES OF WATER DRAINAGE ISSUES DURING HEAVY RAINS IN THE STANNUS/GREY AREAS AND OPTIONS TO HELP PREVENT FURTHER ISSUES.

It was noted that the motion wording had changed since the Committee of the Whole meeting excluding Tremaine, Victoria and Wiley.

The motion was then amended and MOVED THAT COUNCIL REQUEST A STAFF REPORT ON THE HISTORICAL ISSUES OF WATER DRAINAGE DURING HEAVY RAIN FALLS ON ALL STREETS NAMED AT THE COMMITTEE OF THE WHOLE MEETING TO BE SUBMITTED. MOTION CARRIED.

Oct 7, 2021

Meeting with Stannus Street and area residents at 100 King Street reviewing the history of Cunnable Creek, and numerous resident accounts of historic flooding.

In discussion it was identified that in 2014, the target for remediation of Cunnable Creek was intended to be undertaken as a project in 2024.

Oct 8, 2021

An RFP was issued by staff for Windsor Flood Risk Assessment Study.

Oct 12, 2021

Committee of the Whole Presentation: Resident presentation identifying history in the area of flooding events as well as generally identifying key points from prior Council meeting including: 1. Unprecedented flooding event (July 27, 2021) 2. Identified need to cast a wide net to find expertise through the tender process, 3. Hiring a professional water drainage engineer. 4. Look at both short and long-term solutions.

Oct 12, 2021

Committee of the Whole Motion:

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMEND COUNCIL TO DIRECT STAFF TO CALL FOR AN RFP, TO ENGAGE A PROFESSIONAL CONSULTING

FIRM, TO PROVIDE A MASTER STORMWATER **PLAN** AND PRELIMINARY DESIGN FOR THE WINDSOR AREA. MOTION CARRIED.

With regards to the RFP,

Overflow and CSO Discussion:

Regarding the frequency and volume of overflow into the lake, It was said that we don't measure the amount but *we measure the level*, so that when it reaches a certain level, we know our combined sewer overflow is discharging.

With regards to how long it overflows; it could be calculated with a rough formula to get a crude number.

Regarding to the requirement for reporting numbers or the need to advise regulatory authorities, the answer was no.

As it related to any conversation with the Dept of Environment; staff had discussions back in 2016, such that they know we have a combined sewer overflow and essentially, this is the reason in our projected capital budgets for the future work on Cunnable Creek.

Oct 17, 2021	Flood Event
Oct 26, 2021	Council Meeting: Flooding and Overflow Discussion: Verbal update was provided on Cunnable Creek, along with a staff recommendation for the use of a rental pump or the option to consider purchasing a pump (monthly fee of approximately \$5K versus a purchase of \$132K + HST). Discussion also surfaced on if it was needed to report the plan being considered to the Dept of the Environment due to CSO transmission into the lake. It was identified that it was not necessary to communicate the plan to Department of the Environment as it would be going to lake anyway as with current CSO. Later in the agenda in a more detailed discussion on the pump (11a iii), whereby two motions were ultimately moved and passed: MOVED THAT COUNCIL APPROVES STAFF TO PROCEED WITH PURCHASE OF A 10" CD250M DIESEL OPERATED PUMP FROM BATTLEFIELD EQUIPMENT RENTALS COMPLETE WITH TRAILER AND HOSES FOR THE PRICE OF \$132,355 PLUS HST, INCLUDING A 10% CONTINGENCY. ALSO, STAFF PROCEED WITH THE RENTAL OF A STANDBY DIESEL OPERATED PUMP AT THE COST OF \$4,867/MONTH TO BE EQUALLY FUNDED THROUGH THE UTILITIES, AND THAT THE DIRECTOR OF PUBLIC WORKS SUBMIT OUR EMERGENCY RESPONSE PLAN

TO THE DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE, AND
REQUEST ACKNOWLEDGEMENT OF RECEIPT OF THE LETTER. MOTION
CARRIED.

MOVED THAT COUNCIL DIRECT STAFF TO CALL FOR AN RFP TO ENGAGE A
PROFESSIONAL CONSULTING FIRM TO PROVIDE A MASTER STORM WATER
PLAN, AND PRELIMINARY DESIGN FOR THE WINDSOR AREA. MOTION CARRIED.

It was clarified in discussion that the “Windsor area” would be the old town of
Windsor boundaries including Wentworth Creek. Also, that staff had initiated a
request for proposal on the Storm Water Master Plan. It should return next month
at the Committee of the Whole meeting.

Nov 1, 2021	Flood Event
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Nov 9, 2021

Committee of the Whole Motion:

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMEND COUNCIL APPROVE THE AWARD OF TENDER WWHPW21-18 FOR FLOOD RISK ASSESSMENT STUDY TO THE LOW COMPLIANT BIDDER, CBCL, FOR THE TENDERED PRICE OF \$79,550, PLUS APPLICABLE TAXES, WITH \$43,854 COMING FROM CANADA COMMUNITY BUILDING FUND RESERVE. MOTION CARRIED

Regarding timing: *‘Hopeful the report will be done over winter months and have a final report by early summer’.*

The recommendation report included the following:

West Hants Regional Municipality is seeking a qualified consultant for the preparation of a Flood Risk Assessment Study for the community of Windsor, NS.

Windsor’s geography and historical settlement pattern contribute to its vulnerability to stormwater flooding. The municipality determined flooding, both inland and from storm surge, to be a priority area of concern in the context of climate trends and projections. In addition, the Regional Emergency Management Office, have determined flooding as one of the most significant risks to the community.

It is critical to the Municipality to identify the ‘bottlenecks’ in water drainage, to plan and design infrastructure improvements these areas to a standard that not only better addresses today’s flooding issues, but takes the projected increase of short, higher intensity rainfalls caused by climate change into account.

DISCUSSION

The intent of this study is to identify storm water management issues and solutions for the community of Windsor (former Town of Windsor boundaries) and shall include Wentworth Creek. There have been previous Flood Risk Assessment studies performed for Three Mile Plains¹, Falmouth² and Hantsport³. This study should take these previous studies into consideration, to ensure that flood risks are reviewed up to the boundaries of these former reports.

¹ Three Mile Plains Flood Risk Assessment Study, Dillon Consulting (2019)

² Falmouth Stormwater Management Plan, CBCL Limited (2016)

³ Hantsport Flood Risk Assessment Study, Dillon Consulting (2018)

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- Managing stormwater runoff in the most cost-effective and ecologically appropriate manner, including maximizing the use of natural features to slow and control storm water;
 - Protecting citizens from the dangers of flash flooding;
 - Mitigating damage to infrastructure and private property;
 - Protecting the quantity and quality of groundwater resources;
 - Protecting and enhancing the quality of surface water in the community and the municipality's natural features; and
 - Providing stormwater information for future development in the community.

The Windsor Flood Risk Assessment Study & Stormwater Management Plan will be the primary document that contains the framework and standards to:

Describe the Current Circumstances

- Delineate stormwater sheds in Windsor, and provide a GIS layer illustrating these sheds;
- Meet with the Municipality to review changes which should be made to drainage systems within the study area; and
- Inventory and describe existing drainage conditions, creating GIS ArcMap .shp data points as appropriate;

Define Requirements for Development

- Describe how to apply LID BMP's within the Municipality to achieve the study's objectives, considering both current and intended land uses identified in the Municipal Planning Strategy and Land Use By-law. This will require meeting with Planning staff to review current development within study area and anticipated changes to development within the study area;
- Assess limitations in major drainage systems for existing development as well as flows that are expected from future development using recommended BMPs; and
- Identify opportunities and estimate associated costs of addressing under-capacity issues in the current infrastructure.

Hydrologic and Hydraulic Modeling

- Input drainage information based on consultant's inventory and available topographic data;
- Assess peak flows and available storage capacity in current drainage

system;

- Identify all existing ‘bottlenecks’ and limiting sections;
- Select a computer model (e.g., USEPA SWMM5, or Stormnet) and explain to the Committee why this model is most appropriate for achieving the objectives of the study;
- Prepare a range of Design Rainfall events to be used in the model to simulate predicted increases in peak flows and assess hydraulic conditions in the Windsor drainage system. These Design Rainfall events must reflect climate trends and projections for changes in precipitation as discussed in the West Hants Municipal Climate Change Action Plan (MCCAP); and
- Assess limiting sections of the drainage system using a range of flow control scenarios for all design rainfalls;

Resolution of Limitations

- List upgrades to drainage systems components to accommodate projected future peak flows for a range of control scenarios;
- Evaluate the potential for integrating additional stormwater storage in the drainage system to offset the need for capacity (infrastructure) upgrades and/or increases;
- Recommend an optimum combination of drainage system capacity upgrades and storage for the Windsor area. This proposed ‘drainage plan’ should include any technical specifications, such as general location and size of retention, treatment and/or infiltration components;
- Provide recommended policy and typical specifications to accompany the acceptable BMPs; and
- Recommend the priority of each potential upgrade or action based on both the impact on the drainage system and financial costs.

Project Management Tasks

- The consultant will work closely with the West Hants MCCAP Committee and Public Works staff;
 - The consultant will provide a work plan that describes how the consultant will keep Public Works staff abreast of progress on this study’s objectives, including what is being done and why, assumptions and findings;
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- The consultant must prepare and present findings to the MCCAP Committee and/or West Hants Committee of the Whole when it comes time to review this body of work, and be available to Council for questions during the process;
 - The consultant will review the West Hants MCCAP and other related research, such as the ACAS, Lot Grading By-Law staff report and the May 24, 2018 report “Stormwater Management: Utilizing Low Impact Development”, which the MCCAP Committee will make available to the consultant;
 - The consultant shall be responsible for all mapping requirements of the project and all resulting GIS ArcMap .shp files and map products shall become the property of the Municipality at the conclusion of the project. The Municipality will provide topographic layers, as well as other data as needed by the consultant for the project, from the Municipality's GIS; and
 - The consultant will make recommendations to the Public Works staff on appropriate stakeholder involvement, if necessary, at relevant stages of the project.

On October 8, staff issued an Invitation for Proposal (RFP) for Engineering Services for this study project to prequalified engineering consultants, closing on October 21. The call for proposals resulted in three proposals being submitted for evaluation. The proposals were evaluated for completeness, technical ability and proposed approach to execute the scope of work.

The three bids received included:

- | | |
|---------------|---------------------------|
| • CBCL | \$ 79,550. ⁰⁰ |
| • EXP | \$ 91,840. ⁰⁰ |
| • DesignPoint | \$ 121,248. ⁵³ |

CBCL Limited was deemed to be the low compliant bidder and has previous experience and qualification with the engineering assessment for similar projects throughout Nova Scotia, including the 2016 Falmouth Stormwater Assessment Study; as such has been recommended to Council for award of this contract.

NEXT STEPS

Pending approval of Council; staff will award formal contract to CBCL to proceed with the study scope of work in accordance with their proposal.

FINANCIAL IMPLICATIONS

On June 8, 2021, Council supported an application to the 2021 Flood Risk Infrastructure Investment Program (FRIIP) to fund 50% of a Windsor Flood Risk Impact Study, with the remaining funds to come from Gas Tax Reserve.

West Hants Regional Municipality has received funding from the Nova Scotia Flood Risk Infrastructure Investment Program (FRIIP) to fund 50% of the cost of a Windsor Flood Water Impact Study up to a maximum contribution of \$39,109.

The total cost with applicable taxes is \$82,963, leaving a balance of \$43,854 to come from Canada Community Building Fund Reserve.

Nov 23, 2021	Flood Event
Nov 23, 2021	Council Meeting
	MOTION
	MOVED THAT COUNCIL APPROVE THE AWARD OF TENDER WWHPW21-18 FOR FLOOD RISK ASSESSMENT STUDY TO THE LOW COMPLIANT BIDDER, CBCL, FOR THE TENDERED PRICE OF \$79,550, PLUS APPLICABLE TAXES, WITH \$43,854 COMING FROM CANADA COMMUNITY BUILDING FUND RESERVE. MOTION CARRIED.
	Discussion was that CBCL is involved and familiar with the sewer systems.

Dec 7, 2021	Committee of the Whole
	Wastewater Discharge Report: Discussion points as well as questions were asked about CSO's, reporting and permission for private storm water in the sewer system.
	When asked about CSO reporting and CSO frequency council was advised that we would notify Department of Environment, which is our regulator, which we have the permit to operate through. Staff would notify them, and they would report through the WSER, which is the federal reporting structure. And they're only required to do that on an annual basis.
	With respect to frequency, it was communicated that when CSO's happen, which is not very frequent, during the July 27 event the Municipality had a combined sewer overflow that overwhelmed our systems. So that one will be reported that will show up after the reporting on the WSER. It was identified that, previous to that event, there was nothing. There may have been one in 2016 but the Municipality did have the Transitional Authorization at that point, so we weren't actually required to notify for the combined sewer overflow,

because we were on the old system at that point. But when operators are aware or they *notice* a combined sewer overflow, it is reported.

When asked if the CSO pipe had more than one or two overflows in the last year. Council was advised that... when it was noticed, it is a just pipe, there's no alarms on the pipe.

When operators that run the system notice an overflow, it would be reported to Nova Scotia Environment, and then logged up the WSER.

The Municipality has strict SOP's to follow if a power outage occurs and results in CSO. There are systems that are not combined but still under the influence of rain.

Was the pump used during the last storm (November); 'hasn't turned a wheel' the pump was tested by recycling water but was not required to be used during the last storm.

CSO's are regulated, if an overflow occurs it is required to be reported. The Municipality is working towards a solution to prevent future episodes.

Regarding the question of recent maintenance on PumpStation-1; preventative maintenance and inspections were done to ensure there were no restrictions. The chamber was very clean.

It was stated that there is no authorization to spill or dump. If or when it occurs, it must be reported.

Dec 16, 2021

Council Meeting

Discussion during O'Brien Street Development Agreement item 9c:

In discussion about the development agreement, questions were raised regarding concerns for the stormwater flows and overflows (resulting from the recent flood events in the area) and the potential contribution or impact of the new development in the area.

From the development discussion a question was asked:
Has the municipality had ever considered a simple float switch to be able to record the occurrence of its overflows?

Council was advised that we had level sensors that tell us the flows / levels on that station (PS1). When it gets to a critical point when it would actually overflow into the weir, and then overflow into the lake.

