

Reviewer Affiliation	Reviewer (F. Lastname)	Comment #	EMG Section	Page #	Type of Comment 1 - Policy 2 - Format 3 - Science 4 - Process	Comment and Suggested Action	Responder Affiliation	Responder (F. Lastname)	Status Green - Closed Yellow - Pending Red - Open	1 - Incorporated 2 - Information Required 3 - Not	Response Comment
						<b>HIGH PRIORITY COMMENTS FORMATTED BELOW IN RED</b>					
		1	All sections	N/A	3	The working group recommends that a supplementary document be included as an appendix to the EMGs which lists secondary sources that are relevant to the revision of the EMGs. These sources may include but are not limited to peer-reviewed scientific studies, municipal studies (e.g. subwatershed studies by the City), comparable documents from other municipalities, sources of ecological data including citizen science databases.					
EEPAC	Working Group	2	All sections	N/A	1	The EMGs should be reviewed (but not necessarily rewritten) at minimum every 5 years. The frequency of this review should reflect changing conditions due to the effects of climate change (e.g. weather patterns, species shifts, species stress, greater predominance of invasive species, etc.). More regular updating will enable the document to remain consistent with current science and best practices adopted in the province and other comparable municipalities.					
EEPAC	Working Group	3	2	44	4	Recommend considering the development of a separate, more detailed guideline section for monitoring that includes specific monitoring protocols for various taxa (e.g. time(s) of year, time(s) of day) what to look for, how to look), based on current best practices. This would standardize the monitoring rather than leaving to the discretion of individuals +/- or companies hired/engaged by the city, which results in data collection practices that may not be comparable with future/past studies, thus making interpretation of results and assessment of pre/post monitoring difficult. The preamble of the 2007 EMG acknowledges that, "The practice of environmental management requires a systematic approach which follows a predictable and traceable pattern. ...use of a consistent template...", which supports the above recommendation.					
EEPAC	Working Group	4	2	N/A	1	Data collected through pre- and post- construction monitoring should be retained by the city and made available for subsequent review upon request.					
EEPAC	Working Group	5	All sections	N/A	3	The EMGs must take a landscape approach to area analyses. Ecosystems rarely stand alone and species frequently cross between areas. If the City is seeking to boost connectivity and work against fragmentation, consideration should be made towards assessing how development or other activities might affect the links to other areas and how there may be greater knock on effects within the City and beyond.					
EEPAC	Working Group	6	All sections	N/A	3	For reviewing ecological features and functions of sites, there needs to be a section which identifies and defines the system that the site/feature of study fits within (e.g. single water feature within a subwatershed) including relationships with other features outside the direct scope of the study, and the impact of development on the system. If data is deficient, this should be explicitly acknowledged.					
EEPAC	Working Group	7	All sections	N/A	2,3	Somewhere in the EMGs, definitions should be included for environmental and/or ecological features and functions. This will clarify ambiguity in current language					
EEPAC	Working Group	8	2	44	3,4	Where appropriate, pre- and post- development monitoring and ecological inventories should span across 5 seasons, including during wintertime. Certain ecological functions of a site may be evident in wintertime but not at other times of the year (e.g. providing habitat for overwintering species of mammals or raptors) and are thus not captured by standard 3-season inventory. However, 5-season inventory may not be necessary in all cases, so the frequency of monitoring should be decided on a site-by-site basis (Merrick Sharpe, North-South Environmental Inc., pers. comm. Nov 11 2019). We therefore recommend this section be revised to indicate that number of site visits be determined based on characteristics of a given site and appropriate number of site visits determined and justified accordingly, along with the type of inventories to be done and standardized protocols to be followed (e.g. follow Migratory Bird Survey, Breeding Bird Survey, Frog and Amphibian Survey protocols from Bird Studies Canada due to presence of birds and amphibians at initial site visit, respectively)					
EEPAC	Working Group	9	2	N/A	1	Data collection standards for ecological inventory require more specificity regarding protocols and methodologies. Where available, additional sources of local data should be considered, such as citizen science databases, consultation with local nature groups (e.g. data on species present, which might not necessarily be found during short-term monitoring). See secondary sources sheet for suggestions of citizen science databases and other resources.					
EEPAC	Working Group	10	44	2	4	"Inventory Protocol" generally lacks detail/specificity. Suggested edit (in bold): 2) Spring (May) Target Species - Frogs, migratory birds, <b>spring ephemeral flora</b> . Special time requirements - warm spring evenings using road-side survey for frogs <b>Special time requirements - 5:00 to 10:00 a.m. for migrating and breeding bird survey; dusk and night visits for twilight and nocturnal species (e.g. American Woodcock, Common Nighthawk, owls)</b> 3) Early Summer (June) Target Species - Breeding Birds, spring ephemeral flora, forestry, vegetation community, fish habitat, <b>butterflies/caterpillars, other insect monitoring</b> Special time requirements - 5:00 to 10:00 a.m. for breeding bird survey <b>Special time requirements - dusk and night visits for twilight and nocturnal species (e.g. American Woodcock, Common Nighthawk, owls)</b> 4) Summer (mid-July / early August) Target Species - ELC field data collection, wildlife habitat, summer flora, wetland species, prairie species, butterflies Special time requirements - none <b>Note: If collecting bird breeding data, bird surveys including species counts (and ages i.e. adult/juvenile) should still be completed between dawn and ~10:00 am.</b>					
EEPAC	Working Group	11	6	144	3	This is not true in 2019. Delete the statement "Many of the alien species that grow in southern Ontario do not pose a threat to natural area". Please refer UTRCA, Ontario Invasive Plants Council					
EEPAC	Working Group	12	5	N/A	3	EMG section 5 on buffers should be updated to reflect current science. For best practices within Ontario recommended by this group, see Beacon 2012 document (in secondary sources sheet).					
