C 11
Communication
CW(WS) – June 5, 2024
Item No. 1

NON-CONVENTIONAL SWMF POLICY, PROCEDURE, ENGINEERING AND PARKS DESIGN CRITERIA:

PRESENTATION TO COMMITTEE OF THE WHOLE (WORKING SESSION)

June 5th, 2024

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Presentation Overview

- Project Background and Goals
- Deliverables
- Policy Outline
- Procedure Outline
- Design Criteria
- Financial Requirements
- Questions/Discussion

Project Background

- The City of Vaughan, in response to development pressure on land use planning, increased land costs and potential for dual-use of Park lands, developed an interim policy for approval of non-conventional municipal stormwater management facilities in June 2022.
- Non-Conventional SWM Facilities = Underground Stormwater Management Facilities (not wet/dry ponds, wetlands etc.).
- General intent of non-conventional SWM facilities is to increase yield of development land through "dual-use" of land for park and stormwater functions
- Focus is on municipally assumed facilities, typically designed and approved through subdivision approval process (private sites not in scope of project).
- The Interim Policy was put in place with the intent of eventually developing a more fulsome policy and including development procedures, criteria and standards.

Non-Conventional SWMFs

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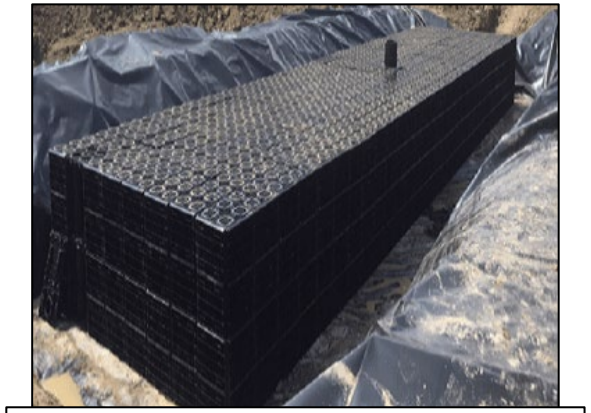
- Underground stormwater management facilities can utilize many different technologies, with the general intent of temporary storage of water
- Here are some examples – not all are acceptable as municipal facilities

PRECAST CONCRETE TANK

CAST-IN-PLACE CONCRETE TANK

PLASTIC OR CONCRETE SUPERPIPE

PLASTIC ARCH CHAMBER



MODULAR PLASTIC BOX (MILK CRATES)

Project Goals

- Goals of Policy, Procedure, Design Criteria and Standards:
  - *To provide a decision framework to determine where new non-conventional SWMFs may be accepted, and under what conditions;*
  - *To streamline the evaluation and acceptance process for non-conventional SWMFs;*
  - *To provide a list of allowable stormwater management technologies/facility configurations that can be accepted as municipal facilities; and,*
  - *To provide a formula to calculate an Offset Fee intended to supplement the increased cost of Operations & Maintenance to the City, to ensure long term viability of facilities.*
- Will allow for implementation in ROW's and Parkland and will provide direction to achieve 100% parkland dedication credit.

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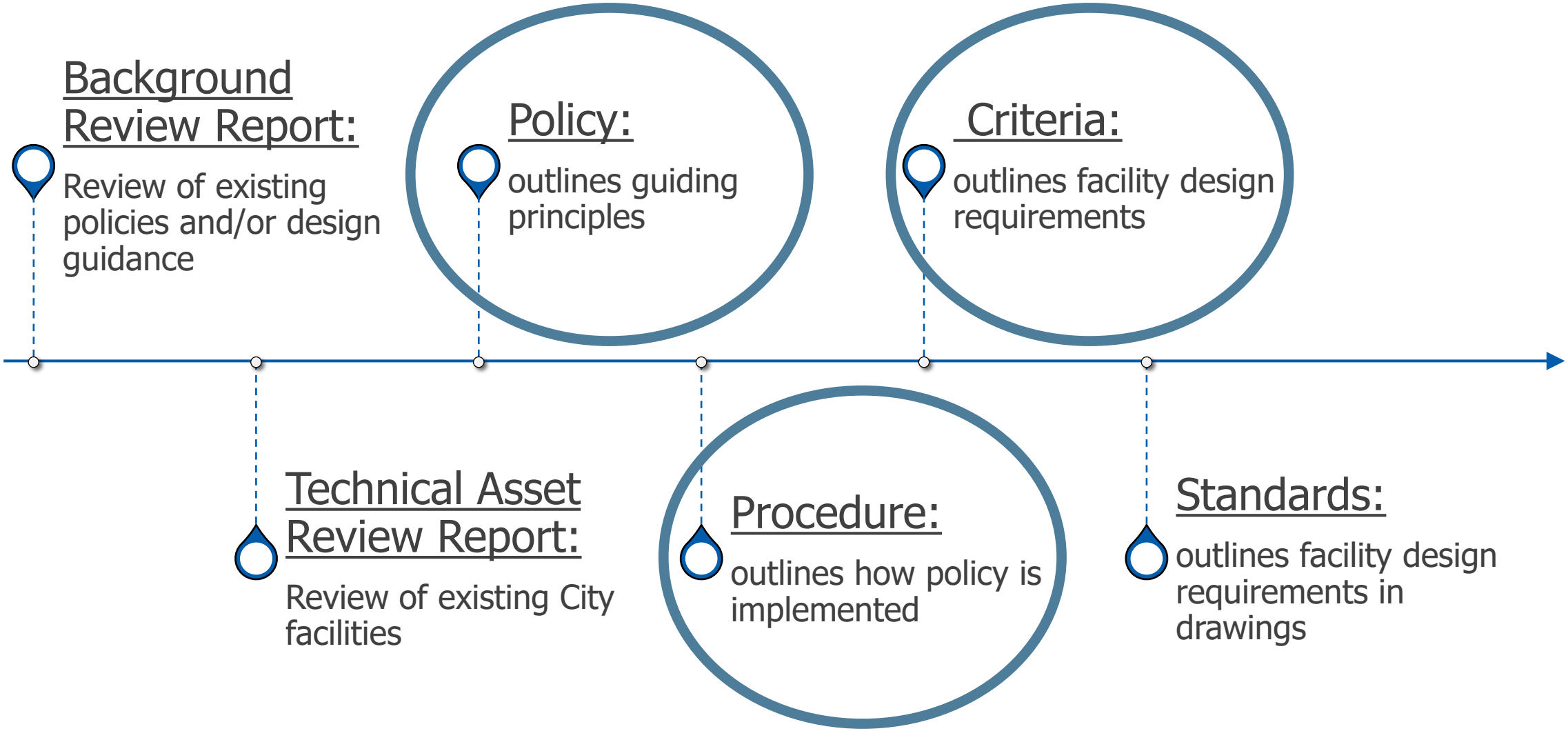
Deliverables



