



## Appendix A

### Hazard Data by Shoreline Reach

## A.1 Flooding Hazard Runup Elevation and Horizontal Limit of Wave Action by Reach

The table below summarizes wave uprush elevations and the horizontal limit of wave uprush for a 100-year water level (76.2 m IGLD85) and the 20-year wave condition. The inland wave propagation distance is calculated from the crest of the profile rather than from the position of the 100-year flood level; this needs to be considered in the mapping. Some local deviations from the specified runup contours were applied for atypically lower areas in a reach, as outlined in Section 5.1.3.

**Table A.1: Flood Hazard Summary Table**

Reach	Reach Name	Crest Elevation (m)*	Maximum Runup Elevation (m) *	Inland Wave Propagation Distance (m)	Wave Uprush Allowance (m)
1	Marie Curtis Park	79.30	79.8	3.7	15 †
2	Long Branch	81.48	80.2	Below Crest	15
3	Colonel Samuel Smith Park	78.60	83.4	12.3	15 exposed † 5 protected
4	Mimico	81.06	79.9	Below Crest	15 †
5	Mimico Waterfront Sheltered	77.14	81.0	8.0	8 (west side) 5 (marina)
6	Humber Bay Park	77.49	79.3	7.6	15 exposed, 5 protected
7	Humber Bay West Sheltered	77.10	79.1	8.0	15 exposed, 5 protected
8	Humber Bay North - Gzowski-Sunnyside-MarilynBell	80.50	79.0	Below Crest	15 †
9	Ontario Place	78.41	79.0	3.3	15 exposed, 5 protected
10	Toronto Downtown and Harbourslands	77.60	77.4	Below Crest	5
11	Toronto Island - Hanlan's Point Beach	78.43	77.0	Below Crest	15 †
12	Toronto Island - Gibraltar Pt Centre Island Beach	77.17	78.4	6.0	15 †
13	Toronto Island - Centre Island Park	76.59	77.9	1.0	15
14	Toronto Island - Ward's Island Beach	76.98	77.3	2.1	15
15	Toronto Island - Airport	76.17	76.6	1.1	5 †

Reach	Reach Name	Crest Elevation (m)*	Maximum Runup Elevation (m) *	Inland Wave Propagation Distance (m)	Wave Uprush Allowance (m)
16	Toronto Island - Inner Islands	76.48	76.4	Below Crest	5
17	Cherry Beach	76.99	76.6	Below Crest	5
18	Tommy Thompson Park - Sheltered Inner	76.89	78.8	5.0	5
19	Tommy Thompson Park - Outer	79.00	79.0	0.3	15 †
20	Ashbridges Bay and Park Headland	79.09	78.9	Below Crest	15 exposed, 5 protected
21	Eastern Beaches	78.33	78.2	Below Crest	15 †
22	Fallingbrook	99.86	79.7	Below Crest	15
23	Birch Cliff	95.12	82.9	Below Crest	15
24	Birchmount	89.39	81.9	Below Crest	15
25	Rosetta McClain and Scarborough Heights Park	83.23	79.7	Below Crest	15
26	Scarborough Crescent Park	89.00	79.7	Below Crest	15
27	Bluffer's Park	77.00	80.5	9.2	15 exposed, 5 protected
28	Bluffer's Park Beach - Cathedral Bluffs Park	79.46	78.2	Below Crest	15 †
29	Cudia Park	97.47	80.2	Below Crest	15
30	Scarborough Village and Guild Park	81.40	79.0	Below Crest	15
31	Guildwood and Grey Abbey Park	84.28	79.5	Below Crest	15
32	East Point - West	97.14	80.3	Below Crest	15
33	East Point - East	90.60	80.8	Below Crest	15
34	Highland Creek Beach	90.31	77.1	Below Crest	15
35	Port Union	81.56	79.1	Below Crest	15
36	Rouge River Beach	86.24	77.5	Below Crest	15
37	Petticoat Creek CA and Rosebank Neighbourhood	88.36	79.8	Below Crest	15
38	Petticoat Creek Beach	77.99	79.1	5.5	15
39	West Shore Neighbourhood	81.70	79.9	Below Crest	15
40	Frenchman's Bay Beach	76.99	78.8	6.7	15
41	Frenchman's Bay	N/A	N/A	N/A	5
42	Pickering Nuclear Power Plant	86.98	80.2	Below Crest	15
43	Brock Industrial	77.05	78.3	6.2	15