EEPAC	Working Group	13	2	N/A	3	Monitoring of water courses should include BioMAP (Bioassessment of Water Quality) methodology and protocol that was developed by Ronald W. Griffiths, Ph.D. at the Centre for Environmental Training Niagara College, Glendale Campus Niagara-on-Lake, Ontario. If BioMAP is not used for monitoring aquatic habitat, an acceptable alternative is using current protocols of Ontario Benthos Biodiversity Network (OBBN).					
						<b>LOWER PRIORITY COMMENTS LISTED BELOW IN BLACK FONT, ORDERED BY EMG SECTION/SUBTOPIC</b>					
EEPAC	Working Group	14	N/A	N/A	2	May be helpful to incorporate a functional flow chart at the beginning of the EMGs document showing process for following each section of the document					
EEPAC	Working Group	15	1	N/A	4	Specific wording is needed to address the following: How are EIS reviewed upon completion? e.g. Is there a checklist? What happens if an EIS report does not comply with the checklist? Can an EIS be deemed inadequate and provisionally sent back for revisions?					
EEPAC	Working Group	16	1	N/A	4	Provisions should be made for EISs and other studies to make reference to climate change and/or make it a prominent factor when analyzing development projects or when creating Conservation Management Plans. Already we see that the City now looks to build structures with the once-in-250-year storms as the new norm, when before they would consider the 100 year storm. It is perhaps something about which the City should be mindful in other areas and should expect developers to consider when putting together reports(i.e. regarding biodiversity, species disease, etc).					
EEPAC	Working Group	17	1	2	4	2.5 - send copy to EEPAC chair so that a working group can be established earlier in the process					
EEPAC	Working Group	18	1	2	4	update name - is it still Technical Review Advisory Team?					
EEPAC	Working Group	19	1	3	1	Background and Framework paragraph -update to most recent PPS, also there should be no development within significant areas, also is there still something called a DAR?					
EEPAC	Working Group	20	1	3	1	purpose should also include compensation					
EEPAC	Working Group	21	1	3	2	change "natural areas" to "components of the City's Natural Heritage System"(and where this term, NHS appears, it should be leading caps for each word)					
EEPAC	Working Group	22	1	3	1,2	Update to include London Plan policy # and in the last paragraph, line 6 should read "...ecological features and functions with respect..."					
EEPAC	Working Group	23	1	4	1	update Table A to current policies in London Plan.Also it should be noted that these distances should also trigger an SLSR					
EEPAC	Working Group	24	1	5	3	The City completed 13 Sub-watershed studies in 1995. BioMAP monitoring was used to establish ecological/environmental baseline conditions for open watercourses within these 13 sub-watershed studies. This monitoring was undertaken in 1993-1995 and from approximately 2000 until 2015. These data must be included along with current data collected, in all EIS where a watercourse may be affected.					
EEPAC	Working Group	25	1	5	4	section C SLSR - I am not aware Guidelines exist for the preparation of an SLSR.Are there?					

EEPAC	Working Group	26	1	5	4	the city often does not push to have qualifications included					
EEPAC	Working Group	27	1	6	4	pre consultation MUST or SHALL occur.Also, update DART to whatever it is called now					
EEPAC	Working Group	28	1	6	4	I am not aware of any time a residents group or Nature London has been invited to participate.This seems to be a good idea that should be retained and acted on					
EEPAC	Working Group	29	1	7	4	also refers to getting data from Nature London.A good idea that should be used going forward.					
EEPAC	Working Group	30	1	7	4	dated should be defined.Is it more than 5 years old?10 years?					
EEPAC	Working Group	31	1	7	2	maps - All maps should be one scale or similar maps must be the same scale to make comparisons between maps easier.					
EEPAC	Working Group	32	1	7	4	A figure showing the environmental management units/areas.Is this always done?If not why not?Certainly do not always get a clear picture of the existing conditions nor "how the functions/area may be measured and impacts quantified or qualified (e.g. change in area, predictions through modeling theories), nor the sensitivity of the area to potential development impacts.					
EEPAC	Working Group	33	1	8	4	Review of Issues Summary Checklist.Chair of EEPAC should get even if no EEPAC rep was able to attend the scoping meeting					
EEPAC	Working Group	34	1	8	4	Terms of Reference for Site Issues.EEPAC should be included in the process					
EEPAC	Working Group	35	1	9	4	I have never seen this sheet used.Is it?If so, is it effective.For ex, how do you know analytical methods have been appropriately documented?Should it be used and if so, does it need updating.					
EEPAC	Working Group	36	1	10	4	Site visit - include EEPAC representative					
EEPAC	Working Group	37	1	10	1	Scoped Site EIS must include a monitoring plan					
EEPAC	Working Group	38	1	10	3,4	Scoped Site EIS - If adopt the findings of McWilliams re encroachment and the approach in Beacon re buffers, there will need to be more work done on determining buffers and Critical Function Zones					
EEPAC	Working Group	39	1	11	4	last line first paragraph.Not sure this is ever done as the Environmental Management Plan is created well after this step in the approval process.It should be done at this step as the development should work around the constraints not the other way around					
EEPAC	Working Group	40	1	11	4	second para, re grade changes.Not aware this is done at this stage.Nor are changes in drainage patterns shown to my knowledge.					
EEPAC	Working Group	41	1	12	2	first para, change 'environment' to 'ecological features and functions'					
EEPAC	Working Group	42	1	12	2	under purpose.Direct and indirect impacts must be shown.Only some like AECOM, do this regularly					
EEPAC	Working Group	43	1	12	4	Pre development conditions needs more.Existing subsurface is only based on if it is a recharge area or not on one of the London Plan maps.					
EEPAC	Working Group	44	1	12	1	ID of Existing Impacts - Given the OP and London Plan say enhance, this should be given greater emphasis in the new EMG					
EEPAC	Working Group	45	1	12	4	The six items listed at the bottom are good, however, it is rarely actually done by consultants who prepare an EIS.Include in EMG and make it a requirement of submission					
EEPAC	Working Group	46	1	13-14	4	In 2013, EEPAC prepared an update to this page to make it more user friendly.I am not aware of how this current page is actually used and if not, why not?					
