

## Infrastructure Summary of Climate Change Vulnerability Issues

Sector	Issue	Monitoring Data	Vulnerability	Recommendations	Legislation, Governance	Education
<b>Municipal</b>						
Stormwater Systems	Unexpected Flash Floods, Heavy Rainstorms	2-5, 10- year return; no longer viable; inadequate, non-existent trend data; scale needs variance (large, small urban, rural)	Water Capacity inadequate, aging systems	Larger Pipes, Ponds, worst case planning	OBC, NBC, ICLR, engineering sector (PIEVC) partnerships, collaboration, improved standards (LEED); development and implementation of master plans for the settlement areas in the Lake Simcoe	Consumer awareness re: conservation, re-use, insurance provisions, safety, home maintenance, system upgrades, climate change impacts
Drainage Systems	Unexpected Flash Floods, Heavy Rainstorms, permeability, new development		Surface Permeability, System capacity, runoff pollution, aging systems	Permeable surfaces, larger ponds, improved systems (innovative technology)		
	Flooding – insurance limits		Uninsured events, property loss, safety	Partnerships, communications with insurance industry		
Roads, Bridges	Unexpected Flash Floods, Heavy Rainstorms, roads, bridges impassable,	System failure - impermeability, wash-out, mobility, safety, property damage, pollution	Maintenance review, improved systems, permeable surfaces, RWIS and other monitoring systems			
	Icing	Safety, property damage,				

			chemical pollution			
Utilities	Development, growth pressure, icing, heavy storms, extreme heat, flooding		System failure – wash-out, severe storms, line sag (heat induced), icing	Planning, coordination among sectors, improved, upgraded systems (LEED), higher standards and greater redundancies		
<b>Buildings</b>						
Building Code	Building Code does not have specific objectives re: climate change adaptation, structural integrity; environmental protection re: septic systems.	MMAH works with the federal agencies in updating the climatic tables that are in the Code to inform the design of structural and building envelope elements	Current model does not recognize observed trends over the interval period of the data or project future trends based upon climate change assumptions	MMAH has met with ICLR to discuss issues in regard to the protection of new and existing buildings in the face of extreme weather events resulting from climate change.	The next edition of the Building Code, expected at the end of 2011, is under development	Training for building officials, developers, trades
<b>Agriculture</b>						
Drainage	Unexpected Flash Floods, Heavy Rainstorms		Drain, culvert capacity; flooding of fields, buildings, property damage			Public education for agricultural sector players, farmers, etc.

Field run-off, erosion	Unexpected Flash Floods, Heavy Rainstorms		Loss of arable land, animals, property damage, potable water pollution (streams, wells)			
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