

## **Collaborating to Protect Municipal Infrastructure and Restore Redside Dace Habitat**

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Protecting critical infrastructure from erosion threats is a key component of asset management for many municipalities that historically leveraged ravine corridors for water and wastewater mains. Threats to these lines are becoming more prevalent with the increased frequency of extreme weather events, and protecting against erosion in a sustainable manner requires collaboration amongst many different environmental professionals. In response to these concerns, The Region of York and TRCA developed a partnership program in 2011 to monitor erosion risks and implement remedial works in support of an overall vision of a resilient landscape that balances infrastructure protection and environmental preservation.

The Patterson Creek project highlights the strength of a holistic approach to address erosion risks through the incorporation of key natural channel design principles to increase floodplain connectivity, improve water quality, and further restore a regulated Redside Dace reach heavily impacted by urbanization. The project area spans a 700 meter long section of the East Don River with 5 distinct sites where Region owned sanitary infrastructure was found to be at risk. Two sites were experiencing substantial channel downcutting that led to the exposure of sanitary mains in the channel. A detailed geomorphic assessment and designs, including a minor channel realignment, were developed by Parish Geomorphic (now Matrix Solutions Inc.), and project management and construction was completed by TRCA Engineering Projects staff.

This will be presented as a case study to highlight how an infrastructure protection project acted as a catalyst for major channel improvements, began a conversation about a key recreational trail opportunity, and promoted multi-stake holder collaboration. This includes discussing the challenges that were encountered over the 2 years of planning as the project area included multiple different property owners and stakeholders. In addition, a construction lessons learned component will be highlighted that emphasizes some challenges encountered over 3 construction seasons.



## **Biography**

Matt Johnston is the Manager of Erosion Risk Management with TRCA's Engineering Projects Group and is an experienced project manager specializing in the planning of remedial flood and erosion control works. Matt's team monitors erosion hazards to public/private land, essential infrastructure for TRCA's municipal partners, and 1000 TRCA owned erosion control structures. This comprehensive monitoring fieldwork is used to establish priorities for projects that are then managed and implemented by Engineering Projects staff. In 2017, Engineering Projects staff completed over 40 projects with a total budget of \$20 million with many of the sites adhering to natural channel design principles.