



March 28, 2022

John Antoszek
Water Standards
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Toronto, ON
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Re: Conservation Ontario's Comments on the "Low Impact Development Stormwater Management Guidance Manual" (ERO# 019-4971)

Dear Mr. Antoszek,

Thank you for the opportunity to provide comments on the "Low Impact Development Stormwater Management Guidance Manual" (hereafter referred to as the Guide). Conservation Ontario (CO) is the network of Ontario's 36 conservation authorities (CAs). These comments are not intended to limit in any way comments submitted by a Conservation Authority on this proposal.

Conservation Ontario is highly supportive of the Ministry of Environment, Conservation and Parks (MECP) moving expeditiously to incorporate feedback received through this consultation and finalizing this Guide. CO and individual CAs are pleased to have participated at the Stakeholder Review Group Table that was established by the province in 2015. This is in addition to coordinating input on a number of previous drafts of this Guide. CO strongly supports the implementation of Low Impact Development (LID) as a green infrastructure climate change solution that can enhance watershed resilience and management where appropriate. This includes implementation of LID techniques, like rain gardens, green roofs, urban trees, permeable pavement and natural infrastructure that can reduce the harmful impacts of stormwater runoff providing many co-benefits including but not limited to water quality, and, preserving ground water and stream baseflow and characteristics.

The reduced potential for flood damage and the protection of life, property and infrastructure as well as reducing occurrence of stream (and shoreline) erosion is of particular interest. As referenced within the Guide, conservation authorities have supported municipalities, the Province and other partners on local LID projects and studies, by providing their technical expertise in the design, development, implementation and maintenance of LID techniques and tools, as well as the monitoring and evaluation of their effectiveness. Conservation Ontario also commends the MECP for referencing many existing resources in the Guide, including those developed by CAs.

The following general comments on the Guide are offered for the Ministry's consideration. Additional detailed comments have been provided in Attachment 1. For example, there are a number of improvements in grammar and formatting that could be made throughout the document that will result in a more accessible guide.

Please also see the CO comments on the “Municipal Wastewater and Stormwater Management in Ontario Discussion Paper” (ERO#019-4967) for recommendations that could be incorporated within this LID Guide (i.e.- any future updates to policies, regulations and programs for Stormwater Management should be reflected within the LID Guide). It is recommended that the terminology and definitions found within this Guide and the Discussion paper be aligned (e.g.- using the same definition of “sewage” as provided in the Municipal Wastewater and Stormwater Management in Ontario discussion Paper).

This Guide should be reviewed and updated/revised as significant new technologies, science and modelling and evaluation of the implemented LID technologies are made available (i.e.- At least every 5 to 10 years). This includes updating references to supporting documents and studies. There isn’t any reference to timelines for updates and it is suggested that it be referenced in the Preface.

Chapter 1 INTRODUCTION

The description of the 2003 Stormwater Manual on page 1 notes that the manual addresses targets related to hazards. It is understood the intent of the 2003 manual is only related to erosion hazards given the recommendations related to extended detention and mitigation of downstream creek erosion. It is recommended that clarification be provided on the types of hazards that are being addressed.

Chapter 2 ENVIRONMENTAL PLANNING PROCESS

2.1 Planning for Stormwater in Ontario

The discussion under the Provincial Policy Statement (PPS) subsection should include reference to updated (2020) PPS policies that further enable/promote LID, especially with regard to mitigating “impacts of a changing climate.” Currently the draft document appears to be referencing the 2014 PPS.

2.2 Planning for Stormwater in a Watershed Context

Conservation Ontario is generally supportive of the information in this Section highlighting that watershed planning is an effective tool to ensure that stormwater management solutions are based on an appropriate scale and consider cumulative effects of urbanization and growth. This Guide should be referenced as a technical guide that can be used to support Subwatershed planning in the “Subwatershed Planning Guide” which was recently posted on the ERO. Reference to the “Subwatershed Planning Guide” should also be made in the LID Guidance Manual. Overall, updates and new guidelines like the LID Guide will have the effect of providing clear guidance which streamlines the subwatershed planning process.

2.4 Stormwater Approvals and Permissions

In this Section the conservation authority role should reflect the most recent updates to the *Conservation Authorities Act* and Regulations and the role of CAs to a) regulate under Section 28; and b) provide programs and services through agreements with municipalities to address PPS requirements for Storm Water Management (SWM), natural heritage, etc.

The Ministry of Environment, Conservation and Parks is commended for including *Clean Water Act* 2002 – Drinking Water Source Protection policies, plans and modeling products (e.g. Significant Groundwater Recharge Areas (SGRA), Groundwater Recharge Areas (GRA), Highly Vulnerable Aquifers (HVA), Well Head Protection Areas (WHPA) and Intake Protection Zones (IPZ)) in the Guide. Recognizing and extending the utility of the science-based numerical models to other programs provides more justification on the value of the investment into these program and models. As noted previously, in

order for the numerical models to remain relevant, the Guide will require constant maintenance, and routine refinements/updates.