Previously the Municipality did not have an alarm set point on that sensor but resulting from discussions the past few months, an alarm set point was

initiated to actually call it through the SCADA system and alert us if there is a combined sewer overflow into the Lake Pisiquid.

Council was advised that consistent with all new developments, prior to a development permit being issued, a storm water management plan is required from the developer. The plan needs to consider previous flooding activity and *that proposed new developments will not exacerbate the issue further.*

A storm water management structure will need to be created such that no more will be added to the system. Capacity exists within the sewer system to accommodate this development. *There is a plan to separate the Cunnable Creek in the Capital budget.* Once this is done this will allow for increased capacity.

Council is waiting on a storm water system assessment to be completed. Gathering data is the first part to get an idea on where to begin the process. Consensus was that prioritizing these concerns within the budget in the new year.

Jan 17, 2022	Flood Event
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Feb 18, 2022	Flood Event
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Feb 22, 2022	Council Meeting
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	Councillor Report: Flood/Flood Risk Discussion
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	Overall Friday's snowmelt and heavy precipitation caused some issues but no localized flooding in the Cunnable Creek area. <i>The system worked as designed.</i> The non-combined system had some issues which were impacted by the tide not allowing the water to get out. There were some issues noted on the private/residential side re: illegal connections to the sanitary system (rain gutters, storm drains, sump pumps). Staff are looking at areas to identify as red flags.
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The costs associated with removal and relocation of snow in the Victoria Park area would be higher than the current practice, even when considering the treatment costs associated with the melting snow. Melting occurs slowly and will not overwhelm the system. Removing the snow would be a change in operation, which would require an increase in the snow removal budget and increase clean up time in the downtown area.

Reminder that the quickest and best way to get a response during emergencies or storms that may become emergencies would be to work through the designated phone lines (Municipality, Fire, Police) to ensure a speedy response. Municipal Council is the method to discuss policy and delivery method

Mar 8, 2022	Committee of the Whole, Councillor Report Discussion: Cost Benefit of Separating Storm and Sewer before Treatment
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The report was intended as an initial step to secure data on the cost of treating stormwater. It was communicated to Council that a stormwater study was completed in 1994 which showed little benefit in separating.

Council previously directed that a Flood Risk Assessment study be completed. It was concluded based on the information provided that there is limited cost savings in treating stormwater. It would be pennies. This is a fixed cost.

Costs are projected in the Capital budget. This year's Capital Budget will include a line for a detailed design work plan be completed. The Flood study and pre-design plan will give information on what is needed to proceed in this area.

MOTION: MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT STAFF TO PREPARE A REPORT, IDENTIFYING THE VOLUME, AND COST OF TREATING STORM WATER IN THE WINDSOR WASTEWATER TREATMENT FACILITY AND THEN BRING IT BACK TO COUNCIL MEETING, MARCH 22. MOTION DEFEATED.

Mar. 22, 2022

Council Meeting

Correspondence re Aromas on Streets from Catch Basins: Discussion regarding the aroma from catch basins in the flood areas and possible solutions. It was identified Public works have been investigating. Samples have been taken and on-going communication with consultants continue to better understand the cause and narrow down potential areas of concern. Presently at the data collection stage. Once data is completed, *a consultant will be engaged* to formulate a solution. Anticipate this will take approximately a couple of weeks.

CSOs and Overflow

(As the discussion shifted to the flood issues and CSO's in the area and pump station 1), it was communicated that all data (when, amount and frequency of an overflow) is collected through the Supervisory control and data acquisition (Scada) system in place. So we have all the trending, we monitor levels. We have, going back many years, we keep the data and we archive it. So we know when we'd have a combined sewer overflow, we know the duration, we know the frequency.

As it related to a question on how many overflows did we have in the last year? While the data would need to be reviewed it was estimated to be averaging about 12 to 15 overflows per year. If it's a higher rain event year that would go up and down. But we do have it all collected on spreadsheets. We send the spreadsheets to our regulatory officials. So they have that information. And when we do have an overflow, we do try to within a 24 hour period, send notification to the Nova Scotia Department Environment. So they're aware.

Reporting Stopped

In 2016 the reporting structure changed. There was an error and the record for the Combined Sewer Overflow was not accepting data correctly. WSER are fully aware there is a CSO. All data is being submitted and will be logged into the database within the next few weeks.

There are many CSO's across Canada. Maintaining an existing CSO, **as long as there is no increase due to development or expansion of our systems**, is not wrong.

No new CSO'S are permitted. A CSO is not considered a toxic substance and is not an illegal connection. This is an approved system in both design and operation. It is in compliance with the Department of Environment.

Reporting was acknowledged to occur with the Department of the Environment and the WSER.

As it related to DFO and CSOs deposited into the fish habitat, it was pointed out that they do not allow for an annual timeline for reporting. It is when you deposit, when you have a CSO, that its a requirement to report it right away. It's a requirement to report it, to mitigate it and to remove it; the question was asked if we have done any reporting to them (DFO) with any of the CSOs that we've had within the system?

It was explained that there was no reporting to DFO. Essentially, a combined sewer overflow, was not considered to be a deleterious substance. (WSER favors a toxicity approach). This combined sewer overflow is not considered deleterious. With our treatment plants, we have reporting for the samples that are raw sewage; so we only test for toxicity; we test for suspended solids; we test for BODs, and that's on a treatment portion of it. It's the same kind of wastewater. We're not depositing the type of substance that would require fisheries to be notified and our regulatory boards, our department of environment, and WSER...

When asked if we have ever tested the water that's coming out of the CSO? The response was no, no requirement to test the water.

...We test our raw water coming into the treatment plant and we test our treated water effluent that's the requirement to test...

April 13, 2022

Committee of the Whole Budget Discussion

Cunnable Creek Budget item: \$200,000 2022-23 allocated in Public Works

5 Year Budget was allocated as:

2022-23: \$ 200,000

2023-24: 0

2024-25: \$12,204,785

2025-26: \$ 5,188,819

2026-27: \$ 5,188,819

5 years: \$22,782,213

Explanation of bigger Sewer Utility spends in Windsor 24/25 and WH 25/26, detail provided on Lagoon Drive study, the condition and number of CSO's in Hantsport.

Cunnable Creek – it is stormwater-related (charged to roads).

Cunnable Creek engineering costs were discussed. Reiteration that this project has no sewer component.

Waiting to hear on funding applications for Stannus Street (mostly federal).

Cunnable Creek is a stand-alone Public Works line item, not a road rehab, no borrowing for this project reflected in debt ratio

May 24, 2022

Council Meeting:

Storm Capacity – Culverts and Lagoons - Councillor Report:

Discussion / review of possible concerns regarding capacity levels related to Kingsview Drive and College Road area and the wastewater lagoons at the end of Centennial Drive off Wentworth Road following the February 17th and 18th, 2022, rain event.

The ice built up in ditches causes overflow onto the roads during rain events. The ditches and culverts ***worked as designed***. There is an allocated budget for regular maintenance. Increased maintenance can be done but would require an increase in the operational budget.

Public Works will review Kingsview Drive to identify any improvements that can be completed within the Operational budget.

The lagoons have capacity to manage increased leachate from the landfill. There is an agreement in place determining the number of loads per week. This is an agreement with the former Town of Windsor as there was a reduced tipping fees in exchange for accepting leachate through the Lagoon Drive Sewage Treatment Plant. *There are no concerns if the landfill expands.*

May 26, 2022

Committee of the Whole Budget Meeting:

Cunnable Creek Budget Notes / Discussion Points

Cunnable Creek is a multiyear project. There is a five (5) year plan that relies on Capital funding (anticipate there will be funding available through both the Federal and Provincial governments) and would require council approval each year prior to budget approval.

If the project was a sewer project, then it would impact Windsor sewer users, if it were a water project then it would impact Windsor water utility users, if the project were under roads, it would be general rated but with a new project

new funding models can be determined through a motion of council.

Essentially this is a storm water project that would be allocated to the roads. The design phase is in this year's budget, pending council approval the project could begin this year. The stormwater report is almost complete, but still in the data collection phase. Until the design is complete, the estimate is very high-level Council would still need to determine the details of the project with respects to duration, currently the project is projected to begin in 2024/25 and is in years 2025/26 and 2026/27.

Oct 11, 2022

Committee of the Whole Meeting

Councillor Report: Windsor Flood Risk Assessment Update Report - Request for Decision

The Councillor reviewed the report requesting staff provide an updated report with some of the following discussion points:

- Original thought was that stakeholder / community engagement was part of the updated report that was going to be presented to Council regarding the Windsor Flood Risk Assessment report.
- The report was projected to be concluded and before Council in late spring or early summer of 2022.
- An update suggested a revised report being presented to Council at the end of this year or beginning of early next year.
- Recognizing the importance of the report it was necessary to get a clearly understand where this project stands for current work completed and expected timing of work to be completed.
- There is a need to understand where the Municipality stands with respect to the impacts to Cunnable Creek (identified in the five (5) year Capital Plan), the Trecothic Marsh area and the increased developments that have been and continue to come before Council for approval.
- It is important to understand what has been completed, what needs to be completed and how much time is required to complete the report to ensure they don't find themselves in a situation.
- The October deadline is to ensure that follow through occurs and the request does not get pushed ahead.

MOVED THAT COMMITTEE OF THE WHOLE DIRECTS STAFF TO PROVIDE AN UPDATE ON THE FLOOD RISK ASSESSMENT PROJECT TO BE PRESENTED BY CBCL TO COUNCIL AT ITS OCTOBER COUNCIL MEETING WITH A SUMMARY OF THE WORK AND FINDINGS COMPLETED TO DATE, THE WORK STILL REQUIRED TO BE COMPLETED AND THE ESTIMATED TIMEFRAME FOR THE COMPLETION OF THE WORK AND THE ANTICIPATED FINAL REPORT DELIVERY. MOTION CARRIED

Mr. Andrew Baillie reviewed the report with the following key points:

The objectives were to:

- manage the Stormwater runoff in a cost-efficient way,
- minimize impacts to the environment,
- control stormwater overflows,
- protect the citizens and environment from flooding, • mitigate damage to infrastructure,
- protect the quality and quantity of groundwater, • enhance the quality of surface water in community,
- provide stormwater information on future development to allow future development in the communities and to provide communications, discussions and options with the MCCAP Committee.

The project scope was to do an assessment on the current conditions by

- evaluating capacity and performance of the existing stormwater infrastructure under current climatic and development conditions;
- an assessment of the future conditions by evaluating the capacity and performance of the existing stormwater infrastructure under projected development and climate change impacts and
- provide flood mitigation strategies to reduce flooding risk and improve resilience, including costs.

Next steps were:

- Finish the calibration
- Undertake model design stormwater events (taking various storm events and seeing how the existing conditions perform and then making changes to the system and seeing the impacts of the changes made on flooding and performance)
- Incorporate future development areas (these take away the capacity to flow stormwater and sanitary flow) to see what the impacts are and how to address them).
- Identify any system upgrades required
- Develop a roadmap for any proposed upgrades, outlining the priorities and provide class D estimates
- Compile reports.
 - Projected future next steps:
 - Budget for improvements
 - Complete preliminary design and detailed design.
 - Develop tender and select a contractor
 - Construct improvements.

The timeline for this work varies based on the scope of the work being done, timeline identified for the work to be done and the budget allocated each year for the work to be completed.

Discussion Points:

- Street renewals have separated stormwater and sanitary as part of each project
- Policies are in place that all developments are required to maintain pre and post flows from the property for storm events.
- Developers are required to design a system that will attenuate the stormwater on the property, so it discharges at the same rate previous to construction
- there should be no impact to the downstream environment than what currently occurs.
- An important part of this process was to ensure Developers follow through and that water was not directed to a different watershed; it must remain within the current watershed.
- ***Anticipated the work would be completed by year end, possibly January of 2023.***
- Data has been collected and the models are operating. Now it was about running the models and making the changes needed to be made within the systems.
- Typically, public engagement (information sessions identifying issues found and the plan to fix them) occur once a project was selected to be done.
- An initial area of concern was the large amount of flow in the underground
- The underground was an enclosed former brook that runs through the town that was pieced together in sections over the years. It has been covered in different materials with different sized piping along it. It collects a lot of stormwaters; it has capacity, but it was not well constructed.
- ***Combined stormwater/sewer overflows occur when there is four (4) times the amount of the max day flow resulting in a very dilute water, mostly containing rainwater.***
- It is considered a **non-environmental concern for short durations**. These events occur during large rain events when there is a lot of flow that was multiple times the normal flow. It is not ideal, but it is part of older systems.
- One stormwater event is generally used to calibrate the models. If the model can be calibrated it is going to functionable over a wide range of scenarios. Photos of other events could be run with the data and used as a check.

Jan 26, 2023	Flood Event
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April 12 2023	Committee of the Whole: 2023-2024 Budget Discussions
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The 5-year Public Works Capital (general items) included roads. 53% was funded through long-term debt, with 26% being funded through potential grants. Highlights of the larger projects included road renewals across all three

areas, J Class Road maintenance (suggested to be funded from post consolidation funding) **Cunnabel Creek project (starting in 2025-26)**, upgrades to the public works facility, a street sweeper, salt and plow dump truck replacement).

The 5-year plan for roads was reviewed.

Traffic control at Wentworth Road and Payzant Drive – still working with the consultant on the final design in addition to continued work with private clients. Hoping to have something for May to be able to tender the project this year.

Cunnabel Creek: \$200,000 in the budget for this year was for the detailed design (who, what, where, when) once the stormwater study was complete. The next year was a break with construction following the next year and being phased in several years after. There was value in Council having a larger discussion regarding the commitment level prior to spending a lot of money. It was noted there was a third and fourth year for the project that equated to the actual budget being 28 million, the project went outside the projected 5 years.

- The decrease in overflow was related to decreased precipitation events (how much over a short duration). There have been less events.
- **A \$30 million dollar application has been submitted for funding.**

Correspondence has been received stating WHRM remained on the list. **\$50 million dollars was available per applicant**

- The study gives an indication of the impacts on community, sidewalks and other infrastructures already present. The design puts us in a state of readiness and provided an idea of what was needed at the time the design was done. There was value in not doing the detailed study until the preliminary study was completed.