EEPAC	Working Group	47	1	13-14	4	more important would be how the proponent will avoid, mitigate or compensate for these impacts.Too often when included in an EIS, the claimed impacts are low.There is never a clear reason for this conclusion, nor is there any way to repair damage when the consultant gets it wrong.					
EEPAC	Working Group	48	1	15	4	Net Effects Assessment Table must be a required for each EIS.A sample in the new EMG would help (also the table on p. 21 should be included in the example).Rarely get a rationale for the conclusions of the net impact n analysis.It is usually just a statement (particularly for buffers).The city should make all EISs include a Table AND a) thru d) on this page.As well, there should be an e) which requires long term impacts, not just "post construction" which is an undefined time period, as well as cumulative impacts.The definition of negative impacts from the PPS must be included in the new Guideline(see page 30-32 Ottawa's 2015 EIS Guideline for an excellent example of content)					
EEPAC	Working Group	49	1	16	2	Not sure where this fits.Is it relevant in light of OPA 438?					
EEPAC	Working Group	50	1	17	2,4	never seen this used.Is there something better?Better science?Impacts will vary with type of feature depending on flora and fauna affected					
EEPAC	Working Group	51	1	18-19	2	This is pretty boilerplate.See it in all of AECOMs.This should be SOP by now.If not, it should be included as such.As well as Clean Equipment protocol.Should also add some limit on how long and how far from a feature soils can be left uncovered.Or that there should be a protocol to cover soil piles if heavy rains are forecasted.Also, the use of nitrate heavy grass seeding should be prohibited					
EEPAC	Working Group	52	1	20	2	Interesting, but how does it get translated into a monitoring program and what happens when things happen, like gates appearing on fences?If this page is retained, it needs to be incorporated into requirement of the EIS that the proponent must include how it will avoid or mitigate these specific impacts.There should be clear criteria in the new EMGs for Environmental Management Plans or a separate Guideline					
EEPAC	Working Group	53	1	21	4	Including this or an up-to-date version in the EIS with the Net Effects Assessment Table should be required as it will give everyone reviewing the table a common vocabulary.Right now, when impacts are listed in a Net Effects Assessment Table, the rationale seems to either be missing or is superficial					
EEPAC	Working Group	54	1	21	3	elimination of habitat (loss of open meadow where Meadowlarks breed for example) should be a high net effect.As should be the loss of any flora or fauna that is regionally rare or rarer.Not sure if this is meant to include a sub population like false rue or breeding pair habitat or cutting down the only shrub in that location.Need to define terms such as rare, unusual, uncommon					
EEPAC	Working Group	55	1	22	4	first full paragraph refers to detailed explanation.This has never been the practice.It should change if this section is to have any meaning.					
EEPAC	Working Group	56	1	22	4	other than trail development which seems to be in Woodland Management Plans (which are rare), none of the mitigation measures have been implemented.The examples are good, the follow through needs to be part of development agreements.					
EEPAC	Working Group	57	1	22	4	last line of the page.This has never been done to the best of my knowledge.This is an implementation issue that the City should address in its development and subdivision agreements					
EEPAC	Working Group	58	1	23	4,2	First paragraph and bullets can be deleted.The intent was to have monitoring until assumption.Why has it defaulted to three years?Monitoring needs to specify who does, for how long (which may vary by type of development and the component of the NHS) and who pays.EIS should propose appropriate thresholds or benchmarks for monitoring purposes; Identify who will be responsible for monitoring, and the reporting structure required to ensure that results are acted upon as needed; and outline contingency plans if an impact is detected or if the proposed thresholds are not met (which means there should be holdbacks in case the mitigation measures fail during the monitoring period).Monitoring should include performance monitoring.That means what should be required are targeted, site-specific parameters that can be measured and linked to site-specific changes.					
EEPAC	Working Group	59	1	24	2,4	Second "purpose" box - never seen this happen.Means the EIS was not accepted.But the quality of an EIS is irrelevant in planning processes.Simply submitting one meets the city's requirements.I retain this section, need to provide examples of unacceptable impacts.Is it from the table showing no, low, med and high impacts?					
EEPAC	Working Group	60	1	25	4	First paragraph - Maps must always be at the same scale.Somewhat this doesn't get demanded					
EEPAC	Working Group	61	1	25	4	City Ecologist sign off on mitigation measures shall be required.A full description of proposed mitigation measures, including recommendations for timing windows or other specifications for implementation, for all potential negative impacts; For each negative impact, an indication of whether there will be any residual impact following implementation of the recommended mitigation measure(s); A description of proposed restoration or enhancement plans to compensate for impacts that cannot be avoided or minimised;Maps and/or drawings (if relevant) depicting the location, extent, and design details of proposed mitigation measures (e.g., sediment and erosion control plan)					
EEPAC	Working Group	62	1	25	4	Peer review should be a possibility for any development, not just large scale ones.Not sure why this should be at the City's cost given there is a problem with the proponent's work.I have seen a Peer Review once in the last 7-10 years					
EEPAC	Working Group	63	1	26	2,4	Is this form even used?Who signs off if it is in use?Do the subwatershed study targets get used?					
EEPAC	Working Group	64	1	27	2	EIS must include the findings of other reports.The other reports are part of the package and are required to be submitted in order for a filing to be considered complete					
EEPAC	Working Group	65	1	27	1,4	Development conditions are important.From what I have seen in reports from Development Services, there are references to implementing recommendations of the EIS.However, the EIS is often "incomplete" as it recommends the preparation of an Environmental Management Plan.Does that become a condition of development?Should it be part of an h-2 holding provision?Guelph also requires from time to time, an EIR (Environmental Implementation Report).It includes items such as how the conditions of approval have been met, how the protection of features and their functions have been protected,etc (Guelph, Guidelines for the Preparation of an EIS, 2017)					
EEPAC	Working Group	66	1	28	2	See Appendix 6, Ottawa 2015 EIS Guidelines for a possible replacement					
EEPAC	Working Group	67	1	29	2,4	If the development is adjacent to the City boundary, maps and photos must show the features that are on the other side of the border					
EEPAC	Working Group	68	1	30	3	Add to 1.2.5, sensitive flora, Coefficients of conservatism greater than or equal to 6, add to 1.2.6 Partners In Flight, 1.2.6 how is rare defined - regionally rare?					