Reach	Reach Name	Crest Elevation (m)*	Maximum Runup Elevation (m) *	Inland Wave Propagation Distance (m)	Wave Uprush Allowance (m)
44	Duffins Creek Beach	80.52	80.05	Below Crest	15
45	Ajax Waterfront Park	77.47	77.3	Below Crest	15 †
46	Paradise Beach	76.62	78.2	7.1	15 †
47	Shoal Point Road	76.37	78.3	7.7	15
48	Carruthers Creek Beach	82.95	78.8	Below Crest	15
49	Ajax Lakeside Neighbourhood	79.30	79.8	3.7	15

\* These elevations are in CGVD, as per the datum for the LiDAR dataset. Add 8 cm to convert to IGLD85.

† Indicates that local deviations in the runup assessment were applied due to locally varied topography

## A.2 Erosion Hazard AARR and Stable Slope by Reach

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The table on the following page provides a summary of the data used in delineating the erosion hazard limit for each reach. Artificial shorelines typically do not have historical data that allows determination of an erosion rate and therefore a standard value of 0.3 m/yr was assigned in these cases. An erosion rate was not determined for the dynamic beaches; it was assumed they were generally stable.


**Appendix A2**  
**Erosion Hazard Data by Reach**

Reach	Name	Avg. Bank Height (m)	Stable Slope Ratio (x:1)	Stable Slope Allowance (m)	AARR, m/yr (with 1SD)	Erosion Allowance (m)	Erosion Hazard Allowance (m)	Notes
R1	Marie Curtis Park	3	3	9				Dynamic Beach
R2	Long Branch	3	3	9	0.22	22	31	From multiple property studies by Baird and Shoreplan. Baird studies for TRCA included review of many property developments over past 15 years, including eight properties on Lake Promenade, four on Lakeshore Blvd West, and one on Lake Crescent
R3	Colonel Samuel Smith Park	3	3	9	0.3	30	39	Artificial Shoreline (Type A)
R4	Mimico	4	3	12	0.3	30	42	at 2613 Lake Shore Blvd. See summary spreadsheet: P:\13579.101 TRCA Shoreline Hazard Mapping Update\05_Analyses\04 Erosion Hazard\Reach 04 Mimico - from 11791\
R5	Mimico Waterfront Sheltered	2	2.5	5	0.3	30	35	default; probably excessive, but shoreline is heavily altered and armoured
R6	Humber Bay Park	2	2.5	5	0.3	30	35	Artificial Shoreline (Type A)
R7	Humber Bay West Sheltered	4	3	12	0.3	30	42	default; probably excessive, but shoreline is heavily altered and armoured
R8	Humber Bay North - Gzowski-Sunnyside-MarilynBell	5	3	15	0.3	30	45	Mostly beach; no significant change 1970-2020. Breakwaters cannot be relied upon into the future so will apply default rate or erosion
R9	Ontario Place	4	3	12	0.3	30	42	Artificial Shoreline (Type A)
R10	Toronto Downtown and Harbourslands	2	2.5	N/A	0			Mostly vertical wall.
R11	Toronto Island - Hanlan's Point Beach	2	2.5	N/A				Dynamic Beach
R12	Toronto Island - Gibraltar Pt Centre Island Beach	2	2.5	N/A				Dynamic Beach
R13	Toronto Island - Centre Island Park	2	2.5	5	0.3	30	35	default; fully armoured (concrete wall) since at least the 1950s
R14	Toronto Island - Ward's Island Beach	1	2.5	N/A				Dynamic Beach