April 17, 2023	Committee of the Whole – Budget Discussion
	Cunnabel Creek Update Re Debt Cunnabel Creek projection was based on 25 years of debt servicing (half of the \$23 million dollars due to expecting/hoping half will come from other funding sources). \$5 million more was projected for the 2028-29 year. Due to the size and scale of the project it was anticipated the debt could last up to 40 years
May 23, 2023	Council Meeting: Public Hearing Development Agreement Discussion – Capacity for Stormwater and Water Discussion Points: Public Works noted no concerns. Concern was noted regarding reliance on the developers’ engineer to determine stormwater water flows and sewer capacity existed within the current infrastructure as it pertains to the development (pre and post development flows).

The thought was that an outside individual should be reviewing potential developments (specifically the capacity within the Marsh).

The master water supply plan was being reviewed with the intentions to seek requests for proposals for a master plan.

Stormwater calculations factor in Climate change, they look at the 1 in 5 yr, 1 in 10 yr, 1 in 25 yr, 1 in 100 yr storms and factor in historical rain fall amounts.

Phase 1 (Cunnable Creek/downtown area) of the stormwater report was completed, staff are reviewing the draft report for accuracy.

Phase 2 (Wentworth Road and King Street south area) is underway. The draft report can be shared, should Council want to see it.

Capacity exists (including leachate) within the infrastructure (including the proposed development).

Some areas have less capacity, ie.: if Hantsport had a large development it would create a high state on the water withdrawal (Davidson Lake). Windsor has a fair bit of capacity.

MOVED THAT COUNCIL DIRECT STAFF TO SECURE AN ALTERNATE OPINION ON THE STORM WATER AND SEWAGE CAPACITY WITHIN THE AREAS THAT ARE BEING DEALT WITH. MOTION DEFEATED.

Discussion Points:

Motion was specific to the catchment area. The flood study with CBCL was an overall study looking at Cunnabel Creek and separation, it would look at the surrounding areas of the proposed development.

June 13, 2023 Committee of the Whole – Hantsport Main Street North – Reprioritization

Both Main Street North and Rand Street in Hantsport were identified in the 5-year road Capital projects. The request was to reprioritize Main Street due to an exposed sewer main that ran through Willow Brook at the Main Street (North) bridge.

The exposed main there posed a risk that a flood event could cause damage to this pipe and cause an extreme sewer release to a freshwater stream, thereby causing significant damage to the environment, fish, wildlife and potentially people in our community.

MOTION:

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS THAT COUNCIL APPROVE THE RELEASE OF REQUEST FOR PROPOSALS (RFP) FOR THE

ENGINEERING AND DESIGN WORK FOR MAIN STREET NORTH INFRASTRUCTURE RENEWAL FOR THE 2023/24 FISCAL PERIOD, WITH THE PLAN OF STARTING CONSTRUCTION OF THE MAIN STREET NORTH RENEWAL PROJECT FOR 2024/25. AND, COUNCIL DEFER THE ENGINEERING AND DESIGN WORK FOR RAND STREET INFRASTRUCTURE RENEWAL TO THE 2024/25 FISCAL PERIOD, WITH THE PLAN OF STARTING CONSTRUCTION OF THE RAND STREET NORTH RENEWAL PROJECT FOR 2025/26. MOTION CARRIED.

The storm and sanitary were already separated. The section of the pipe that runs under the bridge will be replaced.

July 13, 2023

Independent Engineer Decision Request – Councillor Report

With the regions unprecedented development growth and interest in its urban areas. A storm water management plan is required as part of the part of the applicant's process for a development agreement, to ensure water runoff is managed and West Hants Regional Municipality controlled with no change in predevelopment flows. Concerns have been raised that it may be beneficial for the Municipality to solicit an independent report as an additional "safeguard" for Council to be assured storm water is properly managed and no concerns are identified.

Motion: MOVED BY MAYOR ZEBIAN AND COUNCILLOR FRANCIS THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT STAFF TO SOLICIT A REPORT FROM AN INDEPENDENT ENGINEER ON STORM WATER MANAGEMENT PLANS FOR REQUESTED DEVELOPMENT AGREEMENTS AS PART OF THE DEVELOPMENT AGREEMENT PROCESS. MOTION CARRIED

Discussion Points: • An independent engineer for the municipality would have the interest of the municipality first and foremost and provide a level of assurance. • With climate change and increased severe weather events the additional oversight of an engineer was seen as added value when reviewing DA's to assist with potential flooding problems. • Staff would look at having a standing offer outside of the normal consultants to review developments and look at the greater impacts on the systems.

July 21, 2023

Flood Event with Tragic Loss

July 27, 2023

Flood Event

Aug 8, 2023

Flood Event

Aug 21, 2023

Special Council Meeting

Flood Event, Emergency Management Office (EMO) Recap
A high-level summary/overview of the events and response during the event on July 22, 2023 was provided.

The report spoke to the regional weather event (rainfall amounts and flash flooding), areas that were severely impacted, compromised infrastructure, the two hydro dams impacted which resulted in evacuations orders and alerts

issued, the significant damages to provincial, municipal, and private properties, the multi-agency response and the missing persons which resulted in four fatalities within the community.

A more in-depth account of the event was provided through a detailed summary which spoke to communications amongst all agencies, actions and responses for each day, challenges experienced by all due to poor connectivity, steps that are required to issue an alert as well as the confirmed times that all the alerts were issued and sent. The presentation highlighting the resources, supporting agencies and the complexity / dedication of the work undertaken.

Aug 30, 2023	Flood Event
Sept 10, 2023	Healing Session – (July 21 2023 Flood) Brooklyn Civic Center Brooklyn hosted healing, meeting, question and answer session surrounding the tragedy and loss of the most recent flood event.
Sept 11, 2023	Special Council Meeting Correspondence: P Moore Pump Location and Timing During Flood Event Discussion Points: No response has been provided on the timing. Timing was unknown, Staff will determine the time and provide it for the next meeting. CAO was directed to get this information as a pump was purchased specifically to assist with the residents struggling in the flood zone area. There was value in knowing in knowing if the resource purchased worked or if a better plan was needed to assist residents in these areas. Part of the presentations at the Community Storm Water Management meetings was to provide information on how the system works, its design, and areas for improvements. In collaboration with CBCL this information will be presented along with when the pump aids in flooding events (the water needs to get to the pipe in order for the pump to assist). Follow-up will occur at the October Committee of the Whole meeting.
Sept 12, 2023	Committee of the Whole – Various Reports and Discussions Staff Report: Update on July's Flash Flood included: July 21st /22nd Flash Flood Weather Events – Significant work continues for staff and the municipality as it relates to the events. Many meetings have occurred (RCMP and WHRM After Action Review (AAR) Meeting on August 9th, Nova Scotia Government / Public Alert Improvement Meeting on August 25th, Critical Response Session (Mental Health Awareness) on August 28th and 29th, WHRM EMO Response Hotwash / AAR on August 30th, WHRM Community Healing Session (s) on September 10th and September 20th, Hantsport / Chittick – Public Information Meeting on September 18th, Windsor / Stannus – Public Information Meeting

	on September 25th, Minas Energy Dam System – Public Information Meeting – TBD, NSPI Dam System – Public Information Meeting – TBD, Ongoing Infrastructure and Asset Assessment, Engineer Engagement to assess damage and guide repairs or upgrades and Disaster Financial Assistance (DFA) meetings.
Sept 12, 2023	Correspondence: Numerous letters regarding various flood events throughout the region. Peter Moore Re: Weather, Pump, Storm Water and Flooding (11 emails) Correspondence Re: Overflow Discussion Points: There is no switch that activates or ends overflows. The system is gravity flow, when levels rise in the pump station and cannot maintain capacity, it overflows to a separate chamber (CSO chamber) and then it outflows into Lake Pisiquid. Amounts, durations, and intensity of rainfall impacts the system. The pump (aid) used to lessen overflow severity and duration requires a person to manually set up, prime and start the pump. Operators on call receive overflow alerts via their phones, once a certain level is reached an alarm is activated. All alarms are logged on to the Supervisory Control and Data Acquisition (SCADA) system. Only employees operating or on call have access to SCADA system. Staff continue to work through false alarms and look for areas where improvements can be made. Confirmation regarding alarms for that night will be sent out. The pump is portable and mounted on a trailer. Due to storage capacity the pump may be stored at the Windsor Depo or the Hantsport Depo. Overflows were mostly stormwater and were highly diluted. Normal regulatory requirements are 4:1, WHRM's combined sewer overflows were likely in the vicinity of 400:1, solids were a low component (minuscule). Staff monitor systems in person as well as remotely. Lift stations were highly maintained and operated. There is always ongoing maintenance with these. The pump was added as a supplement/aid to assist with lessening the intensity and duration of any flooding. Sept 12, 2023 Tremaine Crescent Flood Issues Councillor Report - Recommendation Report The report highlighted the historic (previous years) and ongoing flooding occurring at 335 Tremaine Crescent and the increase in frequency and volume due to stormwater backing up at catch basins and culverts between 335 Tremaine and the pump house along the drainage ditch on the opposite side of the road. The report identified a faulty outflow pipe (near the pumphouse) as the cause of the issue. The pipe under the road had collapsed, requiring it to

be repaired/replaced. This short-term fix resulted in little to no improvements in stormwater flows.

The municipality needs to know what size culvert is needed to draw water way from the property and proceed to fix the problem.

MOTION:

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS THAT COUNCIL DIRECT THE CAO TO ENGAGE STAFF IN A DEDICATED EFFORT TO OPERATIONALLY ADDRESS AND ENGINEER A SOLUTION TO RESOLVE THE ONGOING FLOOD ISSUES OCCURRING BETWEEN THE CULVERT AT 335 TREMAINE CRESCENT THROUGH TO THE CROSS-CULVERT AT APPROXIMATELY 369 TREMAINE CRESCENT THROUGH THE DRAINAGE DITCH WHICH LEADS TO TREGOTHIC MARSH. MOTION CARRIED.

Discussion Points:

Identified as part of phase 2 of the Windsor Storm water management study (collecting data, identifying catchment areas, drainage areas, culvert sizes needed)

The area was site specific (with the majority of water coming emptying into this ditch coming from back yards). However, Trecothic Marsh and tides as well as street water on King Street also influenced impacts on this area. Need to identify the catchment area.

Likely to be a Capital project for a special type of box culvert. Staff would use a consulting service to confirm numbers and compare them with current Municipal Specs.

Municipal roads have more storm water influences (catch basins, storm drains, sump pump connections that are also taken into consideration) compared to woods roads. Cleaning ditches was a good idea but would not alleviate the issue due to the land at a low grade (from the ditch to the Marsh land) and influenced by tides. When the tide is in, it blocks water from moving away from properties. Possible bigger solutions could be digging storm water ponds with pumps to provide capacity (hold the water during the storm and pump it out after the storm). The study will identify recommendations to consider.

Sept 12, 2023

**Flood Impact Report Questions / Information
Councillor Report**

A verbal report identifying questions that came after the July 22, 2023 Flood report presented to Council. Most of the questions correlated around municipal infrastructure, specifically the Community Centre flooding (cause

and cost to fix it), the Canoe Club, Gray Street and other pieces of infrastructure damaged by the storm. Looking for insight/assessment into the type of damage, how it occurred and to what level. There was value in having this information moving forward.

It was communicated that the majority of WHRM infrastructures would require an engineer/firm to validate damages, repairs or requested upgrades (bridges vs culverts).

The municipality has up to 2 (two) years to make any submissions). In looking at repairs or upgrades it is being done through the lens of “can we improve on it” rather than just fixing the issue. Areas will either be repaired to their previous status or upgraded with improvements if they qualify for funding under the Disaster Mitigation funding.

- Sept 12, 2023** **Combined Sewer Overflow (CSO) Overland and into Water courses – Councillor Report: Requirement to Notify Recommendation Report**
The Councillor reviewed the report highlighting an increase in frequency and volume of overflow events occurring. The report also highlighted that combined sewer overflows were identified as the source for depositing debris and contents into Pisiquid River / Lake, along Victoria Park and residential areas in/near Cunnable Creek as well as within other low-lying flood-prone areas.
There was value in taking a proactive approach and communicating when and where CSO’s have occurred and provide public communications advising of potential risks to health and the need to exercise caution in these areas until determined that the area is safe to enter.
- MOTION**
MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT THE CAO TO ENGAGE STAFF TO INITIATE COMMUNICATIONS FOLLOWING ANY COMBINED SEWER OVERFLOWS (CSO) OVER LAND OR INTO WATER COURSES THAT OCCUR WITHIN WEST HANTS REGIONAL MUNICIPALITY TO IDENTIFY TO THE PUBLIC THE NEED FOR CAUTION AND POTENTIAL RISK TO THEIR HEALTH IN THE AREA THE OVERFLOWS OCCURRED. **MOTION CARRIED**

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- Sept 14, 2023** **Flood Event**
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- Sept 18, 2023** **Hantsport Community Meeting (Chittick Ave) / Flood Session Discussion**
Meeting, question and answer session wit Hantsport area residents, staff and councillors. Request for a follow up session.
-
- Sept 20, 2023** **Healing and Flood meeting Discussion – Windsor Community Center**
2nd Hosted healing, meeting, question and answer session surrounding the tragedy and loss of the most recent flood event on July 21, 2023 .

Sept 25, 2023	Meeting and Flood Discussion with Windsor Residents regarding Stannus Street at Former Town Hall Meeting, question and answer session with Windsor area residents, staff and councillors. (It was identified in this stage it would take approximately 60 – 90 days to extract/complete the analysis on the Stannus street area to present a recommendation back to Council).
Sept 26, 2023	Council Meeting - Excerpts of Council MOTION MOVED THAT COUNCIL DIRECT THE CAO TO ENGAGE STAFF IN A DEDICATED EFFORT TO OPERATIONALLY ADDRESS AND ENGINEER A SOLUTION TO RESOLVE THE ONGOING FLOOD ISSUES OCCURRING BETWEEN THE CULVERT AT 335 TREMAINE CRESCENT THROUGH TO THE CROSSCULVERT AT APPROXIMATELY 369 TREMAINE CRESCENT THROUGH THE DRAINAGE DITCH WHICH LEADS TO TREGOTHIC MARSH. MOTION CARRIED.
Oct 10, 2023	Staff Report: Flood Related Matters / Discussion Points Verbal overview provided on flood related items in the past month including: Ongoing assessment/review of damages from the July 22nd storm continues. An engineer has been engaged as part of the DFA criteria. Work continues in this area. Hantsport and Windsor flash flood/stormwater management sessions were held, another session for each area is scheduled for November. Met with a resident who is a Bell executive who has taken WHRM's cellular connectivity concerns and letter forwarded. Tremaine Crescent Flood issues will require a site-specific solution. Some work has been completed in the area (smaller culverts removed and a larger one was installed, awaiting arrival of a box culvert for the area). No repairs have been started (related to the July 22 flood event) that are not covered by insurance of DFA. Prior to any project starting a conversation occurs with DFA to ensure projects meet the criteria for funding and verbal approval is provided by DFA. All projects are required to follow the procurement process. Insurance deductibles are able to be claimed under DFA, staff will need to confirm if the same applies for residential claims and provide a response to Council to share with residents. All projects are required to follow the procurement process. DAR Rail line trail requires an engineer's report, awaiting an engineer to access this project.

