SUPPLEMENTARY MATERIAL

Table S1. Summary of land use area (hectare) and percentages in each watershed and the waterfront of Toronto and Region Conservation Authority's (TRCA) jurisdiction.

Land Use	**Watershed** Ha (% of jurisdiction)										
	Etobicoke	**Mimico**	**Humber**	**Don**	**Highland**	**Rouge**	**Petticoat**	**Duffins**	**Carruthers**	**Waterfront**	**Jurisdiction**
Natural	2,744 (12.3)	679 (9.2)	29,545 (32.5)	4,805 (13.5)	1,116 (10.5)	8,231 (24.5)	660 (27.3)	11,533 (40.9)	973 (24.5)	1,621 (12.0)	61,908 (24.9)
Rural	6,169 (27.7)	787 (10.7)	36,955 (40.6)	4,483 (12.6)	1,322 (12.5)	14,017 (41.8)	1,231 (50.9)	13,204 (46.9)	1,596 (40.3)	1,239 (9.2)	81,003 (32.6)
Urban	13,336 (59.9)	5,904 (80.1)	24,523 (26.9)	26,388 (74.0)	8,146 (77.0)	11,283 (33.6)	526 (21.8)	3,436 (12.2)	1,396 (35.2)	10,664 (78.8)	105,602 (42.5)

Table S2. Summary of the two hybrid scenarios, detailing the percentage of TRCA's jurisdiction selected and its breakdown into unique and overlapping areas of the regional and watershed-level solutions.

Hybrid Scenario	**Watershed** Ha (% of jurisdiction)										
Regional – 40% Watershed – 40%	**Etobicoke**	**Mimico**	**Humber**	**Don**	**Highland**	**Rouge**	**Petticoat**	**Duffins**	**Carruthers**	**Waterfront**	**Jurisdiction**
Overlap	5,958 (2.4)	1,494 (0.6)	50,962 (20.5)	9,472 (3.8)	2,600 (1.0)	14,523 (5.8)	1,397 (0.6)	18,059 (7.3)	1,911 (0.8)	3,355 (1.3)	109,731 (44.1)
Regional	0 (0.0)	0 (0.0)	22 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (0.0)	3 (0.0)	1 (0.0)	1 (0.0)	26 (0.0)
Watershed	1,889 (0.8)	1,455 (0.6)	65 (0.0)	4,286 (1.7)	1,559 (0.6)	0 (0.0)	0 (0.0)	8 (0.0)	54 (0.0)	12 (0.0)	9,355 (3.8)
Regional – 50% Watershed – 40%											
Overlap	6,464 (2.6)	1,563 (0.6)	50,989 (20.5)	9,962 (4.0)	2,609 (1.0)	14,528 (5.8)	1,400 (0.6)	18,063 (7.3)	1,931 (0.8)	3,355 (1.3)	110,865 (44.6)
Regional	173 (0.1)	0 (0.0)	5,281 (2.1)	2 (0.0)	0 (0.0)	1,978 (0.8)	178 (0.1)	2,030 (0.8)	189 (0.1)	11 (0.0)	9,843 (4.0)
Watershed	1,383 (0.6)	1,386 (0.6)	38 (0.0)	3,796 (1.5)	1,550 (0.6)	19 (0.0)	0 (0.0)	4 (0.0)	34 (0.0)	12 (0.0)	8,221 (3.3)

Table S3. Natural Heritage System values of criteria for input into Marxan.

