

Attachment 1 - National Disaster Mitigation Program (NDMP) Project Summary

| | Project Name | Start Date | Deadline | Account Code | TRCA/Partner Funding | Federal Program Funding | Project Outcomes / Outline |
|---|--|------------|-------------------|--------------|----------------------|-------------------------|---|
| | NDMP INTAKE #1 | | | | | | |
| 1 | A4 Flood Vulnerable Database | Oct-16 | Complete - Sep-18 | 10709 | \$195,000.00 | \$195,000.00 | <i>This project generated an updated geospatial database of exposure information, which was layered with riverine flood hazard information and the latest flood vulnerability functions in order to quantify flood risk at a granular level. This allowed for a data-driven risk ranking of TRCA's 41 Flood Vulnerable Clusters. The quantified damage estimates have already been used to inform Return on Investment calculations for flood remediation projects. Furthermore, the geospatial mapping products that were developed as part of this project are already being used in site-specific flood emergency response scenarios. This project also enabled the purchase of LiDAR data that has been leveraged for all subsequent floodplain modelling and mapping activities.</i> |
| 2 | 2 Dimensional Modeling of High Risk - Flood Vulnerable Areas | Oct-16 | Complete - Mar-18 | 10708 | \$110,000.00 | \$110,000.00 | <i>This project developed advanced 2-dimensional flood modelling within two high risk complex flow areas: Rockcliffe Special Policy Area in Toronto and Pickering/Ajax special Policy Area in Durham Region. This information has been used to update regulations, to validate flood remediation plans, and to enhance emergency preparedness.</i> |
| | NDMP INTAKE #3 | | | | | | |
| 3 | A31 2 Dimensional Modeling Studies of High Risk Flood Areas | Oct-17 | Complete - Mar-19 | 10758 | \$60,000.00 | \$60,000.00 | <i>This project provided accurate and reliable modelling updates incorporating recent LiDAR topographic data. The revised floodline information was provided to TRCA's municipal partners for the purpose of land use and emergency management planning.</i> |

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| 4 | A30 2017 Stouffville and Claireville Dam Feasibility Studies | Oct-17 | Underway Aug-19 | 10710 | \$140,000.00 | \$140,000.00 | <i>This project assesses the viability of implementing the recommendations from the recently completed Dam Safety Reviews for the Claireville and Stouffville Dams located in the City of Brampton, and Town of Whichurch-Stouffville respectively.</i> |
| 5 | A27 2017 Floodplain Mapping Updates | Oct-17 | Underway-Aug-19 | 10756 | \$156,750.00 | \$156,750.00 | <i>This project includes updating approximately 65 floodplain maps for the Humber River Watershed within the City of Toronto and City of Vaughan, as well as the update of approximately 16 floodplain map sheets within the Carruthers Creek Watershed within the Town of Ajax.</i> |
| 6 | A28 2017 Mimico Creek Hydrology Update | Oct-17 | Underway Aug-19 | 10755 | \$30,000.00 | \$30,000.00 | <i>This project entails a comprehensive hydrology update for the Mimico Creek watershed. The Mimico Creek is an urban watershed located within the Cities of Mississauga and Brampton in the Regional Municipality of Peel and the City of Toronto.</i> |
| 7 | A29 2017 Real-Time Gauge Improvement Program | Oct-17 | Underway Aug-19 | 10757 | \$60,000.00 | \$60,000.00 | <i>This project expanded the coverage of TRCA's network of rain and stream gauges through the provision of four additional gauges, as well as redundancy equipment to increase the resilience of the current system. The real-time gauging network provides enhanced situational awareness during flood event which benefits emergency response.</i> |
| | NDMP INTAKE #4 | | | | | | |
| 8 | A47 - Flood Risk Community Outreach Program | Jul-18 | Underway - Mar-20 | 10754 | \$130,000.00 | \$130,000.00 | <i>This project will build on the results from TRCA's intake 1 flood risk assessment project by supporting public awareness of potential flood emergencies. This project will enable targeted information sessions for flood vulnerable neighbourhoods, involving municipal partners.</i> |

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| 9 | A45 - Don River Watershed Floodplain Mapping Update | Oct-18 | Underway - Mar-20 | 10737 | \$130,500.00 | \$130,500.00 | <i>This project will allow comprehensive floodplain mapping update of approximately 80 floodplain map sheets within the municipalities of the City of Vaughan, Town of Richmond Hill, City of Markham and City of Toronto.</i> |
| 10 | A48 - G. Ross Lord Dam Safety Risk Assessment & Flood Operations | Oct-18 | Underway - Mar-20 | 10757 | \$125,000.00 | \$125,000.00 | <i>The risk assessment would enable TRCA to quantify the impacts of modifying the dam operations relative to overall risk. This project would provide stakeholders with a better understanding of the dams risk levels</i> |
| 11 | A49 - Highland Creek Hydrology & Floodplain Mapping | Jul-18 | Underway - Mar-20 | 10753 | \$124,000.00 | \$124,000.00 | <i>This project will complete a comprehensive hydrology model and floodplain mapping update for the Highland Creek watershed within the City of Toronto. The project will result in a new hydrology model for the Highland Creek, as well as the update of approximately 30 floodplain map sheets.</i> |
| 12 | Mimico Creek Floodplain Mapping Update | Oct-18 | Underway - Mar-20 | 10739 | \$31,000.00 | \$31,000.00 | <i>This project will complete a comprehensive floodplain mapping update of approximately 20 floodplain map sheets within the municipalities of the Cities of Brampton, Mississauga, and Toronto.</i> |
| 13 | A51 - Rouge River Watershed Floodplain Mapping | Oct-18 | Underway - Mar-20 | 10738 | \$167,000.00 | \$167,000.00 | <i>This project will complete a comprehensive floodplain mapping update of approximately 103 floodplain map sheets within the municipalities of the City of Toronto, Town of Richmond Hill, City of Markham, City of Pickering and the Town of Whitchurch-Stouffville.</i> |