Dec 5, 2023

Stormwater Management Report/Presentation

Aaron Bailey from CBCL reviewed the “draft” presentation on the Stormwater Study for the former Town of Windsor including pictures from the July 2021 flood event in which various areas in Windsor experienced flooding (downtown area, Stannus and Gary Street areas, Exhibition grounds).

The report looked at how the current system worked, what worked and didn’t work in terms of improvements and performance within Windsor and the Trecothick Marsh. The Martock Marsh was not considered in the study.

A gap analysis was done to determine what information was needed to complete the study and develop additional models to represent the system., along with additional investigations into depths, sizes and slopes of pipes to create a model that best represented the system.

Flow meters were added to the system to gather flow rates and compared them to theoretic flows to establish a base line flow condition in the system to start to create a flow analysis and model, which took approximately 6-8 months to complete.

The next steps were defining the storms that would be used to evaluate the system and confirm performance levels or upgrades were needed to meet current and future storms.

The downtown Windsor system **was designed** to accommodate the 1:5-year storms, the system would not handle any storms above this (the stormwater system would surcharge).

Based on modeling calibration (July 27, 2021 event compared to the 1:5 year storm event), flooding occurred in the same general areas. Ther modeling showed there was concern as the system was not able to meet the 1:5 year storm requirements.

The same comparison was done for Trecothick Marsh area (using 1:10 year and 1:100-year storm), resulting in a similar flooding pattern but in the 100-year storm flooding was deeper and more widely spread.

Mr. Bailey reviewed the areas that were experiencing flooding. King Street flooding was a result of an undersized pipe. Gray Street area pipes were at capacity, resulting in flooding in local neighbourhoods. The pipe near Stannus Street was at capacity, resulting in stormwater not being able to get into the system or exiting the system in other areas. In addition, the Cunnable Creek pipe did not have a constant grade, some areas of the pipe were higher in some locations.

Trecothic Marsh area had areas that were less developed, resulting in the ability to store additional water. This area was flat and caused water to spread out more. Due to tidal influence, the Tre gothic creek area flooded as there was no other course for water to get out. Other contributing factors that influenced flooding were ditch grades, sediment filled ditches and undersized culverts.

Options were reviewed for both the downtown Windsor area. Three (3) options were considered for Windsor (a complete system replacement with separated sewer and based on the public consultations what could be done immediately to address flooding and provide short term solutions that would provide some relief to the areas). The Trecothic Creek option was to upsize culverts and install storm pipes in the Exhibition grounds area.

Windsor-Downtown area options:

Option 1 was to relocate flows away from Cunnabel Creek. Take all the flow out of that area and build a separate stormwater trunk that would discharge all the water from downtown. Cunnabel Creek would be left to relay sewer only.

Option 2 was to upgrade Cunnabel Creek pipe “as is” and deal with constructability issues as best can be, as it was a hard place to replace the pipes (property line restrictions, neighbouring homes and structures). Albert Street would continue as it currently does now.

Option 3 was to twin Cunnabel Creek, taking some of the flow out and putting it more into Albert Street.

Short to medium term solutions/options included:

1. Take the purple area on the map (in the presentation) separate it (all the water coming into Cunnabel Creek was removed) and divert it into the lands behind Sobeys. Gets the water away from the problem area.

2. Look at lowering the overflow that flows into the pump station so water can leave the system sooner, in addition to adding larger pumps that would pump the water to the sewage plant and treat it there.

3. Install a separate sewer on Stannus Street that would take the sewer and stormwater directly into the 1500 Trunk sewer that runs along the Avon in an attempt to collect the water and get it off the street.

4. Install a new pump station near one of the parks on Stannus Street and collect all the water coming in and then pump it to the sewage plant.

5. The fifth option discussed at the community meeting was to put in stormwater catch basins in the area and direct it behind King Street.

The first two (2) options had little impact on the area. Separating the sewer upstream from Stannus decreased the water level; however, once any water hit the Stannus system it would surcharge onto the ground. Installing a pump station (that would pump the water away) showed some benefits. Separating Stannus Street and sending it to the Trunk sewer showed that flooding still occurred; however, it was less, and the system would still have capacity. This would not solve the problem, but it would provide some relief.

In order to solve the problem, the system would need to be separated further upstream.

Diverting the water behind King Street provided some benefits; however, the park area and area where not many houses were located would see the most benefits from this. Storm and sewer would need to be separated (purple area on the map) before it could be diverted behind Sobeys. This would likely transfer the problem from one area (Stannus Street) to another area (King Street) and the combined sewer and stormwater would also have to be separated prior to diversion.

Within the Tregohic Marsh area, it was recommended that several (approximately 22) culverts be upsized to allow increased water flow, as well as a new storm system to collect surface water. These options provided the best relief for the area. Concern was raised that the modeling and mapping did not capture areas within Tremaine Crescent (both ends) that have experienced flooding. There was value in not losing sight of this.

*Mr. Bailey reviewed the cost evaluation for each option. Long-term options (1,2 and 3) ranged **from \$140,000,000 - \$155,000,000**. Short term options (1,2,3 and 4) ranged **from \$25 - \$45,000,000**. Culvert replacements were approximately **\$12,000,000** and storm pipe replacement was estimated to be **\$6,000,000**.*

Discussions at the community meetings included opportunities for improvements on private properties. Some cities (Fredericton and Toronto) offer programs at varied levels where a third party assesses the private property (flood proofing, back flow prevention) to confirm if the property complies with standards and if not, what upgrades are required to bring the property into compliance and provide a cost estimate of the work. Applications would be submitted for approval and to determine funding or grants available to property owners.

Next steps would be to finalize the report (7-10 days), narrow down how Council would like to proceed to look at solving some of the issues, develop a

budget for the work needing to be done, explore engineering and then explore funding opportunities and partnerships.

Discussion Points:

- The report had a lot of new information (costing) and required time to process. There was concern around the time required to finalize the report and the holiday season. A question was raised about what could be done immediately to provide relief to residents in these areas. Due to costs, Mr. Bailey advised that he felt nothing could be done immediately.
- Of all the options provided, option 3 (install a separate sewer on Stannus) and option 4 (new pump station)) would provide the quickest and most relief; however, both options would require a lot of infrastructure be built before any benefits would be seen and was not a quick process.
- Several options were considered for Trecothic Creek (a retention pond, removing the top of the watershed from the system and diverting it down to a new water course, etc.); however, they provided little benefit due to the land being flat and no natural drainage. For water to flow there needs to be sloped grade in the land.
- The “new” pump station would be in the Stannus Street area and have a force main to get combined sewer to the new sewage treatment plant (which was ***designed to treat combined sewage*** and has lots of capacity). The ability existed to use a gravity fed system vs pumping, but it would require a lot more work and there would still be capacity issues within Cunnable Creek. There was value in having the discussion around future projects and possibly diverting future funding to a project that would see benefits for the Stannus Street area.
- There were no benefits to upgrading the pump at the waterfront; the pipes were the issue and they were at capacity.
- Another option discussed was having a gravity fed tunnel to the existing sewage lagoons (PS-4), have a diversion control chamber with a large lift station that would divert some to Lagoon Drive and the remainder to the new sewage treatment plant. There are necessary upgrades required within the next four (4) years for this lift station that would support this option. It would be valuable to quantify what the treatment plant could handle in a major storm. These answers would be determined through the design of the project.
- Cunnabel Creek starts on Stannus Street as a circular 48 inch concrete culvert, near the Curling club it is a corrugated steel culvert (no bottom) inside a wooden box culvert. It does increase up to 50 inches in some places but also narrows as it nears the pump station. Once it reaches the pump station, it is

pumped (some also goes by gravity) to an interceptor (60" concrete circular culvert that runs under the highway to pump station 7 and then pumped to the treatment facility.

- Short-term option 4 would eliminate a combined sewer overflow (CSO) onto the street in the 1:5-year storms; however, the pipe would still be full and any homes below a certain elevation/connection point would still potentially experience system backups.
- Sump pumps can add a lot of water to a system, it was important to have them removed from the system to take away additional stress on the system.
- Time frames for any of the options would be determined more during the engineering phase. It was expected any option would be a multi-phase approach (minimum 2-3 construction years).
- The report presents options for consideration. Decisions need to be made on how the problem will be solved before an approach is determined. For discussion purposes the next steps could include options and how they could be phased in compared to other options and their phases, as well as timelines before major benefits would be seen.
- The consensus was that this issue needed to be prioritized and looked at immediately, while also looking at potentially reallocating future spending for some type of immediate solution. Time needs to be dedicated outside of a regular Council meeting to have a detailed discussion once the report has been finalized.
- The full presentation will be added to the meeting package and shared publicly. There was value in having an in-depth discussion prior to the holiday break. A Special Council meeting will be held on December 19th at 6 p.m. to discuss the matter further.

Dec 19, 2023

Special Council Meeting

Stormwater Management Presentation

The Stormwater Management plan/report was shared with Council prior to the meeting for review and further discussion.

Final Draft Stormwater Plan Report

During large storm events residents in the area experience overland flooding and CSO events. Both staff and Mr. Bailey from CBCL were available to answer any questions arising from the report, however, *staff were looking for direction from West Hants Regional Municipality Council on next steps to begin working on a long-term plan.*

Director Richard and Mr. Bailey both highlighted the report was a part of the process to move forward. Depending on the next steps and the option/area was chosen, more information/work may be needed depending on the path chosen. It was important that everyone understood and was clear on what short term vs long term vs more immediate options.

Council discussed the matter in detail, specifically short-term fixes, timing for this option and potential next steps.

With respect to the “shorter term fix” option, there are two main drainage areas in the downtown core (Cunnable Creek and Alexander), the majority of the problems relate to Cunnable Creek. The first part of this option would be separating Stannus Street and then continuing into the community, up through the rest of the watershed and then back down through. Timing for this option was hard to determine. The first part was to figure out seeing what options make the most sense and if more information was needed to narrow the options down further. The second factor for timing was determining funding and seeing if there were provincial or federal monies available to support the project.

Mr. Bailey advised that any of the three options within the report were viable options to consider. However, if the focus was on Cunnable Creek first, the first option wasn't likely to be the one to move forward with, option 2 or 3 would be viable. All three options would solve the problems with different timelines.

Mr. Bailey was asked for his expert opinion on what option he would choose if there were no barriers. All three options required additional field data (geotechnical – how deep is the rock in the ground, how to deal with the rock in the ground, how to deal with property lines (large excavation and impacts to property lines), impacts to water mains (do they require moving, replacing or temporary water lines) and impacts to sewer lines. Getting this information and putting it in a plan would be the first step. It was estimated that this would take 6-12 months to complete.

All options were technically viable; however, each option had their own nuisances associated with them (what to construct, how to construct, impacts to properties and other areas and potential negative impacts to other things that remain unknown at this time). This information has to be obtained before a decision can be made on the best option to proceed forward with.

Staff were suggesting that the direction be to release an RFP along with the study and the proponents review all options for a more detailed design to answer some of the questions. The data has been collected along with the plan; however, more information was required re: a detailed review of what option is the best to proceed with.

The short-term fix as viewed as fixing the immediate problem in the Victoria and Stannus areas, the long-term fixes would continue to progress through the years as streets were separated and storm and sanitary were separated.

Staff and CBCL would create the wording for the scope of the RFP (review the study, review the options within the study and possibly some short- and longer-term options).

The process would be a fairly extensive design including options. It was felt this would be a phased approach. first phase would be to review the options and narrow it down to two or three options and return to staff. Staff would then provide an information report to Council.

Without having a degree in engineering, it was difficult for Council to move forward with a decision without more definitive answers. All of the options had a large cost associated with each and partnerships with other levels of government were required.

With respect to the short-term option of having an addition pump in the Elmcroft playground, the treatment plant has not been evaluated so it was unknown if it would be able to handle the additional load. If that was the option chosen, evaluating the plant to see what the impacts would be on the plant would be part of the next steps.

It was critical that a short-term solution was found for those living in the Stannus, Wiley, Victoria, Munroe, Gary Street areas as well as Tremaine Crescent. A point was raised that these residents cannot wait another two (2) years before work begins on a solution.

Questions were posed regarding the missing data information and the risk associated with making any assumptions on pipe performance and ability to handle the volume. Mr. Bailey confirmed they had all the information needed for the main drainage corridor. There was confidence that the main drainage pipe sizes would handle the flow for the community. Some of the smaller residential streets which feed into the main were where the information was missing. There was little risk associated with this. All the information needed for the larger collector areas has been obtained.

A question was raised as to the overall yearly Capital Budget and if that money could be pulled and directed towards this project. The 100-million-dollar cost was a high-level estimate based on current-day costs; no inflation amount was built into the cost breakdown. It was estimated that 2-5 million dollars (high level estimate) was spent yearly on Capital projects for streets, sanitary and stormwater.

All three options can be done in phases and can be pushed in different directions/timing to solve the problem sooner vs later. Timing was dependent on how much money was invested each year and how far the project progresses. It was felt that this number was not able to be pulled from the cost of the whole project. However, if an amount was determined that Council would like to spend per year, then the project could be looked at backwards and it may be able to be determined how much of a section could be built and the timing associated with it.

Tremain Crescent was not part of this plan; it was being addressed separately. Currently Mr. Bailey is exploring options for this area.

The system does not have the capacity to relay the water down to the pump at the waterfront (the pipe restricts the volume), that is what the additional pump at the playground area was explored as an option.