EEPAC	Working Group	69	1	31	1	1.2.7 update to Significant Wildlife Habitat for Ecoregion 7E					

EEPAC	Working Group	70	1	32	1	Update PPS reference.2.1.2 in the current PPS has more on connections and linkages.This should mean an EIS looks beyond the subject lands.How else can you do ecosystem planning?								
EEPAC	Working Group	71	1	32	2	not sure 1.3 needs to be in a scoping list								
EEPAC	Working Group	72	1	33	1	update to London Plan language.1.4 use endangered, threatened and special concern.Include Federal and Provincial								
EEPAC	Working Group	73	1	34	2	3.2 add hydro period , delete 3.4 (never used)								
EEPAC	Working Group	74	1	36	2	update definitions of the categories of species at risk (endangered, threatened, species of concern)								
EEPAC	Working Group	75	1	37	1	If retain, this needs to be updated to reflect current policies.For example, an EA in London now requires an EIS as part of the submission of an ESR.								
EEPAC	Working Group	76	1	37	2	Is there still a Subdivision Requirements Manual? If so, it is likely no longer in the Planning Department, but rather in Development Services								
EEPAC	Working Group	77	1	38	4	update submission requirements and room #s.Some paper copies should continue to be required as reports with maps are easier to review in hard copy than on line.								
EEPAC	Working Group	78	1	38	4	all maps used should be to the same scale, rarely get Terms of Reference in the EIS, sometimes do not get CVs with qualifications, particularly certification in ELC								
EEPAC	Working Group	79	1	39-40	3	Appendix D re Edge effect.Should this be revised and included in restoration and monitoring? Only appears on page 13 and page 125 in Guideline 5.0.Edge effects are rarely discussed when new edge is created.Rare is an EIS that requires some form of mitigation								
EEPAC	Working Group	80	1	41	2	A flow chart could be helpful.See page 11 of City of Ottawa EIS Guideline (2015) for an example.Something should be included about EEPAC's review as being part of the process.Guelph's EAC is included in its Guideline document								
EEPAC	Working Group	81	1	N/A	4	currently, no update is required when a subdivision proceeds in phases or there is a delay after draft approval.The EIS should be revisited when there are phases or delays.This is Ottawa's approach (see page 14 of Ottawa's 2015 EIS Guideline								
EEPAC	Working Group	82	1	N/A	4	currently, there is little done to analyze function, the focus is on features.In Ottawa, The EIS must specifically discuss the nature and extent of the ecological functions provided by the site, its relationship to the surrounding area. The EIS must include: a description of ecological functions provided by the site and identification of any functions that have contributed to the area being identified as significant.An assessment of the significance of the function, using quantitative information if possible, and relating this to the quality and integrity of the area; and, an assessment of the sensitivity of the function to the type of development proposed								
EEPAC	Working Group	83	2	N/A	3	Data Collection Standards for the Ecological Inventory needs to be based on detailed evaluations of the subject areas/sites and its' existing conditions that will be undertaken in accordance with specific field investigations/inventories and studies such as Environmental Impact, geotechnical, hydrogeological, as well as the state of art methodologies and environmental protocols that will be employed and reference in this ToR								
EEPAC	Working Group	84	2.3		1	Assessment of Development Impact (direct and indirect impact) needs to be assessed by presenting of viable alternatives where the identified impact will be defined in specific details (potentially evaluated short and long term impacts), as well as all considerations of protection measures, mitigation or compensation and monitoring will be presented together with the estimated costs of these options.								
EEPAC	Working Group	85	2	42	4	are the baseline data from the subwatershed studies ever used?It would help if they were given the date of the work would show changes on the landscape.								
EEPAC	Working Group	86	2	43	4	unlikely there are sites where data is now less than three years old.Where data is over 10 years old, data collection shall be required.Not sure tho of the scientific basis for the time periods (e.g. : years, etc).Guelph considers data older than 5 years as "limited in its accuracy."								
EEPAC	Working Group	87	2	44	3	We cannot find the "North-South Environmental Inc., 2003" reference. We contacted Merrick Sharpe, owner of North-South Environmental Inc. and he was unable to determine what this reference might be without a full citation. Therefore, we recommend either removing this section entirely or providing the full citation.								
EEPAC	Working Group	88	2	44	2,4	Natural Heritage Reference Manual (2010) and Ecoregion 7E SWH criteria should be used as the basis for drafting a new section on data collection.								
EEPAC	Working Group	89	2	44	3	Early Summer (June) guidelines for birds should also appear in the Spring (May) guidelines. Spring section should include specific guidelines for birds and other relevant species. Rationale: spring migrants relying on stopover sites in London and area (i.e. critical habitat) will already be passing through, and early breeding species will have breeding activity. Spring ephemerals may bloom as early as March and June is too late for easy detection in some years, especially when considering climate change.								
EEPAC	Working Group	90	2	44	4	The 2007 EMG indicates that "the Significant Wildlife Technical Guide (OMNR, 2000) is the standard reference guideline for conducting field investigations for specific natural features." If the reference is to the "Significant Wildlife Habitat Technical Guide (OMNR, 2000), <a href="https://docs.ontario.ca/documents/3620/significant-wildlife-habitat-technical-guide.pdf">https://docs.ontario.ca/documents/3620/significant-wildlife-habitat-technical-guide.pdf</a> ", then the EMG should be updated to clearly reflect this. However, this document does not provide guidelines on conducting wildlife inventories, leaving the EMG without detailed guidelines in this regard.								