Chapter 3: STORMWATER DESIGN CRITERIA: RUNOFF VOLUME CONTROL TARGET

Some CAs had previously expressed concerns related to the Runoff Volume Control Target (RVCT) that were enumerated to MECP with the 2020 version and this latest version of the Guide. Concern revolves around the language pertaining to “recommending” stronger site water balance targets to the 90th percentile storm, and “encouraging” use of at-source mitigation measures (LIDs, green infrastructure) to meet these targets. The language is non-committal, suggesting that these targets are not required or necessary. Without stronger language (ie: required vs. recommended), it is difficult for any approval agency to reinforce the document and truly see any improvements to water balance.

Further details are necessary regarding what the province would accept as reasoning for navigating through the Priorities (on-site retention to on-site filtration to standard quantity storage and release). Since the Province typically does not get involved in development during the planning stages when decisions related to SWM infrastructure are considered, the reasoning and acceptance for mitigation and movement through the Priorities will be left largely up to the municipalities and CAs until the Province sees the final product for a permit. If the Province does not agree with their interpretation of the Guide in moving through the Priorities, and then denies a permit and requires the proponent to re-evaluate their SWM strategy, it could send large portions of the design back to early design/planning stages. This could create unnecessary tension between proponents and the municipalities and their designates (i.e. CAs).

Specifically, there are some inconsistent messages related to the application of the RVCT. For example in the **Executive Summary**, Page iii – Adoption of RVCT is “encouraged” by MECP. “Encouraged” could imply that the RVCT is optional, and will result in the target (and protection of our watersheds) generally not being met. It is noted on page 59 that “The Runoff Volume Control Target for Ontario is science based”. This is supported throughout **Chapter 3 STORMWATER DESIGN CRITERIA: RUNOFF VOLUME CONTROL TARGET**. It is strongly recommended that the **Executive Summary** and wording elsewhere in the Guide align with other supportive wording in the main document and ***“that the RVC Target Hierarchy be followed to establish the Target”*** (see Figure 3.4).

It is recommended that a better definition be included or clarification be provided with regard to how each of the control components is going to be calculated across the site – discussing the interrelationship between each of them. It’s important to make the connections between quality and quantity to help proponents understand what is required of them, and to help MECP enforce the requirements.

In addition, it would be helpful for the MECP to outline and clarify the feasibility of compensating between water quality and runoff volume control.

Once again, further direction from the Province on navigating the Priorities would improve guidance to practitioners in their interpretation.

Specific examples of what could be clarified in Chapter 3 are provided in Attachment 1 of our comments, in addition to those below.

3.2.1 Hierarchical Approach

Figure 3.4 and associated text should define “restrictions”. Sites designed without consideration for SWM requirements should not be allowed to default to conventional treatment simply because they failed to accommodate better SWM in the site layout.

3.2.5 Flexible Treatment Options for Sites with Restrictions

It is recommended that further guidance be provided on effective LID techniques/methods for shallow bedrock. Shallow bedrock is the number one reason cited in southeastern Ontario (e.g. Cataraqui Region) why LID cannot be implemented. It would be beneficial to add discussion of approaches that do work in these conditions, with accompanying direction on the type of analysis that should be conducted to demonstrate whether or not shallow bedrock is a legitimate constraint.

3.2.6 Direct Discharge to Waterbodies, Watercourses or Wetlands

Further guidance would be helpful on setting a ‘stormwater management target’ for outlets into sensitive features (e.g., coldwater streams, provincially significant wetlands, and ‘at-capacity’ lakes).

Chapter 4: GROUNDWATER

Groundwater retention in low-permeability soils may need additional explanation in light of the discussion in **Section 5.3.8. Soils and Surficial Geology**. For instance, if the LID is designed to retain the 25mm or 90th percentile precipitation event, the subdrain should be located immediately above the depth required to infiltrate the retained volume during 24-48 hours of a stacked storm (slow moving system).

It is mentioned that “sewers/sewage works and watermains located parallel to each other should be constructed in separate trenches maintaining a minimum clear horizontal separation distance of 2.5 meters”. This is followed by: “in some cases the Ministry may allow deviation from separation requirements”. It is recommended that some examples of cases and/or clarification be provided regarding to what extent the separation is acceptable.

Chapter 5: LID MODELLING APPROACHES

In addition to the incorporation of overland LIDs and retention/detention facilities, a detailed discussion about the benefit of the underground storage facilities for storm water retention/detention and quality control would be helpful. The use of underground storage tanks has become very popular in designing SWM systems of industrial and commercial sites.

