

**Table D.2.9.1 Monitoring Program – Part A: Creek Systems**

Monitoring Stage	Phase	Proponent	Items to be Monitored	Time Frame
System Monitoring		Municipality or Public Agencies with Jurisdiction and/or Local Citizen Groups	Streamflow levels, groundwater levels, water temperature, erosion, vegetation, wildlife, water quality (surfacewater and groundwater), benthics and fisheries (if required).	Ongoing
During Development Monitoring	Pre-Development Phase	Developer	Surfacewater and groundwater (monitor levels and analyze samples), buffers, fisheries and benthics (if required).	To be proposed and approved at Draft Plan submission stage. Program must be conducted for at least two seasons prior to construction and will continue until the end of the guarantee period. A summary report is to be submitted at the detailed design stage.
	During Construction Phase	Developer	Erosion and sediment control measures, buffers.	To be proposed with the detailed design submission (erosion, sediment control plan and landscape plan). Weekly reports are to be submitted to the City during active construction (checklist style) from start of grading until completion of base asphalt).
	Guarantee Period Phase	Developer	Performance of at-source and conveyance infiltration facilities, end-of-pipe facilities, buffers.	To be proposed with the detailed design submission. Annual reports are to be submitted to the City. Continues from the end of the during construction phase to the end of the guarantee period (2 years from substantial completion of areas tributary to the pond), provided that performance is satisfactory.
Post Development Monitoring		Municipality and Region	Performance of stormwater management facilities. Wildlife, vegetation, benthics, fisheries.	To be submitted with the final Guarantee Period report ,and will recommend exactly what monitoring activities will be required. Ongoing.

**Table D 2.9.1 Monitoring Program – Part B: Natural Heritage System Monitoring**

Category	Feature / System	Parameters	Locations	Monitoring Evidence	Adaptive Management Response	Responsibilities & Resources
Natural Heritage System – Terrestrial Component	PSWs	<ul style="list-style-type: none"> <li>Boundary integrity &amp; revisions.</li> <li>Buffer and setback condition.</li> <li>Based on air photo review and field reconnaissance.</li> </ul> <p>Frequency: Every 5 years or as part of Official Plan Reviews; opportunistically as part of development-related studies.</p>	All PSW, ESPA, LSNA boundaries	<ul style="list-style-type: none"> <li>Encroachments into boundaries.</li> <li>Inappropriate buffer uses.</li> </ul>	<ul style="list-style-type: none"> <li>Review Zoning requirements.</li> <li>Inform landowner(s) of boundary and buffer requirements.</li> <li>Initiate restorative actions.</li> </ul>	Lead Agency: City Other Partners: GRCA, Region Affected landowners; Development proponents.
		<ul style="list-style-type: none"> <li>Ecological integrity including known physical and biological attributes.</li> <li>Problem species.</li> <li>Overall diversity of species and habitats.</li> <li>Based on field studies in growing season.</li> <li>Permanent monitoring plots would greatly facilitate.</li> </ul> <p>Frequency: Every 5 years or as part of Regional Official Plan Reviews; opportunistically as part of development-related studies.</p>	All PSW, ESPA, LSNA areas	<ul style="list-style-type: none"> <li>Loss of quality species/habitat diversity.</li> <li>Invasion of problem species.</li> <li>Degradation of physical environment. (e.g., erosion, sedimentation, soil compaction, alteration of hydrology).</li> </ul>	<ul style="list-style-type: none"> <li>Initiate management study to determine causes and appropriate actions/options to deal with identified problems.</li> <li>Identify and correct sources of physical degradation.</li> </ul>	Lead Agency: City Other Partners: City; Region, affected landowners; Development proponents; naturalist groups community stewards; CWIP Program.
	Upland Forest	<p><b><u>Rural Area</u></b></p> <ul style="list-style-type: none"> <li>Review of rural forest boundary, area.</li> <li>Review integrity of key physical &amp; biological attributes.</li> <li>Problem species.</li> <li>Review of current forestry operations and practices.</li> <li>Based on air photo analysis supplemented by field studies in growing season.</li> <li>Permanent monitoring plots would greatly facilitate.</li> </ul> <p>Frequency: Every 5 years or as part of Official Plan Reviews; opportunistically as part of development-related studies.</p>	Rural woodlots	<p><b><u>Rural Area</u></b></p> <ul style="list-style-type: none"> <li>Encroachments into boundaries.</li> <li>Loss of species/habitat diversity.</li> <li>Significant diseases.</li> <li>Unsustainable forestry practices.</li> <li>Invasion of problem species.</li> <li>Degradation of physical environment. (e.g., erosion, sedimentation, soil compaction, alteration of hydrology)</li> </ul>	<ul style="list-style-type: none"> <li>Initiate management study to determine causes and appropriate actions/options to deal with identified problems.</li> <li>Identify and correct sources of physical degradation.</li> </ul>	Lead Agencies: City Other Partners: Region, affected landowners; Development proponents; MNR, naturalist groups and community stewards; CWIP program.