R15	Toronto Island - Airport	1	2.5	N/A	0.3	30		Artificial Shoreline (mostly vertical wall?)
R16	Toronto Island - Inner Islands	1	2.5	2.5	0.15	15	18	default; probably excessive as shoreline is sheltered
R17	Cherry Beach	1	2.5	N/A	0	0	0	Dynamic Beach. Mostly beach; large sand deposit in 1965 but removal of south anchor before 1978; minor reduction of sand 1978-2005; no change 2005-2020
R18	Tommy Thompson Park - Sheltered Inner	3	2.5	7.5	0.3	30	38	Artificial Shoreline (Type A)
R19	Tommy Thompson Park - Outer	3	2.5	7.5	0.3	30	38	Artificial Shoreline (Type A)
R20	Ashbridges Bay and Park Headland	4	3	12	0.3	30	42	Artificial Shoreline (Type A)
R21	Eastern Beaches	2	2.5	N/A				Dynamic Beach
R22	Fallingbrook	50	2	100	0.24	24	124	from Baird 13594 study at Toronto Hunt Club. Photos 1931-1965. AARR=0.18(ave)+0.06(SD)
R23	Birch Cliff	50	2	100	0.39	39	139	Type B shoreline - Lakefill in front of bluff face: West groins circa 1980; East revetment circa 1989 puts waterline typically 20m from toe of bluff; minor protection (short groins) as early as 1959 (1959_R5350A_L1_15.jpg). The 150m of top of bank change was measured using photos 1942-1980. AARR=0.29(ave)+0.10(SD)
R24	Birchmount	53	2	105	0.51	51	156	Major Groyne field, constructed circa 1986; minor protection (short groins) as early as 1959 (1959_R5350A_L1_16.jpg). The 116 m of top of bank change was measured using photos 1942-1980. AARR=0.40(ave)+0.11(SD)
R25	Rosetta McClain and Scarborough Heights Park	50	1.7	85	0.68	68	153	Type B shoreline - Lakefill in front of bluff face: in the West some very minor protection (short groins) as early as 1959 (1959_R5350A_L1_16.jpg); more minor protection visible in 1978; major revetment started in 1992, ongoing in 1993 and 1998. This 1956-1980 photo analysis focuses on the East half of the reach, where it was unprotected at the time. AARR=0.36(ave)+0.32(SD)
R26	Scarborough Crescent Park	53	1.7	89.25	0.47	47	136	Reach is less than 300 m in length. Photos from 1959-2020. AARR=0.38(ave)+0.09(SD)
R27	Bluffer's Park	48	1.8	85.5	0.3	0	86	Artificial Shoreline (Type A)
R28	Bluffer's Park Beach - Cathedral Bluffs Park	93	1.8	166.5				Dynamic Beach
R29	Cudia Park	78	1.8	139.5	0.59	59	198	A large gully eliminates much of the top of bank from comparison. Photos 1959-2020. AARR=0.39(ave)+0.20(SD)
R30 (a)	Scarborough Village and Guild Park Sub-reach A Meadowcliffe Drive (630 m)	55	1.8	99	0.47	39	138	New structure built in 2013: 4 shore-connected shore-parallel structures with 3 cobble beaches. Photos 1956-1998. AARR=0.28(ave)+0.19(SD). See Appendix D
R30 (b)	Scarborough Village and Guild Park Sub-reach B North of Bellamy Ck. (330 m)	55	1.8	99	0.47	27	126	Poorly constructed rubble shoreline built from construction rubble. Photos 1956-1998. AARR=0.28(ave)+0.19(SD). See Appendix D



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**Erosion Hazard Data by Reach**