Cost sharing plans were in place in other provinces to assist residents who could improve their private properties to provide protection from flooding. An assessment is done to determine what is needed, an evaluation is done on the costs associated with improvement and a grant program is utilized to assist with financial aid. This was not identified in the plan being presented.

Other strategies such as drainage from properties, water gardens, down spots and sewer pumps not being piped into the sewer were part of municipal ordinances. The options presented were ***designed to handle the flow*** without any of these measures being in place.

Option 1 (full separation) takes all the stormwater out of Cunnabel Creek (brown line on the map) and pushes it all towards Albert Street. It was a viable option in the sense that it makes it more constructable, but nothing can be done until the redline on the map was built, meaning that the problems on Stannus Street would not be solved for a long time. It was noted that what Council was looking for was a plan and what they have been presented with was a study.

It was felt there was an expectation that a decision would be made, however a decision cannot be made without a plan.

MOTION:

MOVED THAT COUNCIL DIRECT STAFF TO COME BACK WITH MORE INFORMATION INCLUDING A SUGGESTED RFP FOR COUNCIL TO REVIEW UTILIZING THE CBCL REPORT AND THAT THE RFP TO DEVELOP A STORMWATER MITIGATION PLAN IDENTIFYING BOTH SHORT AND LONGER TERM PHASED IN SOLUTIONS. **MOTIONS CARRIED.**

Discussion Points (after the motion was made):

- The report was not an easy read. It was suggested that Council may not be where they need to be in order to provide direction or make a decision at this meeting as there was no clear path. In order to make the best decision moving forward it was important to take additional time to review it further and gain a better understanding of things that needed to be done to fix the bigger problem, look at what can be done (outside of what was presently being done) to see that properties are not flooding when the next rain event occurs. There may be value in having an additional round table discussion to determine where Council wants to end up.
- There was value in having a brainstorming session where all ideas were considered.
- It was felt that a main pipeline was needed. A decision was needed on where the water was going and what the elevation was going to be. Anything done prior to this may be a waste of money. There were benefits to having gravity assisting with the process (with climate change and less maintenance). Staff agreed a gravity system was ideal.
- It was suggested that an RFP would provide the additional information (depth, etc.) needed to move forward with a decision. Someone with more expertise would provide a clearer path forward.
- Appreciation was expressed for the report, but it was not a plan and Council did not have the expertise to choose one option over the other options.
- The RFP was estimated to take 6 months. The scope of the RFP was expected to take approximately a month along with an internal review of the RFP and possible external consulting services to ensure it is accurate. It would then be brought back to Council for review and if approved it would be issued with a closing date of 3-4 weeks after being issued. All tenders would be reviewed and then costing would be explored and then a report would be presented to Council with a lot more information to consider.
- Concern was raised that more flooding could occur while Council was waiting for the RFP to be completed. There was value in a temporary fix in the short term while the RFP was issued to stop the localized flooding until a solution can be found.
- Staff advised this was not an easy short-term fix. If there were any short-term options within municipal resources, they would be done. The **two (2) events** over the past few years overwhelmed the system and flooded the streets. If water is not overtopping the streets or curb it was not considered a flood event. Public Works were not aware of any flooding that occurred as a result of last night's rainfall. Victoria Park does have standing water; it was a low-lying bowl area that will have standing water in it (not considered a flooding event). A pumping station was not seen as a short-term solution. The cost alone is in the millions of dollars in addition to operational costs and the need for a backup power source during a power outage.

Mr. Bailey reviewed the options again for Councils benefit. Again, he emphasized that all three options would provide a solution but without more information they could not say which option was the preferred option. The RFP will help make that decision easier.

Jan 9, 2024

Committee of the Whole

Correspondence – Flood Zone Related Concerns

Resulting from correspondence concern was raised amongst Council relating to the volume of combined sewer overflowing onto the property of residents and that the issue still weighed on everyone's minds.

The floor was opened up for discussion on creating some type of flood protection program (staff come up with options that may be beneficial to residents). Timing would be critical as there may be budgetary implications.

Discussion Points:

- It was suggested that the greatest contribution was to mitigate the flooding that occurs in these areas (assist with homes or WHRM infrastructure) to keep water off their properties so it does not get into their basements.
- It was beneficial to look at the program through a regional lens and prioritize areas.
- The title of the program was loosely based and could include preventive options.
- Colchester County has a program in place (assists homeowners with different types of flood prevention) that could be reviewed. Examples for flood protection measures could be implemented and cost shared across the region. The funding was not a large amount, but it was well intentioned and covered the entire rural region.
- WHRM Public Works do not have the capacity to operate outside the core downtown area.
- Intent was for a Region wide program.

MOTION:

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT STAFF TO CREATE A "HOME FLOOD PROTECTION PROGRAM AND PRESENT IT TO COUNCIL BY THE MARCH COMMITTEE OF THE WHOLE MEETING FOR VIEWING AND/OR APPROVAL FOR BUDGETARY IMPLICATIONS. **MOTION**

CARRIED UNANIMOUSLY

Further:

Posting signs advising of potential CSO's was the proper/transparent thing to do; however, it was difficult to understand that it needed to occur in 2024. It was further raised that knowing that nothing has been designed to deal with the current weather patterns/conditions occurring, along with infrastructure needs and upgrades, there would be value in knowing if anything else could be done, like an emergency plan that speaks to what may/ can be done when a

large storm is forecasted, or staff start to see the system backing up.

Discussion Points:

- Hantsport, Tremaine Crescent, College Road, etc. should be included. Flooding occurs in every district.
- Concern was raised about the amount of pressure put on staff to come up with a plan. Maybe the motion should read that staff “investigate” instead. As worded, the motion encompasses a lot of work/studies to be completed in a short time period.
- Important to look at potential ways to divert water from the area.
- CBCL has provided an Engineered Report outlining potential short-term options (which they stated may or may not guarantee), it was important to focus on this information. Staff remain committed and are up for the challenge, but it was important to manage expectations. Any surface water present in the area needs to be treated as contaminated. There may also be unknown potential variables and conditions within private homes that cannot be accounted for. The community centre was used as an example, if the municipality did not own the property, WHRM would have been made aware of the cracked foundation, inappropriately installed gutters, and other variables that contributed to flooding in that building.
- The new municipal engineer will be engaged once they begin work.
- Clarity was sought on the wording “emergency plan”, and if the intention was to look at diverting water or an account of what staff do when flooding occurs. Staff have advised they monitor systems, have cameras and boots on the ground when systems start to back up. There was value in having staff look at what they currently do and determine if something else could be improved upon or if something was missed to see if anything more could be done. There was value in having staff articulate their response plan in point form, so everyone has a better understanding (of the plan and what is done in response to weather related events).
- A thought was that a CBCL report already exists, in addition to this money and partnerships were needed to move forward on potential solutions.
- Timing is critical, the March deadline remains. Look at amending the motion at the next meeting to include diverting the water from the area.

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT STAFF TO DEVELOP AN EMERGENCY PLAN FOR THE WINDSOR AND HANTSPORT FLOODZONES (AND COULD ENCOMPASS ALL THE AREAS THAT FLOOD) AND PRESENT IT TO COUNCIL BY THE MARCH COMMITTEE OF THE WHOLE MEETING. MOTION CARRIED UNANIMOUSLY

Jan 9, 2024

Windsor Flood Study Recommendation - Councillor Report

The report was like the previous conversation initiated by the mayor. The first motion speaks to the December meeting and timelines required to complete tasks. It has taken over two (2) years to get to this point, the question remained if there was the ability within the study and information provided by

CBCL to engage a second phase and have a plan brought back vs going to tender (cutting out the time required to create and issue an RFP, award the contract and then actually do the work). There was value in having someone with background knowledge (CBCL) and having a completed report with all the information included.

The motion requested within the report, asked that staff meet with the stormwater consultant to see if this was an option to help accelerate the process. Deferring would provide an opportunity to gather additional information.

Jan 23, 2024

Council Meeting

**Excerpts from Committee of the Whole:
Regional Emergency Plan for Flood Areas**

MOTION

MOVED THAT COUNCIL DIRECT STAFF TO DEVELOP AN EMERGENCY PLAN FOR THE WINDSOR AND HANTSPORT FLOOD ZONES (AND COULD ENCOMPASS ALL THE AREAS THAT FLOOD) AND PRESENT IT TO COUNCIL BY THE MARCH COMMITTEE OF THE WHOLE MEETING.

Discussion Points:

- As stated, the motion included other areas that have potential to flood.
- A flood plan related to dam breakage was not captured in the motion, this would be a much larger exercise. EMO were looking into this as part of their work. It was difficult to pre plan evacuation routes as every emergency was unique and had different impacts on evacuation routes. Concern was raised that a pre-determined evacuation route may put people in danger if the emergency was specific to that area.
- Opinions varied on whether the motion should be amended to include water diversion. There was value in including a mechanism for diverting water, but an argument was made that including water diversion may limit staff's ability to provide emergency options.
- It was expected that diversion would be an aspect of the emergency plan. • Concern was raised that emergency would be interpreted as evacuation. The intent of the motion was to have a plan, look at things to see if there was something missing that would help address flood events when we know a storm was coming, look to see if there was a quick fix. It was never intended to mean evacuation.
- It was felt that staff understood what was being requested.

Motion was amended:

MOTION

MOVED THAT COUNCIL DIRECT STAFF TO DEVELOP AN EMERGENCY PLAN FOR THE WINDSOR AND HANTSPORT FLOODZONES (AND COULD ENCOMPASS ALL THE AREAS THAT FLOOD) AND MAY INCLUDE THE DIVERTING OF WATERS FROM RESIDENCES AND PRESENT IT TO COUNCIL BY THE MARCH COMMITTEE

OF THE WHOLE MEETING FOR VIEWING AND/OR APPROVAL FOR BUDGETARY IMPLICATIONS, MOTION CARRIED UNANIMOUSLY

Further

Regional Home Flood Protection Program

MOTION

MOVED THAT COUNCIL DIRECT STAFF CREATE A “HOME FLOOD PROTECTION PROGRAM AND PRESENT IT TO COUNCIL BY THE MARCH COMMITTEE OF THE WHOLE MEETING FOR VIEWING AND/OR APPROVAL FOR BUDGETARY IMPLICATIONS. MOTION CARRIED UNANIMOUSLY

Feb 13, 2024

CAO Report Related to Flooding

Discussion Points - Community Centre

- Damage consisted of 2-3ft of water in the basement, damage to flooring, gyprock, insulation and studs.
- Costs were associated with removal of damaged areas and replacement. • Costs outside of insurance coverage were covered under Disaster Funding Assistance, including insurance deductibles.
- Repair delays were related to chronic deficiencies found during the July flood and are now being addressed (cracked foundation, perimeter drains, roof, plumbing systems, etc.). Some operational maintenance (gutter replacement) has been completed.
- Staff were still gathering a contents list as well from this site.

Discussion Points – Canoe Club

- Damage was limited to basement/storage area. Approximately 4 ft of water entered the ground level resulting in damage to gyprock, insulation, studding, etc.
- Damages were estimated to be approximately \$110,000 and covered by insurance. The municipality was looking at ways to utilize the insurance money more effectively and looking at alternative options vs what was in place prior to the flood.
- The \$800,000 insurance claim was considered a catastrophic claim (one (1) insurance claim) associated with cost estimates for all municipal properties (Community Centre, Canoe Club etc.). There was value in Council having this information to allow for consideration of potential upgrades that may deter future flood damage.

Emergency Evacuation Routes and Mapping Discussion Points:

- Surprised to hear that municipalities were responsible for evacuation plans should one of their structures fail. Important to have evacuation plans based on the type of disaster/structure failure.
- The mapping referenced at the Dam meetings referred to the maximum geographic area impacted by the worst-case scenario event and was the total evacuation area impacted by a catastrophic failure. The municipality’s plan

would identify the location of a comfort centre accessible during an event. Until an actual event occurs, safe transportation routes or accessible comfort centres would not be able to be identified. The largest component of the plan would be educating residents on their awareness that they are in an area that could be potentially impacted by flooding, however depending on the size and scale of the event residents need to be responsive to communications issued (ex. this is the area impacted and these are the comfort centres open).

- Transportation was more challenging and relied heavily on collaboration with the provincial (511) service and their ability to provide up to date information as events unfold.
- The municipality will identify routes, zones and comfort centres. The challenge lies with the event, how it evolves and the expedience of getting information to people/areas who were really impacted vs evacuating a whole area based on worst case scenario or those immediately impacted.
- It was key to evaluate incidents as they evolve but to also make sure people were aware and understand if they were in an impacted area.
- It was suggested that elevations be attached to the evacuation plan or a resource that residents could use to determine the elevation of their home. The challenge lies with understanding the sea level component and surge components.
- There was value in having more community meetings to educate residents before a situation occurs.

Mar 12, 2024

Presentation

HCCC#1 Board of Directors – Funding Request for Bridge Repairs associated with the July floods

Alex Crocker, Treasure for the HCC#1 Board provided a brief history of Canyon Point Resort (private condominium property located in Vaughan with 59 homes). In addition to condo fees, residents pay road fees for maintenance.

The July 22, 2023 flood resulted in critical damage to the Canyon Point bridge which left residents stranded/unable to access their properties and the bridge was deemed structurally unsalvageable.

A temporary access was created while plans were underway to engage experts in creating a water diversion plan and erosion control measures, apply for permits from the Department of Environment and Department of Fisheries and Oceans and apply for funding assistance through EMO for the Disaster Financial Assistance (DFA) program.

The current high-level budget to replace the bridge was approximately \$650,000.00. Canyon Pont Resort has allocated \$130,000 to the bridge replacement, while DFA has provided \$77,966 in financial assistance. Without

further financial assistance, residents could experience significant financial hardship as residents could be expected to pay an additional \$9,000 or more.

The group was requesting assistance; either through advocacy for EMO to provide the full DFA payment of \$200,000, a financial contribution, property taxes be deferred, assist with financing the bridge replacement, waive permit/building or development fees or assist by providing equipment or resources for the project and waive tipping fees.

In addition, the recent rainstorm on February 29, 2024 caused flooding again resulting in approximately 30 people being trapped until the water subsided enough that repair work could be completed on the laneway.