**Table D 2.9.1 Monitoring Program – Part B: Natural Heritage System Monitoring**

Category	Feature / System	Parameters	Locations	Monitoring Evidence	Adaptive Management Response	Responsibilities & Resources
		<p><b>Urban Area</b></p> <ul style="list-style-type: none"> <li>Review of forest integrity, buffer effectiveness, and human activity impacts.</li> <li>Field assessment in growing season.</li> <li>Permanent monitoring plots would greatly facilitate.</li> </ul> <p>Frequency: Annual ‘walk-throughs’; detailed review every 5 years or as part of Official Plan Reviews; opportunistically as part of development-related studies.</p>	Urban woodlots	<p><b>Urban Area</b></p> <ul style="list-style-type: none"> <li>Encroachments into boundaries.</li> <li>Inappropriate buffer uses.</li> <li>Loss of species/habitat diversity.</li> <li>Invasion of problem species.</li> <li>Degradation of physical environment. (e.g., erosion, sedimentation, soil compaction, alteration of hydrology)</li> </ul>	<ul style="list-style-type: none"> <li>Initiate management study to determine causes and appropriate actions/options to deal with identified problems.</li> <li>Identify and correct sources of physical degradation.</li> </ul>	<p>Lead Agency: City</p> <p>Other Partners: affected landowners; Development proponents; naturalist groups and community stewards; CWIP program.</p>
	Corridors & Linkages	<p><b>Rural Corridors &amp; Linkages</b></p> <ul style="list-style-type: none"> <li>Compare current rural corridors and linkages with those reported in this study.</li> <li>Air photo analysis supplemented by ground truthing.</li> <li>Permanent monitoring plots would greatly facilitate.</li> </ul> <p>Frequency: Every 5 years or as part of Official Plan Reviews; opportunistically as part of development-related studies.</p>	All SWS Plan identified corridors and conceptual linkages	<p><b>Rural Corridors &amp; Linkages</b></p> <ul style="list-style-type: none"> <li>Loss of connectivity.</li> <li>Disease or damage to corridor elements.</li> <li>Degradation of physical environment along stream corridors.</li> </ul>	<ul style="list-style-type: none"> <li>Initiate corridor re-establishment through co-operative actions.</li> <li>Identify and correct sources of physical degradation.</li> </ul>	<p>Lead Agencies: City</p> <p>Other Partners: GRCA, Region, affected landowners; Development proponents; stewardship groups; MNR; CWIP program.</p>
		<p><b>Urban Corridors &amp; Linkages</b></p> <ul style="list-style-type: none"> <li>Review of urban corridors and linkages.</li> <li>Field assessment in growing season.</li> <li>Permanent monitoring plots would greatly facilitate.</li> </ul> <p>Frequency: Annually; integrated review during Official Plan Reviews; opportunistically as part of development-related studies.</p>	All SWS Plan identified corridors & conceptual linkages	<p><b>Urban Corridors &amp; Linkages</b></p> <ul style="list-style-type: none"> <li>Loss of connectivity.</li> <li>Disease or damage to linkage elements.</li> <li>Degradation of physical environment along stream corridors.</li> </ul>	<ul style="list-style-type: none"> <li>Initiate re-planting and disease management strategies.</li> <li>Consult with local residents/users.</li> <li>Identify and correct sources of physical degradation.</li> </ul>	<p>Lead Agency: City</p> <p>Other Partners: GRCA, residents and users; Development proponents; stewardship groups.</p>