EEPAC	Working Group	91	2	44	3	Regarding the point beginning with "Spring (May) target species...", the reader should be directed to the Marsh Monitoring Protocol provided in full here: <a href="https://www.bsc-eoc.org/download/mmpqualplan.pdf">https://www.bsc-eoc.org/download/mmpqualplan.pdf</a> and summarized here: <a href="https://www.birdscanada.org/volunteer/glmmp/?targetpg=glmpmpfrog">https://www.birdscanada.org/volunteer/glmmp/?targetpg=glmpmpfrog</a> .								
EEPAC	Working Group	92	2	45	4	vii, ix, x are rarely if ever included.They should.Make the list of technical information a shall rather than a should								
EEPAC	Working Group	93	2	45	3	There is no mention of non-vascular plants. Some effort should be made to include survey of non-vascular plants such as mosses, fungi, and lichens, because they are a vital part of the vegetation community and are frequently used as indicator species. Other provinces have such guidelines, e.g."BC Inventory and Survey Methods for Rare Plants and Lichens"								
EEPAC	Working Group	94	2	46-47	3,4	Current timing is inadequate and misses early spring. Migratory bird data can be found at: <a href="https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html">https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html</a>								
EEPAC	Working Group	95	2	46	3	There is a broken link referenced in this sentence: "Priority birds species for each municipality should be determined from Couturier, 1999, Bird Studies Canada website bsc-eoc.org." Refer instead to the Ontario Breeding Bird Atlas. A list of priority birds for each municipality exists at this address: <a href="https://www.bsc-eoc.org/dataentry/codes.jsp?page=region">https://www.bsc-eoc.org/dataentry/codes.jsp?page=region</a> if you select the reference sheet "Region Checklist and Migration/Breeding Dates" and select "London" as the atlas region. Since this checklist is difficult to find, it may be included as a separate table within the EMG.								
EEPAC	Working Group	96	2	46	3	Cadman et al., 1987 atlas has been digitized and updated (data from 2001-2005), available here: <a href="https://www.birdsontario.org/atlas/secondatlas.jsp?lang=en">https://www.birdsontario.org/atlas/secondatlas.jsp?lang=en</a>								
EEPAC	Working Group	97	2	46	3	include species with a Conservation Coefficient of 6 or greater and their location, for birds use the most recent Ontario Bird Atlas and Partners in Flight.Consider using vegetation sampling protocol from U of Toronto ( <a href="http://forestry.utoronto.ca/vsp/">http://forestry.utoronto.ca/vsp/</a> )Reference should include the most current edition of The Southern Ontario Vascular Plant Species List.Current version is 3rd edition (2013) and includes S Rank								
EEPAC	Working Group	98	2	46	3	Oldham (1996) can be replaced with the most recent edition: Oldham, M.J. & Brinker, S.R. (2009). Rare Vascular Plants of Ontario, Fourth Edition.Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario.								
EEPAC	Working Group	99	2	46	3	The NHIC website writes that they use standardized methods "developed by the international NatureServe network of conservation data centres" to assign global, national and subnational ranks. Thus, the NatureServe network should also be cited on this page ( <a href="https://www.natureserve.org/conservation-tools/conservation-status-assessment">https://www.natureserve.org/conservation-tools/conservation-status-assessment</a> ).								
EEPAC	Working Group	100	2	46	3	The long-form reference states that the most recent report from COSEWIC is from 1996; however, the most recent edition is really from 2018, found here: <a href="https://wildlife-species.canada.ca/species-risk-registry/sar/assessment/wildlife_species_assessed_e.cfm">https://wildlife-species.canada.ca/species-risk-registry/sar/assessment/wildlife_species_assessed_e.cfm</a>								
EEPAC	Working Group	101	2	46	2	In regards to the following sentence "Provincially rare species are those listed with a sub-national rank (S-rank) of S1 to S3 in Oldham (1996, Natural Heritage Information Centre (NHIC)website and MNR species at risk in Ontario (Bowman, 1996) and COSSARO," NHIC should be defined above, not here. Subnational ranks are also from NatureServe, so should be cited here (link above). Oldham & Brinker (2009) can be cited here as well. The long form citation list suggests that the most recent COSARRO report is from 1996. It is actually from 2007, found here: <a href="https://www.ontario.ca/laws/regulation/080230">https://www.ontario.ca/laws/regulation/080230</a>								
EEPAC	Working Group	102	2	46	4	Lists of the species observed, reported or expected to occur on or adjacent to the site, presented in tabular format (usually as an appendix) with notes on the species' relative abundance at the site, its residency status (i.e., is it present year-round, seasonally or only periodically; does it live on the property, forage there or use it as part of a movement corridor) and the evidence supporting its inclusion on the list (e.g., sighting, tracks, previous report);								
EEPAC	Working Group	103	2	46	3,4	Guelph's 2017 Guideline, Appendix F:Wildlife Survey Guidance includes a wide variety of fauna and flora.This appendix would be beneficial to the new Guideline								
EEPAC	Working Group	104	2	46	3	Weller (1994) appears to be the most recent summary of Ontario herpetofauna, but another citation can be added: Oldham, M.J. (2003). Conservation Status of Ontario Amphibians.Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario.								
EEPAC	Working Group	105	2	46	3	Holmes et al., 1991 can be replaced by the online Ontario Butterfly Atlas (2019) found here: <a href="http://www.ontarioinsects.org/atlas_online.htm">http://www.ontarioinsects.org/atlas_online.htm</a>								
EEPAC	Working Group	106	2	47	3	In regards to information under the subheading "Breeding Bird Survey", readers should also be directed to breeding bird survey guidelines provided by the Ontario Breeding Bird Atlas (found here <a href="https://www.birdsontario.org/download/atlas_feb03.pdf">https://www.birdsontario.org/download/atlas_feb03.pdf</a> ).								