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| 14 | Brampton Riverwalk (Partnership with City of Brampton) | Oct-18 | Underway - Mar-20 | *Funded by City of Brampton | \$1,500,000.00 | \$1,500,000.00 | <i>In partnership with the City of Brampton, the purpose of this endeavour is to identify a preferred alternative that is sustainable and will eliminate the risk due to flooding from Etobicoke Creek to the Downtown Core of Brampton, up to the Regulatory Event Regional Storm (Hurricane Hazel), while taking into consideration the natural, social, cultural and built environment, and incorporates Brampton's Urban Design and Land Use Study Objectives.</i> |
| 15 | Toronto Island Flood Characterization and Risk Assessment (Partnership with City of Toronto Parks) | Oct-18 | Complete – Jun-19 | *Funded by City of Toronto | \$150,000.00 | \$150,000.00 | <i>The focus of TRCA's previous risk assessment applications was on riverine flooding, and did not include the Toronto Islands. This flood characterization and risk assessment project will help facilitate an understanding of lake-based flood hazards, community and infrastructure vulnerabilities, potential impacts and risk to residents and municipal assets, which in turn can inform future structural and non-structural flood mitigation investments. This project has already proactively informed the mitigation and response work underway to protect the Islands from the historically high levels this year.</i> |
| NDMP INTAKE #5 | | | | | | | |
| 16 | Duffins Creek Watershed Floodplain Mapping Update | Apr-19 | Underway – Mar-20 | 10770 | \$110,000.00 | \$110,000.00 | <i>This project will update approximately 73 floodplain maps for the Duffins Creek watershed within the City of Pickering and Towns of Ajax and Uxbridge in Durham Region, and the City of Markham, and Town of Whitchurch-Stouffville in the Region of York, using new topographic information based on LiDAR, as well as the results from the 2012 Duffins Creek Hydrology Update.</i> |

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| 17 | Next Generation Flood Forecasting and Warning System Development | Apr-19 | Underway – Mar-20 | 10774 | \$75,000.00 | \$75,000.00 | <i>This project will advance the development of a next-generation flood forecasting and warning system, which will have the capability to provide site specific flow forecasting at critical areas as well as enhanced, real time flood information to emergency responders.</i> |
| 18 | Petticoat Creek Watershed Hydrology Update | Apr-19 | Underway – Mar-20 | 10771 | \$40,000.00 | \$40,000.00 | <i>The proposed project will consist of a comprehensive hydrology update of the Petticoat Creek watershed within the City of Pickering in Durham Region. The previous hydrology update was completed in 2005 and was developed using the best available information of the time.</i> |
| 19 | Pickering Ajax Dyke Rehabilitation Environment Assessment | Apr-19 | Underway – Mar-20 | 10769 | \$250,000.00 | \$250,000.00 | <i>In April 2018 TRCA completed a study of the flood control infrastructure located within the Pickering and Ajax SPA's within the City of Pickering and Town of Ajax in Durham Region. The study included a number of technical assessments intended to characterise the conditions of the flood control dykes. This project would allow TRCA to undertake an Environmental Assessment to identify a preferred restoration plan, balancing flood mitigation requirements with environmental impacts, social needs, and cost.</i> |
| 20 | Flood Emergency Management Plan for the TRCA | Apr-19 | Underway – Mar-20 | 10773 | \$125,000.00 | \$125,000.00 | <i>The proposed project will involve preparing comprehensive flood emergency response plans for the flood vulnerable areas located within the Toronto and Region Conservation Authority jurisdiction. This study builds upon the Intake 1 project which detailed the risks and damages to people and property within each of TRCA's Flood Vulnerable Clusters. Furthermore, this project will include updates</i> |

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| | | | | | | | <i>and enhancements to the flood risk management website, and monitoring sites.</i> |
| 21 | Black Creek at Rockcliffe Special Policy Area Flood Remediation and Transportation Feasibility Study | Apr-19 | Underway – Mar-20 | 10772 | \$200,000.00 | \$200,000.00 | <p><i>The Rockcliffe area is one of TRCA’s previously identified Flood Vulnerable Clusters and also a Special Policy Area. Many of these properties have experienced surface and basement flooding during severe storms due to riverine flooding and/or overloading of the local sewer systems. TRCA and the City of Toronto have been coordinating efforts to reduce flooding risks in the Rockcliffe area, completing two separate EA studies that examined options to reduce riverine and sewer system related flooding, respectively, in 2014. In 2019, TRCA, Transportation Services, and Toronto Water initiated a Feasibility Study that will develop new flood protection alternatives (with focus on high risk areas), develop and refine cost estimates and benefits, confirm construction feasibility, and identify design considerations and other implementation requirements for the TRCA EA recommended flood protection berms, channel widening and naturalization, and the flood protection measures for the Jane Street Crossing.</i></p> <p><i>The project will include an assessment of the performance of the recommended flood</i></p> |

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| | | | | | | | <i>remediation approaches taking into account the new modelling work completed by TRCA including updated watershed flows from the 2018 "Humber River Hydrology Update Addendum", and 2 Dimensional hydraulic modelling as developed by DHI as part of TRCA's "Rockcliffe SPA 2D Modelling and Mapping Update". It is anticipated that this work will assist with the definition of scope and alternatives to be assessed further as part of a joint-proponency Municipal Class Environmental Assessment by the City of Toronto and the TRCA.</i> |