



Subject: Stormwater Program Review & Policy Amendments
To: Executive Committee
Date Prepared: August 2020
Related Motions: C07(331)
Prepared by: Jesse Hulsman, Director of Infrastructure & Operations
Approved by: Kim Ramsay, Chief Administrative Officer

Summary

The Stormwater Drainage Policy has not been updated since its first adoption by Council in 2007 (Ref. C07(331)). Staff have undertaken a detailed review that has included feedback sessions with executive committee, case study discussions with a local area resident, and research of the most current, best practice information available from both the Maritimes and across Canada.

Staff have updated the format to remove cost sharing consideration for private property assets, as that section has proven ineffective over the last decade, and instead focused on an option to seek out innovation during new development and to advocate for improvements of stormwater infrastructure when owned by other levels of government.

Through this review, a full understanding of current Municipal inventory has been established and updated operational planning will be worked on through annual operating budget considerations. Climate Change considerations will be needed in the future as assets are replaced, and will require a specific focus in future planning or technical studies.

The proposed updates to the Storm Drainage Policy condenses the content purposefully to focus on clear stances and strategic options for action. The policy update gives council options regarding Municipal owned asset spending, replacing the historically unused cost sharing option.

Financial Impact Statement

Operational costs will be reviewed through the annual budget process and become line items within the Roads cost centre.

Recommendation

To adopt the proposed updated Municipal Stormwater Drainage Policy which emphasizes the Municipal role for stormwater in a way that will provide clear and consistent messaging for stakeholders moving forward.

Recommended Motion

Executive Committee - Sept 15, 2020

Move that the Infrastructure & Operations Committee recommend to Council that Council give notice of intent to adopt the updated Stormwater Drainage Policy as attached to the Executive Committee agenda dated September 15, 2020.

Regular Meeting of Council - Sept 23, 2020

Move that the Infrastructure & Operations Committee recommend to Council that Council adopt the updated Stormwater Drainage Policy as attached to the Executive Committee agenda dated September 15, 2020.

Background

Current State of Stormwater Asset Inventory

Over the last 2 years, Staff have been developing an inventory of stormwater assets, as historically this information was not located in one updated area. Staff have linked the data to road and community locations covering the categories of; cross culverts, stormwater manholes, ditches, piped stormwater mains, retention ponds, and oil/water separators. This is now a living document which is updated as the Municipality takes on more infrastructure from new developments. A sample of current inventory include;

- Ditches (kms) - 43.425
- Stormwater manholes - 81
- Catch basins - 88
- Cross culverts - 83
- Retention ponds - 3
- Oil/water separators - 1

This inventory will grow substantially in the coming years with the projected takeover of 3 kilometers of public road, which includes the associated storm assets for the Villages of Long Lake, the build out of the Clayton & Armco developments, the extension of Tyler Street, and a list of other noteworthy developments containing volumes of stormwater assets that will be turned over to the Municipality.

What this inventory does not list is the interconnected assets owned by the Province which are public inventory, but as the Municipality works to keep the renewal of assets maintained, a disparity in system quality may emerge over time if Provincial assets are not maintained with a similar level of detail and frequency.

2007 Storm Drainage Policy Format

The last policy format that was adopted by Council in 2007, was the result of years of discussion and background papers which established a new policy directly related to Stormwater that combined a background report, with some operational objects, and policy statements of council.

Moving forward those concepts will be split into their proper functions, so the proposed updated policy will leave out the background as it is within this presented report, and the operational focus will be within proposed budgets and other operational documents.

Long term benefit of strategically focused stormwater studies

Historically stormwater reports have not resulted in the immediate action of recommendations, which was likely because there was some expectation to find greater short-term benefits.

What does result from these reports, is a list of projects that can help with sizing, and specifying scope at the time of replacement of existing Municipal infrastructure and also other assets that may be owned by other levels of government. As the Municipality looks toward the future with a growing need to adapt to climate changes, these types of reports will help identify sizing increase needs based on projected replacement timelines that can help the system adapt to changing environmental factors.