EEPAC	Working Group	107	2	47	3	Existing protocols for water chemistry are inadequate. For example, no mention of testing for heavy metals. Should have an inventory of possible tests for water quality, with lists of justification for each of the tests i.e. factors that may trigger the requirement for certain tests. Could possibly include bare minimum (tests that are always required) and supplemental								
EEPAC	Working Group	108	2	47	3	"base flow (water velocity, stream order, water depth, stream width and bankfull width)" This should also explicitly mention measurement of discharge volume								

EEPAC	Working Group	109	2	48	3	Under the heading "Fisheries Inventory", readers should also be referred to standardized protocols for Fish Community Sampling provided by the Ontario Stream Assessment Protocol: <a href="https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2019/06/05112225/osap-master-version-10-july1-accessibility-compliant_editfootnoteS1M4.pdf">https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2019/06/05112225/osap-master-version-10-july1-accessibility-compliant_editfootnoteS1M4.pdf</a>					
EEPAC	Working Group	110	2	48	3,4	Rarely see aquatic habitat work done even when a water course exists. Even subwatershed study information is ignored. So the issue is not the content but whether or not such assessments are still required.					
EEPAC	Working Group	111	2	48	3	Under the heading "Benthic Survey", readers should also be referred to standardized protocols for Benthic Macroinvertebrate Assessments provided in the Ontario Stream Assessment Protocol <a href="https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2019/06/05112225/osap-master-version-10-july1-accessibility-compliant_editfootnoteS1M4.pdf">https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2019/06/05112225/osap-master-version-10-july1-accessibility-compliant_editfootnoteS1M4.pdf</a>					
EEPAC	Working Group	112	2	48	4	Under the heading "Habitat Assessment and Stream Analysis," the EMG recommends measuring dissolved oxygen, temperature, pH, conductivity, water colour and transparency. Here, conductivity should be replaced with specific conductivity, which is measured on all standard YSI water chemistry probes and takes into account the temperature-dependence of conductivity. Probes which measure dissolved oxygen, temperature and pH also generally measure oxidation-reduction potential (ORP). ORP can reflect the antimicrobial potential of the water, so is a useful indicator of water quality that should be mentioned here. The EMG should also recommend that readers record the presence/absence of algal blooms, as such algal blooms may suggest eutrophication in the aquatic system. Water chemistry analysis of major ions/anions can indicate the cause of eutrophication (e.g., elevated nitrogen and/or phosphorous) so should be collected as part of Habitat Assessment and Stream Analysis. The Minnesota Pollution Control Agency provides separate guidelines for water chemistry analysis for lakes, rivers and streams, and wetlands: <a href="https://www.pca.state.mn.us/water/water-monitoring-standard-operating-procedures">https://www.pca.state.mn.us/water/water-monitoring-standard-operating-procedures</a>					
EEPAC	Working Group	113	3	N/A	1	Guidelines Document for ESA Identification, Evaluation and Boundary Delineation will be required to include all applicable and viable information that in detailed will identified al ecological/environmental functions and featured of the subject ESA and adjacent areas and environmental/ecological relations to the existing subwatershed studies and environmental criteria established in this sub watershed. Also all applicable specific field investigations/inventories and studies such as Environmental Impact, geotechnical, hydrogeological, as well as the state of art methodologies and environmental protocols studies shall be included.					
EEPAC	Working Group	114	3	51-54	2	turn into an Appendix if still seen as needed. Otherwise, delete					
EEPAC	Working Group	115	3	55	2	2.1 and 2.2 are likely not necessary anymore					
EEPAC	Working Group	116	3	56	2	#8 should be revised. No need to reference the pre ELC material					
EEPAC	Working Group	117	3	57	2	if retain, make into a colour map. Perhaps use Map 5 of the London Plan?					
EEPAC	Working Group	118	3	58	2	not sure this needs to be retained. If so, use colour					
EEPAC	Working Group	119	3	59-76	3	is there a need to update references included in the glossaries and at the end? Otherwise, the criteria in general have been agreed to and there is no dispute that they have been workable					
EEPAC	Working Group	120	3	67	2,3	Is the OWES reference still current? Add to the application section, flood attentuations, retention and other modifications of nutrients and other chemicals in surface water, long term storage o atmospheric carbon dioxide, erosion control and groundwater recharge					
EEPAC	Working Group	121	3	70	3	update this Criterion to include Significant Wildlife Habitat for Ecoregion 7E					
EEPAC	Working Group	122	3	71	2,3	update DFO references that conclude the page. Another possible reference is AQUATIC ECOSYSTEM CLASSIFICATION FOR THE GREAT LAKES WATERSHED IN ONTARIO (2004)					
EEPAC	Working Group	123	3	72	4	Update rare plant list reference to : Oldham, M.J., and S.R. Brinker. 2009. Rare Vascular Plants of Ontario, Fourth Edition. Natural Heritage Information Centre, Ontario Ministry of Natural Resources Peterborough, Ontario. 188 pp.					
EEPAC	Working Group	124	3	72-73	3	update references. For example, there is an Nrank. Include in the reference list Significant Wildlife Habitat Technical Guide, October 2000, OMNR, in particular, Appendix M, Locations of known rare vegetation communities in Ontario					
EEPAC	Working Group	125	3	74	2	replace Glossary with page 48-49 of 2014 PPS or most current version					
EEPAC	Working Group	126	3	75	3	update reference list. Some may be found on EEPAC's list					
EEPAC	Working Group	127	3	77	3	4.2 - not sure Review Areas are still used (see also Guideline 3). Not sure the other planning considerations mention here have ever been defined. Not sure why it says 'should' rather than must. See also 'shoulds' in 3b, 5b and 8b-f					
EEPAC	Working Group	128	3	78-	2	if figures are used in the new version, update using software					
EEPAC	Working Group	129	3	79	3	Beacon's buffer document refers to Critical Function Zones. This should be added to Guideline 1.					
EEPAC	Working Group	130	3	79	3	Revisions to Guideline 1 - Habitat zones must be included, in their entirety, within the patch boundary. Habitat zones which contribute to the successful evaluation of a patch as part of the Nature Heritage System, must be included in their entirety. Conditions: Habitat zones are requirements for - species at risk, - nationally, provincially, regionally, or locally rare species, - forest-interior or area-sensitive species - Conservation Priority bird species for Middlesex					
EEPAC	Working Group	131	3	79	3	Revision to Guideline 2 - Rare to uncommon communities, locally, provincially, or nationally, must be included within the boundary. Rationale - Vegetation communities are important whether they are locally, provincially, or nationally rare or uncommon.					
