CASE STUDY | CS-04

Key Stormwater Management Takeaways

NOVA SCOTIA FEDERATION OF MUNICIPALITIES

Comparing real-world case studies across Nova Scotia demonstrates that municipal stormwater management is shifting toward modern, data-driven planning focused on local resilience. Along with other levels of government, municipalities can help build local flood adaptation capacity by implementing various stormwater infrastructure planning strategies.

Reactive repairs after a flood are no longer enough to keep communities safe as climate change brings more frequent, high-intensity rain events.

Key Case Study Takeaways

Fix the Lowest Bottleneck First

Upgrading upstream pipes won't prevent flooding if the final outfall or culvert at the bottom of the system is blocked or undersized.

Choose the Right Tool for the Space

Nature-based solutions (green infrastructure) excel where there is land and open soil, while traditional pipe expansions (grey infrastructure) remain necessary in highly developed corridors.

Maintenance Is Essential

Computer models assume pipes and ditches are clean. In real life, dirt, weeds, and debris can turn a well-designed pipe into a flood hazard.

Combine Computer Models with Local Knowledge

Digital computer models are most reliable when verified by ground surveys and real-time photos and observations shared by residents during storm events.

Learn More: Enabling Equitable Infrastructure (GU-03)

Municipal Engagement Insights

We heard that stormwater management planning in rural communities can be unique because provincial road infrastructure, and -in some cases- private railway infrastructure, is outside municipal jurisdiction. This points to the importance of collaboration between levels of government and between public and private sectors.

Stormwater Management Opportunities

1 Proactive Development Approvals ("Zero Net-Increase")

Municipalities can require new developments to capture and retain their own storm runoff on-site so post-construction flows match pre-development levels. This legal requirement stops piece-by-piece construction from transferring flood problems onto downstream neighbourhoods.

2 Field Surveys to Verify Satellite Data

Aerial radar mapping (LiDAR) provides a solid foundation for watershed planning, but it cannot penetrate thick forest canopies or map underwater channels. Conducting physical field surveys ("ground-truthing") ensures computer models accurately reflect true ground elevations.

3 Leveraging Community Knowledge and Citizen Science

Residents observe how storm runoff moves through their streets in real time. Gathering photos, timestamps, and high-water marks directly from community members gives engineers the real-world evidence needed to verify computer flood models.

Learn More: Advancing Equity in Infrastructure (GU-02)

LEARN MORE: View the full Guidance Document at FloodAdaptNS.ca

Consider Your Municipality

How can residents and municipalities share real-time flood observations to help improve local storm models?

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