The case study for this benefit can be highlighted by the completed Alderney Park Flood Study from 2015. Although an immediate project was not feasible to meet the aspirations of the area residents, it did identify future sizing needs of 4 cross-culvert areas. One of those cross-culvert areas (MacKenzie Court) is owned by the Municipality, and was identified during an inspection as requiring replacement this past summer (2020). This section of infrastructure will be brought forward in the next Capital Budget cycle for consideration and will likely be eligible for external funding consideration as the sizing need has been pre-identified in a published study as a flood mitigation option.



These studies can also support an advocacy prioritization for the Municipality when encouraging other levels of government to update their stormwater assets that directly connect and/or have an impact on Municipal interests.

Recent Project Related Reports

- May 2019 - project startup presentation
- September 2019 - Executive Committee feedback session
- December 2019 - Pinehill Wastewater System Review (partial root-cause identified was stormwater)

Historic Advances in Stormwater Programming

- The addition of Development Controls for new development;
 - (2000) Subdivision stormwater management plans
 - (2006) Lot grading plans
- (2009) Capital work in Oakmount Drive area to redistribute flow in road ditches within Municipal road right-of-way's, leveraging a recommendation from the SGE Acres study
- (2009) The addition of a Civil Engineering Technician role to support ongoing inspection and maintenance, which has included ditch and culvert work
- (2014) Doyle Drive Subdivision - coordinated work on private property, leveraging a recommendation from the SGE Acres study
 - Funded 50% by PCAP and 50% by the N.S. Housing Authority
 - Legal liability agreement signed with private property owner

Internal Staff Research Efforts

- (January 24, 2019) Webinar - Federal Sustainable Development Strategy: Biodiversity
- (July 4, 2019) Webinar - "Canada's Changing Climate Report: Changes in Temperature and Precipitation Across Canada"

- (July 22, 2019) WEBINAR - ClimateData.ca: A new web portal that provides high-resolution climate data to help decision makers build a more resilient Canada
- (October 31, 2019) Webinar: Canada's Top Climate Change Risks (Climate Risk Institute)
- (December 9, 2019) Webinar an Introduction to Climate Information for Decision Making: Pilot Presentation (NRCan)
- Review of City of Edmonton document; "Climate Resilient Edmonton - Adaptation Strategy and Action Plan"
- Review of Federal document; "DRAFT Federal Sustainable Development Strategy for Canada 2019-2022"
- Review of joint University of Maryland and Texas A&M University document; "The Growing Threat of Urban Flooding" (2018)
- Review of Colchester document; "Small Flood Damage Reduction Projects Policy" (2019)
- Halifax Water Five-Year Business Plan (2018/19 to 2022/23)
- Review of Federal document; "Canada's Changing Climate Report" (2019)

Discussion

Enforcement

Staff sought out a legal opinion on enforcement options for stormwater in April 2019.

There are enforcement abilities in place now that the Municipality can leverage. Through the Municipal Government Act (MGA), the Municipality can have ditches or other municipal assets, such as natural drainage courses, re-instated if filled by an adjacent property owner.

Or if the property owner purposefully blocked a catch-basin or driveway culvert, that too can be actioned within conditions provided by the MGA or through the Sewer Bylaw, if the impacts of the change to the stormwater negatively impacts the sewer system. The Sewer Bylaw has limited options for enforcement, but would be relevant as it relates to Inflow and Infiltration (I&I) events which could be directly linked to the overland flooding of subdivisions.

Staff did consider the creation of a stand-alone bylaw for stormwater, but do not believe there is enough content in existing programming to be of immediate benefit. One topic that could be enforced through a bylaw clause, that can't be enforced currently, would be the upkeep of private catch basin covers which connect into the public stormwater system. The direct impact of a blocked private drain is flooding of the property that didn't keep the site clear. However, to enforce this would be time consuming and require a more aggressive bylaw enforcement approach than the Municipality has historically taken on other topics.