Discussion Points:

- Jeff Pinch from Southwest Fire Department reviewed the emergency laneway and confirmed he had no concerns with Fire apparatuses getting through the laneway.
- Half of the 59 homeowners were full-time residents.
- At the time of the event 250 people were stranded when the bridge collapsed.
- DFA assessed the bridge as a total loss (in excess of the \$200,000 threshold), due to programming structure (private business or a residence) the application was pro-rated the application based on the number of full-time residences resulting in Canyon Point only receiving \$77,000.
- There were only two (2) seasons (2024 and 2024 Summer) available to construct the bridge before the permit from DFO expired.
- The hydraulic modeling completed by DesignPoint showed the temporary laneway currently in place was not capable of withstanding any type of extreme weather events. The goal was to have the replacement bridge completed this coming Summer.
- Advocacy through EMO to get additional funding was a consideration.

Mar 12, 2024

Unfinished Business / Postponed Motions

Home Flood Resilience Program Information Report

Statt reviewed the report. Information was provided for consideration and feedback on potential options for a Municipal Home Flood Protection Program. The report outlined programs within Colchester County, New Glasgow and a couple of Ontario programs that offered assistance to residents who experience flooding. Discussion Points: • The information presented focused more on loans vs grants. Concerns were raised that loans had first liens attached to them and this may result in residents' inability to qualify for loans which may create additional financial hardships for many. • The number of properties (businesses or residences) impacted by flooding was unknown. This would be part of the investigation process. • Any policy would be a policy of Council. It was unknown how long it would take to create the policy; however, the PACE program took about 18 months. • Part of the program will be addressed through the Climate Action Committee. • There was no interest

in creating a program that included having first liens on homes or a financing program.

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT STAFF TO DEVELOP A HOME FLOOD RESILIENCY PROGRAM OFFERING BOTH FLOOD RISK ASSESSMENTS AND GRANTS FOR ELIGIBLE UPGRADES. **MOTION CARRIED UNANIMOUSLY**

Mar 12, 2024

Unfinished Business / Postponed Motions

Storm Water Response Plan Information Report

Staff provided a high-level overview of the Standard Operating Procedure “Public Works Emergency Flood Plan” and noted the plan did not include diversion of water from Public or Private property.

Discussion Points:

- CBCL were being consulted to take a deeper dive into the matter and a report will be coming to the April Committee of the Whole meeting.
- It was thought the report was going to be more specific to flood events and emergency responses as flooding was an on-going issue; not only during the 1 in 1000-year storms and look at diverting water away.
- Diversion was critical. Staff advised there was no short-term fix for diversion.
- Many options are being discussed with CBCL (full separation, separation at Stannus only, a storage/holding tank in Elmcroft park, etc.).
- The timeline for CBCL was 6-8 more months.
- Concerns were raised about ditches and clearing debris from them before, during and after a storm. Staff advised that public works crews monitor and clear areas of debris when do their checks; however, they were limited based on the availability and capacity of crews as well as the large area they patrol. The flooding over the ditch on King was a result of a bag of leaves stuck in the culvert.
- Concern was raised over the snow being stored in Elmcroft park, it was explained no additional snow has been taken or stored in the area. Snow being stored in the park was the same amount that would normally be in that catchment area. The snow was densely packed that resulted in a slower melt. If snow was trucked away, costs would increase due to contracting costs associated with trucking away snow and the additional time it would take to do this.

Public Participation Period

A resident of Stannus Street expressed disappointment. Her concerns pertained to: **The Emergency Response plan for flood areas.**

Discussion Points:

- In her opinion it appeared to be more of a Standard Operating Procedure and was of little value to the residents of Stannus Street.
- The Emergency Response Plan identified it would be reviewed and updated annually; it appears this has not been completed since Council adopted it.

-
- Concern that the snow piled in Elmcroft Park was piled over a storm water drain.
 - Disappointed that storage/holding tanks were suggested as a new option, however this was not the case as this idea was discussed back in 2021.
-

Mar 26, 2024

**Avon River Heritage Museum Flooding
Councillor Recommendation Report**

The Councillor reviewed the report. The report highlighted the flooding experienced by the Avon River Museum and boathouse and the critical infrastructure in the same area in hopes of addressing the issues with both short term (raise the berms) and long-term solutions. During high tides, water infills and floods the museum and surrounding infrastructure in the area.

Discussion Points:

- Municipal staff have previously completed work on the berm nearest the museum, this was the only berm where the water did overtop the berm. Short-term mitigation measures would be to elevate the rest of the berm (approximately 2 ') towards the boat launch; most of this work could be completed in house (using municipal resources and staff).
- Costs were expected to be in the \$20,000 range to import the aggregate needed, this cost did not include municipal staff time/wages, fuel or municipal equipment. It was estimated that it would take approximately a week to complete the work, using 3-4 personnel, a loader, excavator, ++and tandem dump truck. With direction from Council the project would be prioritized but unlikely to be completed before April 8, 2024.
- A long-term solution would involve an in-depth study and discussions on options (potentially moving/raising the museum or raising the road) and also involved the province as the lower part of the road would need to be raised.
- There was risk associated with raising berms and having water trapped which may result in increased flooding either through incoming tides or overland flooding. An in-depth review would need to occur so other issues were not created.
- The funding source was traditionally the Operating reserve, where this was not a budgeted item the consensus was that staff would report back on the funding source.

MOTION:

MOVED THAT COUNCIL DIRECTS CAO TO DIRECT STAFF TO REPAIR/RAISE
BERMS AT THE AVON RIVER HERITAGE SOCIETY PROPERTY.

MOTION CARRIED UNANIMOUSLY

MOTION

MOVED THAT COUNCIL DIRECTS CAO TO DIRECT STAFF TO WRITE A LETTER OF
CONCERN ABOUT FLOODING ISSUES OF THE BELMONT AND NEW TOWN ROAD
INFRASTRUCTURE TO THE DEPARTMENT OF PUBLIC WORKS AREA MANAGER,
WEST HANTS MLA, MINISTER OF PUBLIC WORKS AND PREMIER OF NOVA
SCOTIA. **MOTION CARRIED UNANIMOUSLY**

Apr 9, 2024

Committee of the Whole

Unfinished Business / Postponed Motions

Home Flood Protection Pilot Program Information Report

Staff reviewed the report which contained a draft policy (pending legal review) that could be used to govern the Home Flood Protection Pilot Program and outlined potential eligibility criteria, funding limits, and approval processes.

Upgrades (ranging from small to large scale projects) were intended to reduce the risks and impacts of flooding to properties.

Discussion Points:

- \$20,000 grant was a proposed staff recommendation, it allowed capacity for a home and property assessment to be completed and allow fiscal capacity as a grant for homeowners to perform upgrades.
- Based off previous feedback, interest free loans/second liens were not explored at this time. A grant process was being recommended for consideration as a main option at this time.
- It was noted that should interest free loans be provided there needed to be assurances that individuals were not excluded due to having a mortgage.
- Future expansion was noted in the report but had not been explored at this time. It was suggested the pilot project be looked at in the present to determine interest, future needs and working out any kinks and then consider expanding the program.
- The items outlined in the draft report were what was being presented as potential upgrades, additional items could be considered based on what Council would like to see identified in the policy.
- It was envisioned the Climate Action Committee would have an advisory role, staff would review applications and score them based on the criteria outlined within the policy. The Climate Action committee could potentially further review the applications and scores and make recommendations to Council for consideration and approval.
- There was value in having the policy information for budget consideration. The budget amount would be brought forward for consideration, not the specific details of the policy. The policy can be approved later.
- The current draft policy applies to new residential work being completed.
- There may be value in looking at areas through the lens of inland flooding risk, tidal risks, etc. to get a sense of the magnitude of those that may qualify for the program and how effective the program could be in assisting impacted residents.
- Concern was raised about the program being sustainable based on the suggested grant of \$20,000/person/year (20 grants /year).

Correspondence

Discussion was initiated on Peter Moore's correspondence Suggestions for Windsor Flood Zone crisis)

Discussion Points

- The attachments within Mr. Moore's letter were not included in the agenda.
- The attachment will be circulated as part of a report at the next meeting.
- The potential solutions posed by Mr. Moore (berming front and back of properties, detachable barriers, and having pumps available) to keep water and CSO from entering private properties were reviewed.
- The proposed solutions were felt to have merit and there was value in having a deeper discussion about the proposed options.
- A report from Councillors will be forthcoming at the next meeting
- It was hoped the Home Flood Protection program would have had more information/options related to temporary fixes(options proposed by Mr. Moore that were felt to be easy to achieve and reasonable in costs (having a kit available for residents to access and a contact number for staff to access kits).
- It was noted that the former Town of Windsor used to clean out a part of Trecothick Marsh or an area behind the church to help with flood concerns. This has not occurred in recent years. The information including the name of the person who assisted with the cleaning and their contact information would be shared with the Councillors for their report.
- It was suggested more thought could be put flood protection efforts and more options could be considered. There was value in expanding the list for the flood mitigation program that staff were working on.

Dykes Request for Decision Report**Councillor Report**

The Councillor reviewed the report highlighting numerous discussions that have occurred with residents related to the St. Croix River Dyke breach on March 11, 2024 which resulted in flooding the land below and up to highway 14. Concern was raised that should the dyke fail completely; critical infrastructure and roads (Hwy 14 and Route 236) would be underwater resulting in extensive damages and potential road closures for the area.

Discussion Points:

- Flooding in this area was not new.
- Residential land was overflowing due to the lack of maintenance on the dykes and berms in the areas. This was a common occurrence across the region and it was suggested Council may want to take a more aggressive approach with this topic.
- There was support for the motion, but it was suggested to add the Trans Coastal Adaptations at St. Mary's University to the list of recipients, as they were working alongside the province to remove many of the dykes to create new wetlands.

MOTION

MOVED THAT COMMITTEE OF THE WHOLE DIRECT THE CAO TO DIRECT STAFF TO WRITE A LETTER OF CONCERN TO NOVA SCOTIA DEPARTMENT OF PUBLIC WORKS, THE WEST HANTS MLA, NOVA SCOTIA DEPARTMENT OF

AGRICULTURE, THE PREMIER OF NOVA SCOTIA AND TRANS COASTAL ADAPTATIONS GROUP TO PERFORM MAINTENANCE ON THE DYKES ON THE ST. CROIX RIVER BESIDE HIGHWAY 14 AND ON THE KENNECOOK RIVER OFF ROUTE 236 IN SCOTCH VILLAGE AND THE HERBERT RIVER IN MANTUA.
MOTION CARRIED

April 9, 2024

Windsor Flood Water Study Phase 2 Recommendation Report

Staff reviewed the report highlighting that staff were directed to proceed in an expedited fashion for next steps towards a solution for storm water diversion and management, specifically for the residents along Stannus Street, Victoria St, Gray St, Monroe St, Lower Wiley Avenue, Wagner Court, portions of Albert Street and Tremaine Crescent.

CBCL was asked to provide a cost proposal to take on the proposed work based on the above direction. A proposal to move forward with Stormwater solutions was submitted. CBCL will work with staff to develop a schedule that meets the project objectives while allowing suitable time to complete the work required to provide the answers being sought. This work was expected to take between 6 and 8 months.

Discussion Points:

- The cost was forecasted in the upcoming budget. There was support to progress the study.
- A report will be presented at the next meeting regarding suggestions made by Mr. Moore.
- Projected timeline was 6-8 months.
- Based on intensity of the storm (July 2023), it was estimated that 40-45 residents could be impacted in the Windsor area.
- Due to the size and scale needed to meet climate change projections, twinning Cunnabel Creek was not an option, based on the study there was physically not enough room to do that. Other options are being explored now through the next phase of the detailed design.

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL APPROVES THE PROPOSAL FROM CBCL FOR THE WINDSOR FLOOD STUDY PHASE 2 FOR THE ESTIMATED AMOUNT OF \$240,500 PLUS APPLICABLE TAXES.
MOTION CARRIED

April 9, 2024

Tremain Crescent Storm Water System Request for Direction Report

Director Richard reviewed the report. At a previous meeting staff were directed to look at site specific solutions for the area. CBCL were engaged to complete a stormwater assessment and crossing design to reduce flood risk at the cross-culvert near Civic #335 Tremain Crescent in Windsor. Based on the assessment completed it was felt that upgrading the municipal stormwater system was unlikely to fully address the reported residential flooding at this location. The solution proposed (skewed concrete box culvert crossing, 27 meters long, 2.7 meters wide and 0.6 meters tall). for the project was for the 1-

in-100 year design event accounting for 2090 climate change projections. In addition, existing infrastructure would need to be relocated (a section of watermain, service laterals and overhead utilities).

Discussion Points:

- Ditching could be allocated in house; those operational costs were allocated in the 2024/25 budget.
- Concern was raised that the report writes as if only one property was affected, there were other properties impacted by flooding in this area. There was support to see the recommendation move forward to address bigger picture of flooding being experienced for the Windsor area overall.
- The alternative to drain water (from King Street) towards the Martock Marsh was taking water from nearby streets (water that typically ran downhill towards Tremaine - from Wilson Street down and from the east part of King Street from O'Brien Street to the Hughes property was the catchment area for 335 Tremaine Crescent.
- It was felt the Martock Marsh was able to take on some (a small portion of water) additional water. Concern was that this option was taking issues from one area and putting them in another area.
- Tidal influence was a concern. Another option would be to look at redirecting Capital projects (King and O'Brien Street). The suggestion was to eliminate any municipal/street water from ending up in the drainage ditch by redirecting that water.
- If a box culvert was supported, staff suggested obtaining a service easement allow for maintenance, access, along with potential future municipal storm water connections.
- It was felt a recommendation should have been presented. It was felt that despite whatever work was completed at O'Brien and King, the culvert at Tremaine would still need to be able to handle the stormwater, and it couldn't. The area deserved a solution.
- Concern was raised with the wording used, "that the project should work". There was value in having additional information (was an easement needed and were staff able to secure an easement) before approving the large financial ask and providing a recommendation that filled in the remaining gaps.
- Residential gutter systems were not permitted to be directly connected to sanitary sewer systems.
- The easement was not likely to be a straight line, it would more than likely be a curve or zig zag that followed the topography of the land.
- The best option for a stormwater retention pond would be to have one at the tail end near the sewage treatment lagoons. The water needed to be pushed as far as possible and a large pump would be used to pump it out.
- There was support to defer the discussion until two weeks' time. Council was advised that a consultant may be required, it was more likely that the information would be provided during a May meeting. Easements would also be explored during that time.