Section 5.3.4 Stream Geomorphology and Erosional Impacts

On Page 114, it is stated that “erosion assessments in some cases need to evaluate stormwater management erosion control targets based on more advanced scientific approaches to better represent the stream erosion processes and sediment transport patterns within the drainage network”. In areas where erosion assessments are not completed, should the default for the erosion control target be the RVc? It is recommended that further direction on minimum erosion control requirements for development be provided for areas where erosion assessments have not been completed.

Section 5.3.5 Proximity to Surface Water Dependent Natural Features

More information and guidance would be helpful to establish proximity/setback to natural features including Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs).

Section 5.3.8 Soils and Surficial Geology

Soil quality may also affect LID performance. Refer to [MECP's Site Standards](#) under the *Environmental Protection Act*.

Chapter 6: CLIMATE CHANGE

Conservation Ontario is generally satisfied with the inclusion of this Section in the Guide. The following provides some recommendations for improvement.

The discussion on large scale climate change is helpful however LIDs are designed and implemented at a local watershed scale. The impacts of one individual LID in a subdivision won't necessarily affect a larger watershed (eg. Chesterville isn't going to flood out the Ottawa River).

Conservation Ontario appreciates that the discussion of various concepts and ideas are supported with some examples. It is recommended however that the examples in Tables 6.3 and 6.4 **Predicted Climate Parameters and Possible Impacts on Stormwater Projects** be further clarified and expanded.

It is also recommended that IDF curves for the regional area use updated data when running SWM and LID modelling.

Chapter 7: EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

Conservation Ontario is supportive of this section which can be used by regulators to support their communication about the development, implementation, construction, maintenance and monitoring of Erosion and Sediment Control (ESC) plans. Furthermore, by necessity, the implementation and maintenance of ESC at any construction site should always take an adaptive management approach.

Chapter 8: OPERATION AND MAINTENANCE

Section 8.2 Importance of Factoring Operation and Maintenance During Design

Conservation Ontario is supportive of including a recommendation for the contractor to provide/complete an extended warranty period. LID approaches and design should also fit the existing operations and maintenance regime and capacity of the system operator (e.g. municipalities). Otherwise LID features will not function as intended if not monitored and maintained appropriately. This is not to say operator limitations should exempt a development from LID implementation, but rather, that the type of LID approach be appropriate to the operator's capacity to operate/maintain it.

Chapter 9: MONITORING, PERFORMANCE VERIFICATION AND ASSUMPTION PROTOCOLS

This Chapter provides a good discussion of monitoring programs but no direction on minimum requirements for monitoring LID features at typical development sites. It simply states the proponent and owner of a SWM facility/system is responsible to demonstrate performance compliance. This has been and will continue to be a barrier to acceptance and adaptation of LID as there is no feedback on the success of installed works. It is therefore suggested that in **Section 9.4 Environmental Monitoring at**

Watershed, Subwatershed and Catchment Level include specific examples on how to design an effective watershed monitoring program that would evaluate success/impacts of LID.

Additional General comments

Using the *Drainage Act* would also provide ample room for local knowledge, context, and priorities to be incorporated within green, low impact drainage infrastructure designs. The benefit of utilizing this Act to support more GI including LID implementation is that drainage features designed and constructed using the Act are protected, with appropriate recourse in instances where contraventions occur, protecting GI/LID in retrofit scenarios. It would provide right-of-access to presiding municipalities for inspecting and maintaining drainage infrastructure on private property.”

This Guide provides good background and supporting information, however more information on design would assist various users (eg..consultants, contractors). It is therefore recommended that case studies be included to illustrate different design elements and scenarios. The application of this Guide would benefit from training/further opportunities to learn how to use and apply the information and guidance provided.

It is also recommended that post release of this Guide that supplemental information is released from the Province, including case studies, literature, resources, drinking water source protection considerations, etc. that speak to LID implementation outside of larger urban centres where LID uptake has been slow due to systemic problems (development industry reticence, municipal capacity limits, lack of experienced consultants and contractors) and physiographic challenges (shallow bedrock, clay soils, etc). The focus should be on treatment train approaches that work well in these settings. Conservation Ontario and conservation authorities welcome the opportunity to be engaged in delivery and receipt of this training.

Once again, Conservation Ontario greatly appreciates the development of this “Low Impact Development Stormwater Management Guidance Manual” and the efforts to consider the input of a variety of stakeholders. Conservation Ontario would be pleased to assist in making timely amendments to the Guide, so it can be released at the earliest opportunity. Should you have any questions about this letter, please contact me at jrzadki@conservationontario.ca; extension 224.

Sincerely,



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Manager, Business Development and Partnerships

Attachment 1: Detailed Conservation Ontario Comments on the LID SWM

c.c. All CA CAOs/GMs

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