Bringing clarity through a line item in the policy is being proposed as the best method for dealing with private catch basins becoming covered or blocked with debris. That being said, it is the expectation that private property owners will maintain a clear path, free of debris. There is some expectation that if there is a structure leading to a public system, that the Municipality would be involved, however this is not the legal obligation of the Municipality, and to do so would require an easement access or even land acquisition to have authority to complete work on such a location.

Public Perception of Liability and Managing Fiscal Fairness for the Overall Rate Payer

In October 2006, a financial report was presented by the Director of Finance on the financial responsibilities for storm drainage. To summarize that report, newer developments that adhered to high standards have come at a higher cost to those purchasing and paying taxes on those properties. For pre-existing homes that were built and purchased at lower costs due to lower or a lack of existing development standards at that time, did not pay to achieve the long-term sustainability that others had to do when establishing their homes/properties.

Therefore, that thought process established the foundation for localized issues to be resolved through tools like a local improvement charge.

The 2006 report also flagged issues with the Municipality covering the cost for work to be completed on private property. The governance of such a system proved complex and if the Municipality were to support some issue areas and not others, it would lead to public perception of inconsistent governance, or even favoritism.

Although there has been a cost share program option in the policy to date, which has been tested through several scenarios since the adoption of the policy, the Municipality has not been able to justify the spending of Municipal money on such a property in a way that would meet the policy. Where the option for cost share has been ineffective in implementation for over a decade and has caused more disappointment and frustration for residents in reviewing sites unsuccessfully for its potential use, Staff have removed that section in the proposed amended policy to ensure clarity and consistency for the public on the Municipality's options for engaging in support.

Dealing with filling in of Municipal ditches or Natural Drainage Courses (NDC)

The Municipality has leveraged its authority under the MGA to have ditches re-instated if filled in by abutting property owners. Road drainage ditches have high visibility, making changes to their condition quickly identifiable.

Staff recommended the continuation of this stance and protocol with the expansion of these efforts into NDC areas. The NDC areas that the Municipality own tend to be along the back of properties rather than having continuous road frontage. Historically, these were lands that were a challenge to develop and turned over as open space contributions.

What can happen over time is that adjacent property owners can fill these lands to extend their desired usable space. When that type of action occurs, those adjacent property owners are encroaching their personal use onto Municipal lands and in doing so filling in area that would otherwise be functional for stormwater management or in some instances even flood mitigation.

Instances where the Municipality has found a NDC filled in by an adjacent property owner, it can issue an order for the materials to be removed on the same premise as re-instating ditches, through the MGA. That said, there are some of these areas that may just have sedimentation build up over time that the Municipality may want to just clear out as an operational cost along with other vegetation overgrowth that may restrict stormwater flows or take away from retention capacity. This does not require additional bylaws or amendments to existing ones, rather an adjustment in operational approach.

Costs for Homeowners in areas prone to flooding (Case Study)

To better understand the challenges homeowners face both technically and financially when managing private property that has been historically faced with flooding related to stormwater, Staff had an agreed upon case study discussion with a resident from the Pinehill area in December 2019, to go through their history as a property owner in the area since the early 1990's.

These older subdivisions typically did not have backflow valves installed for the sanitary sewer, which when combined with areas prone to high stormwater, I&I can result in flooded basements. If a subdivision was built in a low-lying area with modest runoff rates, the risk of stormwater flooding and overall backups have been articulated by home owners to be increasing with climate change related increases in storm intensity.

These challenges lead to the installation of sump pumps which need power. With hurricane season an annual risk in Nova Scotia, to have a sump pump also means needing a generator which a home owner needs to be

confident is in good operating condition. Homeowners in these situations can experience sleep deprivation, anxiety and re-occurring stress during every extreme weather event forecast. A contributing factor of this is if your property has had water back up issues or flooding, it then becomes more challenging to sell, if you wanted to be relocated or to have a home insured.

In the previous policy there were attempts to find ways to support residents through a cost share program. However, in practice it was challenging to meet the conditions set out by the policy for an individual homeowner to participate and the Municipality historically couldn't get a project to work under this program. Therefore, a shift in policy approach has been proposed to make a clear stance that any Municipal focus related to stormwater flooding of private areas would be in mitigating the volumes of I&I of the wastewater (sewer) system. The Municipality owns the system and can keep its ownership clear and consistent, while still being able to allow for innovative opportunities as they arise that can help the community as a whole through stewardship of the public wastewater system.