EEPAC	Working Group	132	3	80	3	Revision to Guideline 3 - Projections of naturalized vegetation less than thirty metres (30 m) wide that extend from the main body of the patch: a) must be included within the boundary if the projection includes a wooded ravine or valley with untreed or successional habitat below the top-of-slope. b) should be included within the boundary if the projection provides/strengthens linkage with another patch less than 100 m away, or between two portions of the same patch or with a watercourse or wetland feature less than 100 m away c) must be included in the boundary if the projection lies below the maximum hazard line (EEPAC recommends that a graphic depicting scenario c) be added) d) must be included in the boundary if the projection is proximal to a Potential Naturalization Area or Potential Upland Corridor e) must be included in the boundary if the projection is located within a Carolinian Canada Big Picture Meta-Corridor (- The change in b) from 85 to 100 makes it consistent with woodland distances in Guideline #3 and #5. Scenario c) Applies the existing connection width requirements intuitively to the case where the watercourse is not immediately adjacent to the patch)					
EEPAC	Working Group	133	3	81	3	Guideline 4 - Watercourses: a) must be included within the boundary if the watercourse forms the boundary of the patch; and b) must be included within the boundary if the watercourse connects two or more patches within 85100 metres or connects between two portions of the same patch c) must be included within the boundary if the watercourse is i) a small watercourse and is within 30 m of the patch ii) a coldwater stream and is within 50 m of the patch iii) a larger river and within 100 m of the patch (EEPAC recommends that a graphic depicting scenario c) be added)					
EEPAC	Working Group	134	3	82	3	5b - how is it determined that a satellite woodland contributes to diversity and ecological function? What are the data that would support or reject the hypothesis? There is certainly research supporting the retention of small woodlands, so this Guideline should be revised to say satellite woodlands must be included. Reference - Small patches make critical contributions to biodiversity conservation, David Lindenmayer, <a href="https://www.pnas.org/content/116/3/717">https://www.pnas.org/content/116/3/717</a> <a href="https://phys.org/news/2018-12-small-isolated-habitat-patches-crucial.html">https://phys.org/news/2018-12-small-isolated-habitat-patches-crucial.html</a>					

EEPAC	Working Group	135	3	82	3	Satellite woodlands that are small less than 2 ha and have a round to square shape, and are located within 100 m of a larger woodland patch a) must be included within the boundary if the satellite contains rare species or significant communities b) should be included within the boundary if they contribute to biological diversity and ecological function of the larger patch. c) must be included within the boundary if they strengthen linkages to a permanent watercourse d) should be included within the boundary if they strengthen linkages between larger patches e) should be included within the boundary if they contain a watercourse or wetland feature f) must be included within the boundary if they are below the maximum hazard line g) must be included within the boundary if they are within a Carolinian Canada Big Picture Meta-Corridor (All satellite woodlands within 100 m provide some form of benefit to the larger woodland, to connectivity and to the Natural Heritage system overall. Biodiversity is key to the long term integrity of all flora and fauna. Areas contributing to biodiversity must be preserved.)					
EEPAC	Working Group	136	3	83	3	Guideline 6 - Marshes, Thicket Swamps or other Untreed Wetland communities contiguous with a patch and greater than 0.2 ha in size that are relatively undisturbed and dominated by native species that are obligate or facultative wetland species (with a coefficient of wetness values of -3 to -5) must be included within the boundary if: a) the wetland is contiguous with the patch should be included in the boundary if: b) the wetland strengthens a linkage between natural areas by filling in a bay or connecting two or more patches; or c) the wetland is located above the top-of-slope of a stream corridor or ravine; or d) the wetland strengthens a linkage between a patch to a permanent natural watercourse. (The lengthy qualifiers of the wetland are unnecessary. Wetland communities of all sizes and vegetative qualities provide important diversity and habitat and if they are contiguous with a vegetation patch, they must be included within the boundary.)					
EEPAC	Working Group	137	3	84	3	Add to Guideline 7:f) contribute to biological diversity and ecological function of the larger patch; or g) by their size and shape will, through natural succession, add to the amount of forest interior within the patch; or h) are below the maximum hazard line; or i) are proximal to identified Potential Naturalization Areas or Potential Upland Corridors; or j) are within a Carolinian Canada Big Picture Meta-Corridor					
EEPAC	Working Group	138	3	85	3	Plantations, including Christmas tree plantations, and abandoned orchards contiguous with patches of natural vegetation must be included in the boundary if the plantation or orchard: a) was originally established for the purposes of forest rehabilitation and/or has been managed towards a natural forest and/or has developed characteristics of a natural forest, such as natural regeneration of native species. A plantation should be included in the boundary if it: b) minimizes edge effects to natural heritage features by providing a buffer between the feature and the surrounding land use; or c) strengthens internal linkages or reduces edge to area ratios by filling in bays; or d) connects a patch to a permanent watercourse; or e) it connects two or more patches; or f) it is below the top-of-slope in a stream corridor or ravine or is below the maximum hazard line g) is proximal to a Potential Naturalization Area or Potential Upland Corridor h) is located within a Carolinian Canada Big Picture Meta-Corridor i) by their size and shape will, through natural succession, add to the amount of forest interior within the patch • EEPAC's experience is that any "should" condition rarely gets followed. The only way to accomplish greater protection is to change "should" to "must". • The max hazard line is a current terminology and any plantation within any kind of hazard area is best included for both hazard protection and ecological protection. • It is not sensible to remove a plantation in an area already identified for rehabilitation plantings that would provide strong ecological benefit and/or linkage function. • The science behind Carolinian Canada's landscape level connectivity map is well accepted. There is strong ecological benefit for retaining and creating treed areas within these connective corridors. • The value of an existing plantation is not dependent on the proportion of the patch area it happens to occupy. Conifer plantations are accepted to be highly valuable wildlife cover and food sources.					