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Policy Outline

- General Consideration: Greenfield and infill, must meet all applicable criteria, implementation in parks and ROW's
- Technical Considerations: No standing water, gravity draining, quantity control and extended detention only
- Parkland Considerations: References By-Law 168-2022, must not encumber park space
- Right-of-way Considerations: No ROW widening permitted to accommodate Non-Conventional SWMF, typical separations/offsets/setbacks must be met
- Operations & Maintenance: Typical O&M Manual requirements, Maintenance Cost analysis over 50 years
- Cost-Recovery: Offset Fee Calculation
- Assumption: Facility must be clean, certificate of conformance, sealed record drawings

Procedure Outline

- Outlines the process of how City will review and approve facilities, provides checklist for reviewers, as well as approval process flowchart for guidance.
- Step 1 – Initial Submission & Justification Report
  - *Includes justification, costing, and conceptual design of NC SWMF*
- Step 2 – Draft Plan/Functional Servicing Submission
  - *Demonstrates all criteria is satisfied. Warranty must be disclosed at this time*
- Step 3 – Detailed Design Submission
  - *Includes sealed design, O&M Manual, Offset Fee Calculation, Extended Warranty*
- Step 4 – Assumption & Final Offset Fee Collection
  - *Satisfies City requirements for assumption, PEO Record Drawings and collection of offset fee*

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Design Criteria

- Outlines technical details, submission requirements, offset fee calculation requirements.
- Fits into existing City Engineering Criteria as a new section and incorporates existing City/MECP SWM Criteria.
- Refers to Schedule D and E of Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) where applicable.
- Criteria Examples:
  - *Must drain by gravity (no pumps).*
  - *Appropriate loading capabilities (CHBDC CL-625ONT).*
  - *Minimum cover of 1.8 m for Park programming flexibility.*
  - *No standing water/permanent pool permitted.*
  - *Outlines permitted uses above SWMFs*

Financial Requirements

- Final Offset Fee is calculated as the differential between a Conventional and Non-Conventional SWMF of similar size and function.
- Calculated over a 50-year period, with no maximum.
- Extended warranties (25 year) to be provided for SWMFs. SWMF rehabilitation costs to be added to Offset Fee if warranty not provided/accepted.
- Infill Developments with drainage areas less than 2 ha using a superpipe facility are exempt from replacement/rehabilitation regardless of warranty.

Financial Requirements

- Unit rates are current estimates that will change with indexing.
- Inspections/Monitoring – covers the costs for regular inspections & monitoring of the SWMF.
  - *Non-conventional SWMFs and OGS units require more frequent inspections*
  - *Conventional SWMFs require more involved inspections ($2000/inspection) vs surface inspections of non-conventional SWMFs ($500/inspection/component)*
- Maintenance – covers the cost to maintain these underground facilities
  - Sediment Removal
    - *Cost to remove sediment from conventional - $200 per m^3*
    - *Cost to remove sediment from non-conventional - $500 per m^3*
    - *Fee is differential ($300 per m^3) multiplied by total loading over 50 years*
  - Increased Maintenance
    - *Includes cost for structural inspection (ie. confined space entry)*
    - *Includes component replacement costs for key SWM features (ie. treatment train approach)*
    - *Includes rehabilitation cost if warranty not provided or accepted.*

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Questions & Discussion