Category	Criteria Name	Field Name	Value	Description
Terrestrial	Avian habitat suitability: ground-nesting	HSA_Av_Gro	0-100	Habitat suitability values for a functional trait group from low to high (0-100)
	Avian habitat suitability: aerial insectivore	HSA_Av_Aer		
	Avian habitat suitability: forest canopy	HSA_Av_FC		
	Avian habitat suitability: forest insectivore	HSA_Av_FIn		
	Avian habitat suitability: grassland	HSA_Av_Gra		
	Amphibian habitat suitability: arboreal	HSA_Am_Arb		
	Amphibian habitat suitability: swamp	HSA_Am_Swa		
	Amphibian habitat suitability: woodland	HSA_Am_Woo		
	Amphibian habitat suitability: wetland	HSA_Am_Wet		
	Regional connectivity: percentile	ConnAmAv_P	0-20 20-40 40-60 80-100	Connectivity importance (0 - low, 100 - high) summarized by percentile bins
	Alpha diversity: avian	ADiv_Av	0-100	Alpha diversity measured as species richness within 1-km grids (Standardized from low to high 0 - 100)
	Alpha diversity: flora	ADiv_Fl		
	Alpha diversity: ELC	ADiv_ELC		
	Beta diversity: avian	BDiv_Av	0, 100	Presence of significant

	Beta diversity: flora	BDiv_Fl		areas of beta diversity
	Beta diversity: ELC	BDiv_ELC		measured as species turnover within 1-km grids (100)
Aquatic	Reach contributing area (RCA) natural cover	RCA_Pct_NC	0-100	Percentage of natural cover (forest, wetland, meadows) in a 125-ha drainage area
	Reach contributing area (RCA) forest natural cover	RCA_Pct_Fo	0-100	Percentage of forest natural cover in a 125-ha drainage area
	Ecologically Significant Groundwater Recharge Areas (ESGRA)	Pct_ESGRA	0-100	Percent ESGRA in planning unit
	Fish habitat suitability: coldwater	HSA_Fi_Cld	0-100	Habitat suitability values for a
	Fish habitat suitability: continuous slow flow	HSA_Fi_CSF	0-100	functional trait group from low to high (0-100)
	Fish habitat suitability: strong flow	HSA_Fi_str	0-100	
	Fish habitat suitability: warmwater	HSA_Fi_wrm	0-100	
Municipal Natural Heritage System	Municipal NHS	NHS_M	0, 100	Identified municipal NHS area in planning unit (100)
Locked-in Features and Areas	Floodplain: engineered	FloodEngin	0, 100	Presence of floodplain - engineered (100) in planning unit
	Floodplain: estimated	FloodEstim	0, 100	Presence of floodplain - estimated in planning unit (100)

Crest of Slope	CrestSlope	0, 100	Presence of crest of slope (100)
Area of Natural Scientific Interest (ANSI)	ANSI	0, 100	Presence of an Area of Natural Scientific Interest (ANSI) in planning unit (100)
Provincially Significant Wetland	WetlandSig	0, 100	Presence of a Provincially Significant Wetland in planning unit (100)
Oak Ridges Moraine - Core	ORM_Core	0, 100	Presence of Oak Ridges Moraine core area in planning unit (100)
Oak Ridges Moraine - Corridor	ORM_Corrid	0, 100	Presence of Oak Ridges Moraine corridor in planning unit (100)
City of Toronto's Environmentally Significant Area (ESA)	Toronto_ES	0, 100	Presence of City of Toronto's ESA in planning unit (100)
Natural Cover	NC	0, 100	Presence of natural cover (wetland or forest, or natural cover within 5-km buffer of shoreline) (100)
Watercourse (10-m buffer)	Watercours	0, 100	Presence of watercourse within 10-m buffer in planning unit (100)

Table S4. Land use designated as built and unbuilt for the tiered classification of the target Natural Heritage System (NHS) using TRCA's land use (2017) [56].

Land use type	Classification
Airport	Built
Cemetery	Built
Commercial	Built
Conservation Lands	Unbuilt
Estate Residential	Built
Farm	Unbuilt
Federal Park	Unbuilt
Golf Course	Built
Hydro Corridor	Unbuilt
Industrial	Built
Institutional	Built
Open Space	Unbuilt
Park	Unbuilt
Recreational	Built
Residential High	Built
Residential Low-Med	Built
Road (ROW)	Built
Rural Residential	Built
Transportation	Built
Water	Unbuilt

REFERENCES

56. Toronto and Region Conservation Authority (TRCA). *TRCA Land Use (2017)*; Toronto and Region Conservation Authority (TRCA): Vaughan, ON, Canada, 2017.