EEPAC	Working Group	139	3	85	3	A Plantation must be included if it meets one of the criteria shown in 8b to 8f. 'Should' is too vague.					
EEPAC	Working Group	140	3	86	3	9b. Not sure what the word is before active pasture? 9c (which is labeled 9b) what is the definition of heavily managed? Why is the limit on size 1 ha? What happens if the amount of "managed" area has been expanded?					
EEPAC	Working Group	141	3	86	3	Guideline 10 needs a drawing. The house at 1582 Commissioners Road W adjacent to Warbler Woods is a good example. Envelope needs to be reviewed. Need to distinguish between "envelopes with buildings separately from those without. 10a is vague. What are site specific considerations?					
EEPAC	Working Group	142	3	86	3	an additional Guideline - Vegetation communities in areas of identified ground water recharge or watercourse headwater must be included in the boundary. (Groundwater recharge and headwater areas are important for water quality and quantity.)					
EEPAC	Working Group	143	3	87	3	habitat zone requirements can be updated. A good source is Categorizing and Protecting Habitat under the Endangered Species Act, (Ontario 2012).					
EEPAC	Working Group	144	3	87-89	2,3	update references. See EEPAC list					
EEPAC	Working Group	145	3	89	2	there is no section 4.0 - renumber if retain					
EEPAC	Working Group	146	3	91	2	consider deleting. Is Review Area used? What was the science behind making parts optional? This section seems inconsistent with the rest of the Guideline and is rife with subjective comments.					
EEPAC	Working Group	147	3	92	2	is this still needed? For example, an EMS was not in SWAP. They aren't in Secondary Plans either. The last Secondary Plan EEPAC reviewed came with a Subject Lands Status Report, not an EIS.					
EEPAC	Working Group	148	4	95	1	the only change is updating references and technical amendments to update references to the current London Plan from the previous OP, the current PPS, etc.). This Guideline has been adjudicated at the OMB and the courts. It should not be opened up again.					
EEPAC	Working Group	149	5		3	Guidelines for Determining Setbacks and Ecological Buffers shall include all applicable and viable information that in all required details will identify all ecological/environmental functions and features of the subject ESA and adjacent areas and environmental/ecological relations to the existing subwatershed studies and environmental criteria established in this sub watershed. Also shall determine all required measures to protect and maintain the existing level of protection of the existing environmental/ecological functions and features and be supported by ecological and environmental monitoring.					
EEPAC	Working Group	150	5	117	3	Beacon 2012 should be used to update this Guideline					
EEPAC	Working Group	151	5	118	3	While these terms are often used interchangeably, setbacks and buffers are not the same thing. A setback is the separation distance required between a natural feature (or hazard) and a project area to prevent impacts from occurring to either the feature or the project. It is sometimes referred to as the development limit. Buffers are areas of natural vegetation that serve to attenuate and otherwise reduce impacts on the natural feature and its functions. They may occupy part or all of a given setback distance, or may extend beyond the setback if the adjacent land use allows (e.g., passive park features, golf course roughs, undeveloped portions of private properties).					
EEPAC	Working Group	152	5	121	4	is this process still in use? Standardized? What is a management unit? Undefined!					
EEPAC	Working Group	153	5	124	3	Add here or page 126 under encroachment: McWilliam's work, e.g. Barriers to the effective planning and management of residential encroachment within urban forest edges: A Southern Ontario, Canada Case Study, Wendy McWilliam, Robert Brown, Paul Eagles, Mark Seasons, published in 2013 in Urban Forestry & Urban Greening (See EEPAC list of sources for other publications)					
EEPAC	Working Group	154	5	127	2	is this helpful? Delete?					
EEPAC	Working Group	155	5	128-129	3,4	not sure this is used or what the science behind it was. Use Beacon 2012 instead					
EEPAC	Working Group	156	6	131	3	2.1 - only native species must be used					
EEPAC	Working Group	157	6	132	3	2.2 - refer to London's Invasive Species Management Plan					

EEPAC	Working Group	158	6	131	2	EMG section 6 is well documents to avoid monoculture and select suitable plants. This section can be further improved. (a) Currently technology or concepts to explicitly deal with spatial heterogeneity is available, so landscape mosaic could be tailored to suite local niches, using precise data and modeling. Reference:Principles of Landscape Ecology , By: William R. Clark (Department of Ecology, Evolution, and Organismal Biology, Iowa State University) © 2010 Nature Education Citation: Clark, W. (2010) Principles of Landscape Ecology. Nature Education Knowledge 3(10):34; (b) Taking into consideration the complex nature of interaction among flora, fauna, microbes and changing environment, EMG -6 could be further refined to tackle future challenges. eg How native plants can be a growing ground for invasive pathogens Reference: 1. Peter Kotanen research at University of Toronto 2.Crous CJ, Burgess TI, Le Roux JJ, Richardson DM, Slippers B, Wingfield MJ. Ecological disequilibrium drives insect pest and pathogen accumulation in non-native trees. AoB Plants. 2016 Dec 23;9(1):plw081. doi: 10.1093/aobpla/plw081. [Epub ahead of print]. PMID: 28013250; PMCID: PMC5499825.					
EEPAC	Working Group	159	6	132	4	Update Planting Recommendation: List of woody plants: Due to climate change, taxonomic updates and more data about selected plants, some may not be suitable for London. Please revisit. There are current databases eg: <a href="http://www.torontozoo.com/adaptapond/urbanoutback/part53.html">http://www.torontozoo.com/adaptapond/urbanoutback/part53.html</a>					
EEPAC	Working Group	160	6	132	4	For current plant taxonomy information: <a href="https://www.uoguelph.ca/foibis/">https://www.uoguelph.ca/foibis/</a> The list is also published as a book with additional information as the "Flora Ontario" by Newmaster and Ragupathy 2012 which can be ordered by contacting Dr Newmaster (snewmast@uoguelph.ca)					
EEPAC	Working Group	161	6	135	3	delete Manitoba Maple?					