Apr 9, 2024

Public Participation

A resident of Stannus Street summarized the report for the viewing audience.

- The ask of CBCL was look at methods that would immediately divert stormwater away from the noted areas to prevent short term flooding.
- The options proposed were not consistent with Councils request, these options were not an immediate solution (6-8 months to get a proposal).
- If the timeline progressed similarly to the last report, it would be likely two (2) years before a solution was offered and costs were \$250,000, with presumed construction costs on top of that amount.
- The construction timeline was presumed to be the end of 2025.

From the resident's perspective, multiple events have occurred.

If nothing changed, on a bi-annual basis it was expected that homeowners would experience up to \$150,000 or more in damages every two (2) years. It was not reasonable for some homeowners to wait another two (2) years.

The resident advised she did not have another two (2) years and suspected others in the community did not have two (2) more years as well. It was not fair for the homeowners to be expected to shoulder the emotional or financial burden.

April 24, 2024

WHRM Flood and CSO Emergency Plan Recommendation Report

The Councillors reviewed the report.

The report outlined historic information, an overview of previous reports presented to Council, motions made with respect to Stannus Street flood/CSO concerns, the proposed emergency plan (the EMO plan was shared, not a specific emergency plan to address the food zone impacted area of the downtown core of Windsor) and the correspondence from a local Stannus St resident which spoke to potential solutions for those living in the area experiencing CSO (combined sewer overflows).

It was important to note that after almost 2.5 -3 years, those in the area still had no short-term emergency solution for the CSO issue. It was important to find solutions to help alleviate continued suffering in the areas impacted and use that information to benefit other areas in the region experiencing flood concerns.

It was noted that while collectively residents in the area were focused on finding a solution, each property had unique needs requiring individualized plans. Each property has different needs and would require unique plans on what may help solve their issues.

The proposed short-term solutions were reviewed. Options included: **1.** Berming the properties to prevent overflow from going over the curb and entering properties and **2.** have detachable driveway barriers to act as flood control shields. The proposed temporary solutions were reviewed.

Options included: **1.** Close the flood zone streets so traffic could not create waves of CSO from entering private properties. **2.** Provide kits (generators, pumps, sandbags and hoses on borrowed bases), it was felt this cost would be negligible. **3.** Have vac trucks on call/available for significant events.

Another option proposed was to offer residential buyouts. It was noted that Council has yet to have that conversation, and the other option was to complete infrastructure upgrades (separate sewer and water on Stannus Street would alleviate stormwater backing up).

Discussion Points:

Concern was raised that berms may encroach on neighbouring properties and cause additional conflict. The berm would not be large enough to encroach on neighbouring properties.

Council entered a round table discussion about the proposed options. These issues were not new, they were long-standing issues. A separate stormwater system through Stannus Street was option 3 provided in the CBCL report. It was costly and not easily achieved (likely to require a tunnel due to the profile of Stannus Street). This option continues to be explored during Phase 2.

A large portion of the discussion focused on berms; specifically, around the unknowns (costs, height, length, material used, etc.). It was important to have correct information, data, engineering, design, property owner's input and know that placing a berm on a private property would not negatively impact or cause problems in other areas before an informed decision was made.

Water finds the path of least resistance, if one area was blocked it would find an alternate route and may create a larger issue.

Discussions also focused on who would own, construct, and maintain the berms, which also raised concerns regarding liability and what department would be responsible for implementing the emergency measures.

It was felt engineering questions would need to be answered before a berm could be supported and conversations would need to occur with property owners to determine interest in having a berm on their property.

WHRM does not have a vac truck, it was felt this was not practical nor a proper allocation as it was slow suctioning water. Purchasing a larger pump to pump water from Stannus to another area (that could handle it) was also looked at in the Phase 1 study.

The size and scale of the pump needed would be astronomical. The previous pump was purchased without being researched or engineered first and prior to

the data that has since been collected only to find out that it wasn't the right size, location, or correct application for the issue.

Concern was raised that two different conversations were occurring (CSO's and flooding). Flooding could occur on any property anywhere in the region, the conversation was about a CSO onto private property.

Since 2021, Council was advised that Stannus Street has experienced two (2) CSO events (July 2021 and July 2023 where catch basins and manholes overflowed) have occurred.

Residents in the flood zone experience flooding on a regular basis which turns to fear when any kind of rain event occurs, which was the reason short term emergency kit were proposed.

If kits were available and a number could be called during these events, people may take advantage of the option. Reservations were voiced, Public Works work on public properties, not private properties.

During emergency situations, first responders can be contacted to assist with flooding or evacuation. The MGA provides protection for emergency personnel, not public works staff. This was identified as a priority item for WHRM's engineer; however, a stormwater engineering firm was looking at solutions. It was felt some options may be considered based on the discussion had by Council.

MOTION

MOVED THAT COUNCIL DIRECTS STAFF TO ASK CBCL TO REVIEW AND COMMENT ON THE RECOMMENDATIONS THAT WERE INCLUDED IN THE REPORT BY THE NEXT COMMITTEE OF THE WHOLE MEETING (MAY 14, 2024).
MOTION CARRIED UNANIMOUSLY

MOTION

MOVED THAT COUNCIL DIRECT THE CAO TO DIRECT STAFF TO PREPARE A PLAN TO BE IMPLEMENTED THAT WOULD CLOSE FLOOD ZONE STREET SECTIONS TO PREVENT TRAFFIC FROM CREATING WAVES OF CSO DURING FLOOD STREET EVENTS. MOTION CARRIED UNANIMOUSLY

MOTION

MOVED THAT COUNCIL DIRECTS THE CAO TO DIRECT STAFF TO EXPEDITE THE GRANT PROGRAM AND HAVE IT IN PLACE, SO RESIDENTS HAVE THE ABILITY TO PURCHASE THEIR OWN EMERGENCY KITS TO STORE AT THEIR HOMES AND HAVE READILY AVAILABLE WHEN THEY ARE NEEDED. MOTION CARRIED UNANIMOUSLY

Questions surrounding berms still needed to be addressed; there was value in having CBCL comment on placing berms on properties and reviewing the recommendations within the report.

Before the next meeting Windsor Councillors will reach out and converse with property owners to quantify the number of properties affected by CSO events and any property owner interested in having a berm installed on the front of their property.

An information report on programs available with respect to property buyouts (what does that look like, and what has happened in other areas where properties were purchased) would also be drafted.

April 24, 2023 Committee of the Whole Excerpts From April 9 2024

Windsor Flood Study Phase 2

MOVED THAT COUNCIL APPROVES THE PROPOSAL FROM CBCL FOR THE WINDSOR FLOOD STUDY PHASE 2 FOR THE ESTIMATED AMOUNT OF \$240,500 PLUS APPLICABLE TAXES. MOTION CARRIED UNANIMOUSLY

May 13, 2024 Committee of the Whole

Budget Meeting Discussions

Estimated Debt Servicing Forecast **With Cunnabel Creek:** 2024/25 (9.25%), 2025/26 (11.40%), 2026/27 (13.19%) and 2027/28 (14.46%) and 2027/28 (15.11%).

Without Cunnabel Creek: 2024/25 (9.25%), 2025/26 (11.20%), 2026/27 (12.54%) and 2027/28 (12.59%) and 2027/28 (13.12%).

Discussion Points:

- Estimated 50% (\$13.7 million over the 5-year Capital budget – debt portion) of Cunnabel Creek would be funded by WHRM. \$13.5 million was estimated to be funded through grants.
- Trecothic Creek (\$16.2 million over the 5-year Capital budget – debt portion) storm water system was another significant project and also impacted the costs presented. No funding sources were forecasted for Trecothic.
- Water budgets were required to be presented separately as the hearing has not occurred. Depending on the direction order from the UARB, the two utilities may be consolidated mid year. Within both the operating and capital budgets both utilities were treated as nonconsolidated during the entire 12-month term until told otherwise by the UARB.
- Sewer was consolidated within the current budget.

Five-year Capital Plan for Public Works – Stormwater (**Cunnabel Creek and Trecothic**) was captured in this plan. The five-year plan represented 56.5% of the five-year Capital plan. Public works consists of roads, stormwater, facilities, vehicles and equipment. The total proposed five year spend was \$77,343,951 (26.6 % funded from prov/federal grants, 6.3% from CCBF, 11.3% from Reserves, 53.4% from long term debt, and 2.4% from consolidation funding).

Concern was raised that Stannus Street was not specifically identified as being a priority or in the cue. Stannus, Victoria and the other streets were encompassed in the Cunnabel Creek diversion plan and identified in the 5-year Capital plan, still waiting for an engineered solution to progress the project.

May 29, 2024 Capital Budget Estimates

Cunnabel Creek
2024-25: \$ 250,000
2025-26: \$ 2,500,000
2026-27: \$17,050,000
2027-28: \$ 5,200,000
2028-29: \$ 2,310,000
TOTAL: \$ 27,310,000

CBCL’s Dec 2023 Report Long-term Options: \$140,000,000 to \$155,000,000
CBCL’s Dec Report Short-term Options: \$27,000,000 to \$45,000,000

Jun 11, 2024 Committee of the Whole
Unfinished Business / Postponed Motions
Home Flood Protection Pilot Program Policy Recommendation Report

The staff member reviewed the report.
The Policy described the eligibility criteria, funding limits, eligible upgrades, and general scoring criteria to be used by the Municipality to administer the program.

Based on previous discussions the following sections of the policy for Council, which have been amended and/or added to the draft policy: Section 5.1.5 defines that proposed upgrades must be suggested as part of a Home Flood Protection Assessment, to be eligible for funding, Section 6.1 enables staff to review applications and make recommendations to Council for approval, Section 6.3 defines the funding limit of \$10,000 per property impacted by overland flooding and \$20,000 per property impacted by combined sewer system overflows excludes the cost of a Home Flood Protection Assessment, which will be fully funded by the Municipality. Confirmation from the WHRM Public Works would be required for any applications citing impacts from combined sewer system overflows and Section 7 defines the general terms of participation agreements to be signed between successful program applicants and the Municipality.

Discussion Points:

- Concerns were raised about the wording used to distinguish available funding. It could be perceived that applicants were able to receive a total of \$30,000 (additional \$10,000 on top of the \$20,000), that was not the case. There was value in adding an option (a) or (b) and the wording “per property” in the text.

-
- Retroactive reimbursement to homeowners was not included in the draft policy. It was also noted that a retroactive option was not included in similar policies in other areas.
 - Section 5.1.4 was intended to not exclude renters from the program. Concern was the clause would prioritize investment properties and that was not the intent of the program.
 - Successful applicants would be chosen based on the scoring criteria in the policy.

MOTION:

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS THAT COUNCIL APPROVE THE HOME FLOOD PROTECTION PILOT PROGRAM POLICY IN A MANNER SUBSTANTIVELY THE SAME AS ATTACHMENT A TO THE STAFF RECOMMENDATION REPORT ENTITLED "HOME FLOOD PROTECTION PILOT PROGRAM POLICY" DATED JUNE 11, 2024. **MOTION CARRIED**

Jun 11, 2024

Committee of the Whole – Staff Report

Nova Scotia Flood Risk Investment Infrastructure

Staff provided an overview of the report. The FRIIP is targeted toward projects involving flood intensity mitigation, mapping to identify flood-prone areas, and identifying potential solutions to mitigate flood impacts. Funding can go toward professional services and construction/equipment per plans and specifications. The program will fund up to 50% of eligible costs, subject to program budget constraints. The Home Flood Protection Pilot Program was included in the 2024-25 Operating Budget at \$400,000. Staff are investigating FRIIP to either expand funding for the Home Flood Protection Pilot Program or offset the Municipal contribution for that program. Funding from this program may significantly improve the Municipality's ability to assist residents through the Home Flood Protection Pilot Program, which will lead to enhanced climate change resiliency throughout the Region.

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL SUPPORT AN APPLICATION TO THE NOVA SCOTIA FLOOD RISK INFRASTRUCTURE INVESTMENT PROGRAM, TO ASSIST IN FUNDING THE HOME FLOOD PROTECTION PILOT PROGRAM, FOR WHICH COUNCIL HAS ALLOCATED \$400,000 IN THE 2024-25 OPERATING BUDGET. **MOTION CARRIED**

Jun 11, 2024

Committee of the Whole

Resident Correspondence: Dated April 12, 2024

Combined Sewer Overflow

It was important to recognize and note the correspondence received and it was read out loud.

It was noted that of the six 6) or so homes repeatedly impacted; many wish to remain living in their current location but would like to know what a potential buyout option may look like if there no immediate solution was being presented.

Discussion Points:

- With respect to the July flood, there was no evidence that residential properties were purchased through the DFA program, despite rumors. DFA does not have a program for property buyouts but if it was the will of Council they would entertain a letter and consider the request.
- The municipality also has the ability to purchase property for municipal purposes.
- The Flood Protection program was felt to be the immediate action that Council has taken as a next step.
- There was value in sending a letter to see what information was available.

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT THAT A LETTER BE PREPARED TO GO TO DFA REQUESTING INFORMATION AND SUPPORT ON FUNDING FOR HOMES IMPACTED BY FLOODING AS A RESULT OF COMBINED SEWER OVERFLOWS WITHIN THE REGION. **MOTION CARRIED**

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMENDS COUNCIL DIRECT THAT STAFF PROVIDE A SUMMARY WRITTEN REPORT AS TO WHAT POTENTIAL BUYOUT OPTIONS MIGHT LOOK LIKE FOR HOMES THAT HAVE SUFFERED WITH THE COMBINED SEWER OVERFLOW EVENTS WITHIN THE REGION.

MOTION CARRIED

Jun 11, 2024**Committee of the Whole****Provincial Capital Assistance Program (PCAP) and Flood Risk Infrastructure Investment Program (FRIIP) -Staff Report**

The staff member reviewed the report. The Provincial Capital Assistance Program (PCAP) supports investment in high priority municipal infrastructure projects. Municipalities can apply for funding to help reduce infrastructure projects costs up to June 13, 2024. The Flood Risk Infrastructure Investment Program promotes investment in infrastructure needed to protect communities from flooding.