Reach	Name	Avg. Bank Height (m)	Stable Slope Ratio (x:1)	Stable Slope Allowance (m)	AARR, m/yr (with 1SD)	Erosion Allowance (m)	Erosion Hazard Allowance (m)	Notes
R30 (c)	Scarborough Village and Guild Park Sub-reach C Sylvan Ave. (760 m)	53	1.8	95.4	0.47	32	127	Armourstone (4-6 tonne) headlands and pocket beaches of concrete rubble with a cobble surface layer that reshapes during larger wave events. Photos 1931-1998. Photos showed AARR=0.23(ave)+0.08(SD). Later adopted Reach 30a/b values. See Appendix D.
R30 (d)	Scarborough Village and Guild Park Sub-reach D South Marine Dr to Livingston Rd (1100 m)	48	1.8	86.4	1.80	35	121	Type B shoreline. Revetment built in 1992 with limited toe stone to accommodate downcutting of the lakebed. Photos 1946-1983. AARR=1.44(ave)+0.36(SD). See Appendix D
R30 (e)	Scarborough Village and Guild Park Sub-reach E Guild Park (900 m)	48	1.8	86.4	0.96	35	121	Type B shoreline. Revetment with significant repair of slumps and erosion areas were repaired in 2009. Poorer condition than the rest of reach. Photos 1946-1989. AARR=0.74(ave)+0.22(SD). See Appendix D.
R31	Guildwood and Grey Abbey Park	33	1.8	58.5	0.34	34	92	Type B shoreline for about half (West half) of shoreline; Erosion rate derived from East end of reach. Photos 1981-2020. AARR=0.23(ave)+0.11(SD)
R32	East Point - West	20	1.8	36	0.21	21	57	Erosion rate derived from West half of reach. Photos 1959-2020. AARR=0.16(ave)+0.05(SD)
R33	East Point - East	23	1.8	40.5	0.34	34	74	Erosion rate derived from West half of reach, closest to East Point. Photos 1959-2020. AARR=0.29(ave)+0.05(SD)
R34	Highland Creek Beach	13	1.8	N/A				Dynamic Beach
R35 (a)	Port Union	5	3	13.5	0.20	20	33	from previous Baird project 12933. Photos 1950-2017. AARR=0.15(ave)+0.05(SD)
R35 (b)	Port Union (north 500 m)	5	3	13.5	0.20	12	26	North 500 m of shoreline protected by offshore breakwaters built at some point between 2009-2013 (assume 2011). Photos 1950-2017. AARR=0.15(ave)+0.05(SD)
R36	Rouge River Beach	10	2	N/A				Dynamic Beach
R37	Petticoat Creek CA and Rosebank Neighbourhood	20	2	40	0.20	20	60	The 1977 photo was acquired on Nov. 22, not Spring as is typical. Photos 1977-2020. AARR=0.15(ave)+0.05(SD)
R38	Petticoat Creek Beach	2	2.5	N/A				Dynamic Beach
R39	West Shore Neighbourhood	15	2	30	0.19	19	49	Mostly shore protection from 1954-1983; East transitions to dynamic beach; 1989-2020 is a short time period but it has the protection has been removed. Photos 1989-2020. AARR=0.15(ave)+0.04(SD)
R40	Frenchman's Bay Beach	2	2.5	N/A				Dynamic Beach
R41	Frenchman's Bay	2	2.5	5	0		5	Sheltered Bay, shallow shores, no erosion of consequence, other than local stable slope
R42	Pickering Nuclear Power Plant	2	2.5	5	0.3	30	35	Artificial Shoreline (Type A)
R43	Brock Industrial	11	2	22	0.37	37	59	from 13640, reach A West (Frisco Road). Photos 1981-2020. AARR=0.34(ave)+0.03(SD)
R44	Duffins Creek Beach	4	2.5	N/A				Dynamic Beach
R45	Ajax Waterfront Park	11	2	22	0.36	36	58	from Baird TRCA/Ajax study (13640), reaches B & C. Photos 1972-2020. AARR=0.35(ave)+0.01(SD)
R46	Paradise Beach	2	2.5	N/A				Dynamic Beach
R47	Shoal Point Road	2	2.5	5	0.19	19	24	Short (150m) section of unprotected shoreline shows 6 metres erosion; entire reach is only 370 m; Bounded by dynamic beaches, most of shoreline is armoured; consistent with adjacent reach 49. Photos 1972-2020. AARR=0.13(ave)+0.06(SD)
R48	Carruthers Creek Beach	2	2.5	N/A				Dynamic Beach
R49	Ajax Lakeside Neighbourhood	10	2	20	0.14	14	34	from Baird TRCA/Ajax study (13640), reach E. Photos 1972-2020. AARR=0.12(ave)+0.02(SD)

Colour Legend	
Dynamic Beach	
Default AARR	