[Municipal role during extreme events](#)

Extreme weather events can bring an influx of stormwater that can be damaging to both public and private infrastructure. These events are outside of normal day-to-day operations; thus, any actions or roles will be set out within the Municipal Emergency Management Plan.

The Municipality does not provide disaster relief funding for private property related losses. Those types of funding programs are led at the Provincial level. The Municipality may declare a state of emergency in order to secure response support to an event, but declaring a state of emergency isn't a requirement for disaster relief funding. Of note, it is still the responsibility of private property owners to work through insurers first as it relates to sustained damages of their private property.

An example of this scenario is the 2016 flooding in Sydney, N.S. In that event CBRM had to issue non-occupancy orders to numerous dwellings due to water damage. The Province established a disaster relief fund for residents that could help support recovery efforts for private property owners whom had losses beyond insurance coverage. The funding does not support 100% of losses, rather the focus is on support towards items that would be on a chattel list. Chattel list items are moveable items that are not attached to a structure, such as a stove or a refrigerator.

[Governmental Jurisdictional Overlap](#)

The current stormwater network(s) across East Hants are interconnected across several different ownership areas and technical categories. Ownership of stormwater areas can be Federal, Provincial, Municipal, or Private. The jurisdictional ownership can change multiple times along a stormwater path, within the same neighborhood or community.

That complexity highlights why no one entity can be deemed responsible for all aspects of the impacts of stormwater across an entire region. What is reasonable is to keep existing public infrastructure in good condition and make plans for the future on how to adapt existing infrastructure to help mitigate the impacts of climate change and other external factors that are out of the control of the Municipality. As the Municipality on its own cannot prevent global climate change or accurately forecast what those changes will be, a realistic expectation is for establishing sustainable programming scope that can make continuous improvements on process and format over time. Staff will be adding for future budget drafts, maintenance costs for consideration to start building towards such a program, which will also benefit from a future Municipal focus on Asset Management.

[Stormwater link to Wastewater Inflow & Infiltration \(I&I\)](#)

The Municipality conducts reviews on wastewater I&I as it causes inefficiency and increased maintenance cost on wastewater infrastructure. If stormwater volumes and flows can be directed away from areas of the wastewater system that are vulnerable to I&I it increases the sustainability of wastewater collection and

treatment programming. That was the rationale for adding an option for the Municipality to leverage wastewater infrastructure reserves in negotiating with new developments that provide an opportunity to benefit problematic wastewater system areas downstream. If the Municipal Engineer has availability of data or information from studies that could be leveraged on newly developed land, that is the ideal time to enhance stormwater infrastructure in a way that reduces the I&I impacts downstream. This would be a negotiation started during the development application process.

Alternatives

Increase focus on enforcement

The Municipality could proceed sooner with adding a standalone bylaw related to stormwater with a focus on adding additional levels of enforcement.

Keep the existing policy content

The Municipality could choose to keep the existing policy content, in which case there would continue to be reports brought forward for consideration regarding cost share inquiries related to private property. In this scenario Staff would update the document to meet today's document branding standards, but keep the original content.

Conclusion

Through review of benchmark documents on stormwater and comparing those area situations with East Hants, Staff do not recommend creating a complex governance structure before building up more operational programming. The historic cost sharing program should be removed as it has proven over a decade not to be effective, however there is an opportunity during future development reviews to leverage wastewater I&I system concerns with stormwater mitigation opportunities, which can be opportunistically reviewed with sewer infrastructure charge compensation negotiations. At this time there is enough enforcement options to meet the needs of addressing the two most obvious challenges related to infilling of either ditches or natural drainage courses, therefore a separate bylaw is not deemed a priority at this time.

Recommendation

To adopt the proposed updated Municipal Stormwater Drainage Policy which emphasizes the Municipal role for stormwater in a way that will provide clear and consistent messaging for stakeholders moving forward.