Municipalities can apply for funding to support studies needed to understand flooding or construction of infrastructure to protect against floods up to June 13, 2024. The intent was to utilize the PCAP and FRIIP program to help offset costs associated with the Windsor Flood Study Phase 2. Funding from these programs will help the municipality with some of the costs that are needed to move through the phases of this project from Design through to construction. Typically, programs may fund up to 50% of eligible project costs, subject to program budget availability and grants may also be used in combination with funds from other grant programs. There is a maximum of two projects per applicant.

MOTION

MOVED THAT COMMITTEE OF THE WHOLE RECOMMEND THAT COUNCIL SUPPORT THE APPLICATION TO THE 2024 NOVA SCOTIA PROVINCIAL CAPITAL ASSISTANCE PROGRAM (PCAP), TO FUND UP TO 50% OF THE WINDSOR FLOOD STUDY PHASE 2 AND, THAT COMMITTEE OF THE WHOLE RECOMMEND THAT COUNCIL SUPPORT THE APPLICATION THE 2024 FLOOD RISK INFRASTRUCTURE INVESTMENT PROGRAM (FRIIP) TO FUND UP TO 50% OF A WINDSOR FLOOD STUDY PHASE 2. **MOTION CARRIED**

Jun 24, 2024 **Flood Event**

July 6, 2024 **Flood Event**

July 8, 2024 **Flood Event**

July 11, 2024 **Flood Event**

Jul – Aug 2024 **Tremain Crescent** email update / inquiry resulting from email question by a resident in which it appears that easements are being sought to solve the Tremain issues with flooding.

Aug 28, 2024 **Storm Sewer System Information Requests – Councillor Report**

One of the key areas within the initial report that we sought to determine and possibly address was with concern for our stormwater capacity and the existing sewer system through which it flows.

The majority of the focus in the report is on the complex pipe network throughout the system. Following the flood events of 2021 and since that time it has been repeated many times that the system performed as designed or that it performed as built. No detail has really been provided as to what it means to say the ‘system performed as designed’ Little attention has been given to the mechanical machines and technology that processes the flow of the combined sewer and storm system to its points of deposit.

The series of questions identified in the report were asked at various points over the last 3 years without full resolution.

Two Motions were put forward and passed:

1. It was identified by the Councillor presenting the report that an error was identified after the original report was submitted relating to the Albert Street trunk sewer. An updated report was circulated to council in advance.

Motion: IT WAS MOVED THAT THE UPDATED REPORT BE APPENDED TO THE AGENDA PACKAGE SO IT IS CLEAR FOR RESIDENTS THAT MAY BE GOING THROUGH IT (THE PACKAGE)

-
2. Prior to review of the questions it was suggested that some answers might require comments on from legal counsel.

Motion: MOVED THAT COUNCIL GO IN CAMERA. Motion Defeated

Prefacing the questions it was identified that the majority of the questions and detailed answers would be included in the phase-2 section of the report.

The questions included in the report were as follows (summary answers are provided as able in italics):

Wastewater Treatment Plant

- What is the designed capacity or capability of the wastewater treatment plant off Colonial Drive (constructed 2015 – 2016)? **(See Brochure attached below)**
- Does it have an overflow capability and has it ever overflowed?
- Has the wastewater treatment plant ever backed up such that the influent was unable to be received from Pump Station 7?

Pump Station 7

- What is the designed capacity or capability of Pump Station 7 and the force main that exists between it and the wastewater treatment plant off Colonial Drive? **(See brochure detail below for Pumping Station)**
- Which pumps are currently operating at Pump Station 7? Are they original pumps or are they new pumps?
- Has Pump Station 7 ever backed up with its outflow between its location and the wastewater treatment plant?
- Has Pump Station 7 ever backed up between its location and Pump Station 1 or any other location along the line?
- Does it have an overflow capability and has it ever overflowed?

1500 MM Waterfront Pipe

- Has the 1500 mm pipe along the waterfront been inspected recently by camera?
- Has the grade of the pipe been checked recently? Specifically has the grade of the pipe under the newly twined highway been reviewed or inspected since its completion in 2021-22?
- It's been said that the flow of the combined storm and wastewater can become 'static', which appears to convey 'stop flowing'. Is this the intent of the word static – to convey stop flowing? If the flow in the 1500 mm pipe has ever become static or stopped flowing; what was the cause of it to stop flowing?

Pump Station 1

- What is the designed capacity or capability of Pump Station 1 and the pumps that exist within it?
- Which pumps are currently operating at Pump Station 1? Are they original pumps or are they new pumps?
- How often does Pump Station 1 overflow?
- When pump station 1 overflows - what is the primary cause of its overflow?

Maintenance

Annually between 2020 and 2024 how often has maintenance been undertaken on

- the 1500 mm pipe?
- Pump Station 1?
- Pump Station 7?
- Pipes, manholes and catch basins on Stannus, in Elmcroft Park, along the Cunnable Creek trunk sewer and along the Albert Street trunk Sewer?
- When was the last time we camera reviewed the system for the pipes, manholes and catch basins on Stannus, in Elmcroft Park, along the Cunnable Creek trunk sewer and along the Albert Street trunk Sewer
- Has the system ever been clogged sufficiently during this period or otherwise that the vac trucks were unable to properly clean them out?
- Have we determined the destination point for the water pumped from below the pool? Is it correct to assume the water is pumped into the sewer and combined system?

Following discussion of the report, it was identified by the director some questions require time to put pen to paper. Additionally a brochure was referenced in providing details on the capacity of the waste water treatment plant. A motion to have the brochure circulated and to have the answers to the questions provided, was put forward.

Motion: MOVED THAT COUNCIL DIRECT STAFF TO RESPOND TO THE QUESTIONS RAISED IN THE REPORT, AND TO INCLUDE THE BROCHURE WITH THAT, (AND I'M GOING TO PUT A SHORT TIMELINE, THE REASON BEING, IS IF WE'VE GOT FOLLOW UP BEFORE OUR NEXT COMMITTEE OF THE WHOLE MEETING), IF WE CAN GET THAT BACK IN A WEEK'S TIME, IF AT ALL POSSIBLE. Motion Carried.

This concludes the chronology of flood and stormwater discussions over the last three years. While fairly detailed it is not fully reflective of all the points

and discussions held. It is completed with the best intention for aggregating the discussions held to date. Ultimately some points and discussions will have been overlooked. As oversights are identified they will be updated within the report to further complete its detail.

Summary Points:

- It is not clear how accurately the municipality is measuring its combined sewer overflows. Numbers quoted from 2016 to date have ranged from 1 or possibly 2 over that period to an estimate of between 1 or 2 per month (12 to 18 per year). Data in the online reporting system does not reflect updates that were going to be provided to the system for prior periods in and up to 2022. In this regard it is not clear if the municipality understood or understands its requirement for managing its stormwater events necessitating the testing of CSO's or reporting of them. It is not clear if the Municipality has or ever had tools / systems in place to manage or measure / track the frequency of CSO's for their levels or volume.

If we are not measuring these events when they occur or for their magnitude, then we cannot manage them to determine if their volume or frequency is increasing (or decreasing). Further it leaves the municipality vulnerable to determining if capital investments to improve / reduce their occurrence is having any positive impact.

- It is not clear if the Municipality has a defined stormwater/ combined sewer overflow management plan. While it has been identified that Stannus street was the last combined sewer installation in 2014, records appear to indicate that Gerrish Street installed in 2017 / 18 did not involve a separated storm and sewer system. The earliest combined system installation was in 2019-2020 with Alexander Street and then Highland / Churchill in 2020 - 2021.
- The report issued in December 2023 was received much later than anticipated. It was titled as draft report. It does not appear that the Stormwater report addressed all matters as were identified for delivery within the RFP. In this respect the RFP was issued prior to discussion with and then ultimately approved by Council, does not appear to have taken direction provided by Council into account
- While the report and activity to date primarily focuses on the Windsor area, it is not intended to be exclusively a Windsor focussed report. Flooding occurs frequently and tragically throughout the region. Other flood events are included in this document because of the importance for awareness and for addressing all areas in the region that flood. And to note that more recently other combined sewer overflow areas are

surfacing.

- The report was not intended to be 'phased' in order to get to a solution for the immediate term requirements of Stannus or Tremaine. It has however become that, a phased approach, to a broader storm and sewer study, but not a plan to date. This is unfortunate and regrettable particularly for the residents that suffer in the combined sewer overflow areas. It is important that the impetus for this work not be lost, that the short-term solution sought be achieved, now.
 - From a planning and development point of view, the capacity of the Municipality to manage and address stormwater is undertaken from the perspective of ensuring that "post development storm flows be equal to or less than pre-development". Given the levels of flooding that presently occur, Council might consider adopting a slightly more aggressive stance that would be that "post-development storm be ~~equal to or~~ less than pre-development flows.
-

NEXT STEPS (State what will be done next if anything.)

To Be Determined

FINANCIAL IMPLICATIONS

To Be Determined

ALTERNATIVES

(State any option to the recommendation and implication of the options, if anything)

ATTACHMENTS

Two attachments are included in the report as links.

CHIEF ADMINISTRATIVE OFFICER REVIEW

As noted by Councillor Ivey, " This brief journal reflects the path of some of the work undertaken and some of the information shared by residents, staff and council members that have been seeking to address this issue over the last 3 years." There's no objection to the Councillor's summary or his point of views, however, respectfully it has not been reviewed in detail for complete accuracy.

Report Prepared by: **Jim Ivey, Councillor, Windsor South, District 11**

Report Reviewed by: _____

Mark Phillips, Chief Administrative Officer

Facts and figures

Services 70% of the Windsor area

Aeration Lagoon holds 31,220m³

Average dry weather flow – 1902m³/Day (14.9 Days Lagoon Retention Time)

Average daily flow – 7504m³/Day (3.8 Days Lagoon Retention Time)

Peak wet weather flow – 18545m³/Day (1.5 Day Lagoon Retention Time)

Screens remove 50-80% of all solids

Frequently Asked Questions

Why the need for a new wastewater treatment plant?

Approximately 70% of Windsor's wastewater was discharged untreated into the confluence of the Avon & St. Croix River's. Besides being the environmentally responsible thing to do, new Federal and Provincial regulations mandated all Municipal wastewater effluent must be treated meeting specific standards.

Why not use the existing plant in the Industrial Park?

This wastewater plant receives water from a separate collection system including 30% of Windsor as well as the Three Mile Plains area. It has an average daily flow 2500m³/Day. The new treatment plant has an average daily flow of 7504m³ with a peak wet weather flow of 18545m³/Day. The original plant is simply not large enough to handle the flows nor was there enough room to expand even if it had made economic sense.



Why build the new plant there?

The site location was decided based on land area and 100 year flood data.

How much did it cost?

Total cost including land, design and construction is approximately \$11 Million.

Why this design?

By utilizing this technology, primary treatment (solids removal) can be achieved by using a fraction of the land. Large biological processes require a large footprint and higher operating costs.

I heard this plant will be receiving fracking or other industrial wastes. Is this true?

No. This is a rumor perpetuated by others. This plant was designed and built to receive and treat domestic / commercial wastewater and storm water from the Town of Windsor.



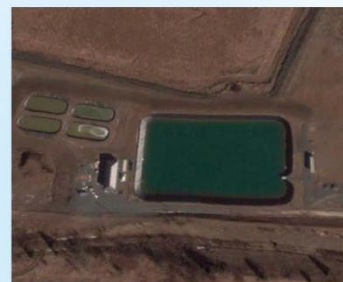
Mission statement

To provide high quality effluent through best practices in accordance with all governing regulations. Our mission as a utility is to ensure the public health of customers and the environment while maintaining exceptional customer service, fiscal responsibility, asset management and workplace safety.

For further information, please contact
mcroney@town.windsor.ns.ca



Wentworth Rd. Wastewater Treatment Facility & Pumping Station



Introduction

In April of 2008 The Town of Windsor began a study aimed at designing and building a new wastewater treatment facility to treat the 70% of the Town's wastewater that was currently being discharged into the Minas Basin untreated. Unfortunately due to financial restrictions the project was shelved.

Beginning in 2000 The Federal Government started to develop a Canada Wide Strategy for the Management of Municipal Wastewater Effluent (CCME). This strategy required all municipal wastewater to achieve minimum performance standards and manage effluent discharge objectives by the year 2020.

Both the Federal and Provincial Governments provided funding to assist Windsor in achieving its goal of 100% treatment.

In June of 2015 construction began on the largest Capital project in the history of the Town. This project included the building of a large pumping station, headworks processing building, a dual cell lagoon, reed beds and UV disinfection chamber. The civil work alone was a huge task.

In May 2016 the raw sewage discharge was permanently removed and commissioning began. All wastewater is diverted to the new pumping station and ultimately to the Treatment Plant.

On June 10th, 2016 the Town of Windsor proudly took possession of its one of a kind new facility complete with some of the most innovative wastewater treatment technologies in the world.



Pumping Station

Before treatment all wastewater in the service area enters the sewage pumping station located off exit 6.

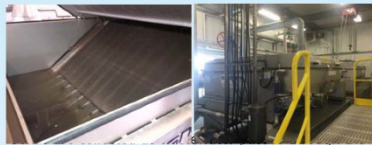
This is a two celled station equipped with 4 large 45Hp pumps (2 per cell) capable of pumping 215L/s

Sewage is pumped 1.3 Km's through a 450mm (18") force main to the Treatment Plant



Screening/Aeration/Disinfection Process

Preliminary Treatment is achieved by using ultra fine screens (350 micron) on rotating drums (Salsnes Filters).



Screenings are deposited into a conveyor and sent for solids processing.

The filtered wastewater then enters an accelerated two celled aeration lagoon.

The aerators in the first cell provide oxygen for the natural bacteria to synthesize and digest BOD (biochemical oxygen demand).

The second cell is used for settling of remaining suspended solids



As the wastewater leaves the lagoons it flows through a dual bank UV chamber where it is disinfected before being discharged into the St. Croix River

Solids Processing/Reed Beds

As filtered solids (screenings) leave the conveyor they are deposited into a washer/compactor

Screenings are then fed by an auger into a washing/flushing area. Here the organic portion of the screenings are washed off and flushed into a wet-well where they will be pumped for onsite reed bed application.

The reeds use the organics as fertilizer and assist with the onsite composting.

The remaining inorganics (plastics, grit, etc.) are then compacted and discharged into a bagger/hopper for landfill disposal.

